Clinical papers / by J. Halliday Croom.

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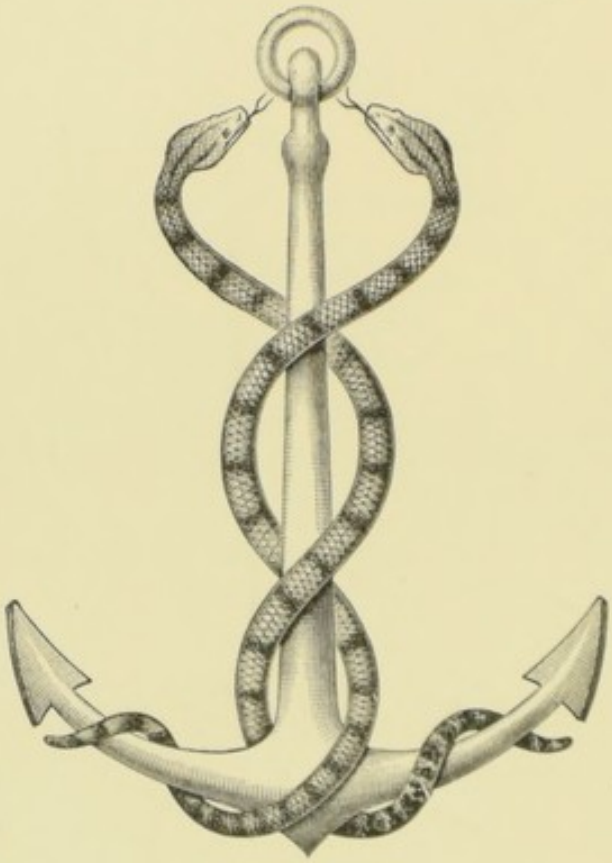
CLINICAL PAPERS.



NUNQUAM ALIUD NATURA, ALIUD SAPIENTIA DICIT.

CLINICAL PAPERS

BY

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TO

MY FORMER RESIDENTS

IN

THE ROYAL INFIRMARY AND

ROYAL MATERNITY AND SIMPSON

MEMORIAL HOSPITAL.

PREFACE.

THESE papers have been selected, not for their intrinsic value, but rather in grateful recognition of the years my Residents and I have been associated in each of the Hospitals, and as a remembrance of some of the work we have together done there.

EDINBURGH, 25 CHARLOTTE SQUARE,
June 1901.

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CLINICAL PAPERS.

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Premature Sexual Development, in relation specially to Ovarian Tumours, with an Illustrative Case of Ovarian Sarcoma in a Child of Seven; Laparotomy; Recovery.

Prior to a detailed description of the patient under consideration in the present paper, it may be of some interest if I make a somewhat rapid survey of cases of a similar nature which have been recorded.

Precocious menstruation with associated premature sexual development, although by no means unique in its occurrence—as the medical literature of this country, of the Continent, and of America attests—is yet of sufficient rarity to invest it with at least a transient interest to the observer, when such an anomaly does present itself.

After a perusal of the available literature at my hand, I have tabulated the cases found recorded under the following heads, and have, where the case seemed one of more outstanding peculiarity, shortly epitomised its history:—

(1) Precocious menstruation with an early appearance of the external manifestations of puberty; (2) sexual development without menstruation; (3) menstruation previous to development of the sexual organs; (4) early conception and pregnancy; (5) premature sexual development associated with tumours of the generative organs.

1. One of the most striking cases illustrative of this

group is the oft-quoted one of de Beau,[1] to which statement he considered it advisable to append the signatures of four physicians, a mayor, and a British consul.

The history is as follows:—"Matilda H. was born on 31st December 1829. She came into the world with her mammæ perfectly formed, and the mons veneris covered with hairs, as much as a girl between 13 and 14 years old. When precisely 3 months old, the catamenia made their appearance, and have continued to appear regularly every month until the present time (1832), and as copious as any woman might have them, each period taking four days. Her mammæ are now of the size of a full-grown orange; and the dimensions of the pelvis are, in my opinion, such as to enable her to bear children when 8 years old, and very likely sooner."

Campbell reports[2] a case where the catamenia set in a few days after birth, and occurred regularly at periods of three weeks and two or three days. This continued till she died, at the age of 4 years. The post-mortem appearance was like that of a girl of 10 or 11, the mammæ and external genitals having the appearances proper to puberty. The development of the pelvis and of all the deep-seated genitals was very considerable.

R. B. Smart[3] gives a table of eight recorded cases, and describes in full detail a case coming under his observation, with two accompanying photographs of the patient. The catamenia in this girl appeared at 3 years and 6 months, and the down on the pubes shortly antecedent to that.

Bouchat narrates[4] the history of a girl, Nelly O., and the appearance she presented at the age of 4 years. She had been born with the breasts notably enlarged, commenced to menstruate at the age of 22 months, and at the time of examination presented the appearance of puberty, as regards her breasts and genitals. Menstruation in her case was

[1] *Am. Journ. Med. Sc.*, vol. xi.
[2] *North. Journ. Med.*, 1845.
[3] *Med.-Chir. Trans.*, London, 1858.
[4] *Gaz. d. hôp.*, Paris, November 1876.

very regular in its recurrence, lasting four and six days, and equivalent in quantity to that of an adult.

In an article on "Early Puberty" Harris classifies precocious menstruation under two varieties—(1) occurring during infancy; (2) between the ages of 7 and 13 years; and records a case, coming under his own observation, of a girl in whom menstruation appeared at the age of 9½ years, and in whom the other evidences of puberty manifested themselves.

C. E. Harle[1] records the result of a post-mortem examination on a child which had commenced to menstruate at the age of 5 months, and this returned regularly till the fourteenth month, when the child died of diarrhœa. The pudendum was large and clothed with hair, the uterus was large, the os patent, and the lips congested, the vessels of the broad ligament were injected, and both ovaries were cystic.

The other cases I have noted under this category are the following:—

Author.	Menstruation Commenced.	External Appearances.
Sir Astley Cooper in *Med.-Chir. Trans.*, London, 1813.	3 years.	In breasts, axillæ, and on pubes.
Thomas Embling, *Lancet*, London, 1848.	2 ,,	Mammæ and pubes.
Dr. Aveling, *ibid.*, 1866, gives a reference list of sixteen cases by different observers.	...	...
Prochownik, *Arch. f. Gynaek.*, Berlin, 1881.	1 ,,	In breasts, axillæ, and on pubes; internal organs not enlarged.
Berry, *Med. Press*, London, for 1882.	5 yrs., 4 mths.	Breasts and genitals.
A. van Denveen, *Am. Journ. Obst.*, N.Y., 1883.	4 months.	Mammæ greatly enlarged.
Four of the following cases are cited by Pozzi in his "Gynécologie":—		
Cabade, *Gaz. méd. de Paris*, 1883.	8 ,,	Rapid development.
Wallentin, "Inaug. Diss.," Breslau, 1886.	1¼ years.	...
Casati, *Raccoglitore*, Fano, 1886.	6 ,,	Rectal examination, utérus pubère.
Diamant, *Internat. klin. Rundschau*, Wien, 1888.	6 ,,	External genitals.
Jagoe, *New York Med. Journ.*, 1889.	2 ,,	,, ,,

[1] *Brit. Med. Journ.*, London, 1880, vol. i. p. 848.

Table of Cases of Ovariotomy in Infants and Girls under Thirteen, mainly from Bland Sutton.

Reporter.	Age.	Reference.
Küster . . .	1 year, 8 months.	*Deutsche med. Wchnschr.*, Leipzig, 1883.
J. F. Hooks . .	2 ,, 6 ,,	*Am. Journ. Obst.*, N. Y., vol. xix.
Kidd . . .	2 ,, 11 ,,	*Obst. Journ. Gt. Brit.*, London, vol. viii.
Alcock . . .	3 years.	*Lancet*, London, 1871, vol. ii.
Schwartz . .	4 ,,	*Arch. f. Gynaek.*, Berlin, Bd. xiii.
Thomas . .	3 years, 5 months.	*Am. Journ. Obst.*, N. Y., 1880, vol. xiii.
Thornton . .	4 years.	*Med.-Chir. Trans.*, London, vol. lxx.
Boldt . . .	4 ,,	*Trans. N. Y. Path. Soc.*, 1888.
Mears . . .	6 years, 8 months.	*Phil. Med. Times*, Nov. 1, 1871.
Ewens . . .	7 years.	Unpublished.
Thornton . .	7 ,,	*Brit. Med. Journ.*, London, 1881, vol. ii.
Lucas . . .	7 ,,	*Trans. Clin. Soc. London*, vol. xxi.
Halliday Croom .	7 ,,	*Edin. Med. Journ.*, Feb. 1893.
Cupples . .	7 years, 6 months.	*Richmond and Louisville Med. Journ.*, 1875 (see *Edin. Med. Journ.*, vol. xx.).
Spencer Wells .	8 years.	*Brit. Med. Journ.*, London, 1874, vol. i.
Leopold . .	8 ,,	*Arch. f. Gynaek.*, Berlin, Bd. vi.
Chenoweth . .	8 years, 6 months.	*Am. Journ. Obst.*, N.Y., vol. xv.
Peaslee . .	9 years.	"Ovarian Tumours," p. 59.
Malins . . .	9 ,,	*Lancet*, London, 1890, vol. i.
Dickinson . .	10 ,,	*Trans. Path. Soc. London*, vol. xxv.
Wagner . .	10 ,,	*Arch. f. klin. Chir.*, Berlin, 1884, Bd. xxx.
Emmet . .	10 ,,	*Am. Journ. Obst.*, N. Y., vol. xiv.
Halliday Croom .	11 ,,	*Trans. Edin. Obst. Soc.*, vol. xiv.
Jouon . . .	12 ,,	*Gaz. hebd. de méd.*, Paris, 1869.
Barlow and Marsh	12 ,,	*Trans. Clin. Soc. London*, vol. xi.
Keith . . .	12 ,,	*Brit. Med. Journ.*, London, 1878, vol. ii.
Lee, Robert . .	12 ,,	*Med.-Chir. Trans.*, London, vol. xliii.
Griffiths . .	12 ,,	*Trans. Path. Soc. London*, vol. xxviii.
Schultze . .	12 ,,	*Deutsche Ztschr. f. prakt. Med.*, Leipzig, 1876.
Wegscheider .	12 ,,	*Beitr. z. Geburtsh. u. Gynaek.*, Berlin, 1870.

2. The indication of a sexual prematurity, as manifested by the outward signs on the breast and the pudenda, unaccompanied by a menstrual discharge, is unusual. Few

instances of this have been noted, but that described by William Cook [1] is distinctive enough.

"Louisa Flux was born in 1802. Up till her fourth year she was remarkably thin, but apart from this there was no abnormal feature. The external pudenda now became prominent and covered with a quantity of dark hair. Within four months of her death, which occurred on October 1, 1809, she began to suffer from convulsions, after which she increased enormously in weight, and her complexion became florid. Her cheeks were downy, and her lip was covered with so much hair that it might be said she had a beard. Her voice, formerly shrill, now became strong, and her whole contour was that of puberty, except the breasts and the general stature. The post-mortem appearance: No change had taken place in the internal organs of generation, the ovaries and uterus not having received that increase of size which is usual at puberty. The mons veneris and labia pudendi were as prominent as at perfect puberty, and covered with long black coating hairs. Menstruation had not taken place."

3. Menstruation occurring without any change in the genitals is not so unusual as the preceding, but even thus it is rare for a child to have the catamenia established for a period of years without other phenomena presenting themselves.

Pozzi cites [2] Bernard's case, reported in the *Lyon méd.*, 1887, of a girl who menstruated regularly from birth up to the age of 12 years without any development of her external genital organs.

In the same class may be included those cases noted by the following authors:—

Allbutt's [3] case, where menstrual discharge occurred periodically until the youthful patient died of exhaustion.

[1] *Med.-Chir. Trans.*, London, 1813.

[2] "Traité de gynécologie."

[3] *Med.-Chir. Trans.*, London, 1866.

Author.	Reference Work.	Development.	Menstruation.	Impregnation.	Delivery.	State of Child.
Müller . .	"Cyclop. of Obst. and Gynec."	Excessively at birth.	2nd year.	8 years.	Instrumental, 8–9 months.	Dead.
Schmidt .	"Essais historiques," 1779.	Sexual organs developed.	2nd ,,	...	8 years, 10 months.	Full term, dead.
Bodd . .	...	...	1 year, irregular; 7 years, regular.	...	8 ,, 10½ ,,	...
Molitor. .	...	Hair on pubes at birth.	4th year.	8 years, 3 months.	Premature, 5th month.	Fœtus, three months.
Dodd . .	*Lancet*, London, 1881.	Pubes and axilla covered with hair.	12 months.	8 ,, 10 ,,	...	Weighed 7 lb.
Rowlett .	*Trans. Med. Journ.*	A few weeks after birth.	12 ,,	9 ,, 3 ,,	10 years.	,, 7¾ lb.
Bayliss . .	*Boston Med. and S. Journ.*, 1846.	...	9 years, 10 months	...	10 years, 8 months	Alive, weighed 8 lb.
Robertson .	"Midwifery."	...	...	12 years.	12 years, a few months.	...
Smith . .	*Lond. Med. Gaz.*, 1848.	No history.	10 years.	11 ,,	12½ years.	Fully developed.
May . .	*Lancet*, London, 1880.	...	Once before conception.	...	13 ,,	Well developed.
Heywood Smith.	*Brit. Med. Journ.*, London, 1881.	...	12 years, 6 months	12 years, 8 months	13 years, 4 months	...
Wilson . .	*Edin. Med. Journ.*, 1861.	No precocity.	...	12 ,, 9 ,,	13 ,, 6 ,,	Full grown.
Chapman .	*Assoc. Med. Journ.*, 1856.	...	...	13 ,, 1 ,,	13 ,, 10 ,,	,, ,,

Clarence Harding reports[1] that in a family of two daughters, both suffered from periodic discharge, hæmorrhagic in character, and in the elder of whom the discharge vanished, only recurring when puberty was established.

4. Many remarkable instances of early pregnancy have been put on record by trustworthy authorities, the majority of which cases in this country have occurred after the age of 12.

There is, however, in Continental literature, no great scarcity of pregnancies reported as occurring at a much earlier period.

The table of cases on p. 6, which I have collected from various sources, has been arranged in precedence of age. The majority at least bear evidence of being reliable.

5. It has been asserted that among the causes tending to produce changes in the sexual apparatus, peculiar to puberty, we should include neoplasms affecting, or related to, the internal generative organs. This would appear, however, to be far from the usual rule, and rather the exception. With a view to ascertaining the frequency of this occurrence, I have examined the records of twenty-six laparotomies performed on children under puberty, and in one case only does there seem to have been signs so marked as to arrest the attention of the operator, so far as to give a description of the child's appearance. On this occasion the narrator and operator was Mr. R. Clement Lucas.

Besides this, Dr. Keith remarks regarding one of his patients, a girl of 13, that she was very tall, and had an unusually large quantity of black hair on her head, about the genitals, and on the pubis. She had never menstruated. Mr. Lucas gives his report.[2]

The child was æt. 7, and had had a hæmorrhagic discharge from the vagina, which recurred whilst she remained in hospital. The mammæ were firm and about the size

[1] *Lancet*, London, 1879, vol. ii. p. 71.
[2] *Trans. Clin. Soc. London*, 1888.

of oranges, the mons veneris of unusual elevation, and covered with hair about 1 in. in length. There was a tumour of the right ovary, which was removed, and the child made a good recovery. The vaginal discharge disappeared, and the mammary prominence subsided before leaving hospital.

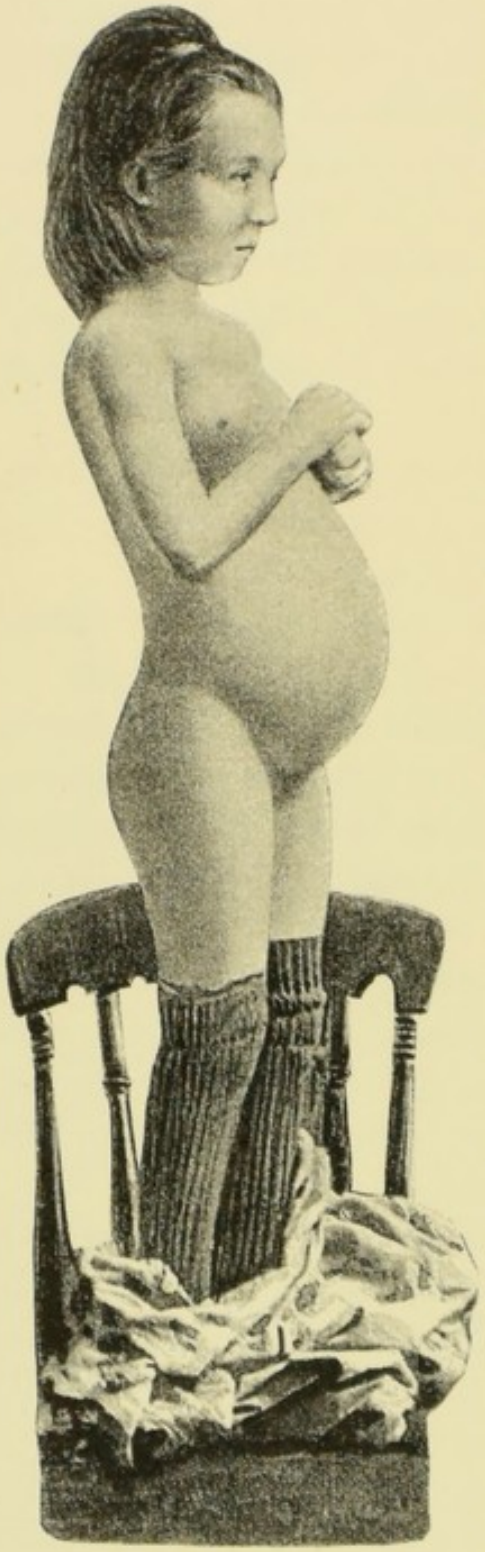

Fig. 1.

The case which formed the basis of this paper was sent to me by Dr. Forsyth of Eyemouth. Her history was as follows:—She was a child æt. 7, suffering from a large abdominal tumour. Previous to March of this year she had been perfectly well, presenting no abdominal symptoms whatever. In this month she was raped by a boy on several occasions. Immediately thereafter she had a profuse hæmorrhagic discharge from the vagina, which continued almost uninterruptedly until her admission to hospital in the month of November, namely, seven months later. Shortly after the rape her abdomen began to swell, and gradually enlarged, until, on her admission to my ward, she had a tumour about the size of a seven months' pregnancy, with the following measurements:—Vertical, 7½ in.; transverse, 7¼ in.; left oblique, 8 in.; right oblique, 7½ in.

The impression on her admission to hospital was, that the tumour was a pregnancy, notwithstanding her extreme youth, and this was very considerably emphasised by the fact that her mammæ were largely developed, that there was a well-marked linea nigra passing from the umbilicus to the pubis, that there was a copious development of hair over the mons veneris and the external surface of the labia majora, as shown in the accompanying illustration, and that a well-marked bruit could be heard on both sides of the tumour.

The tumour was freely movable, tense, and firm, but had apparently no intimate connection with the pelvis. This want of connection with the cavity of the pelvis, as well as its absolute solidity, notwithstanding the apparent indications otherwise, decided me against the possibility of pregnancy. Under anæsthesia, therefore, I examined the patient per vaginam, and found the remains of the hymen thick, but completely penetrated, the vaginal walls being smooth, and the cervix enlarged, very soft, and somewhat patulous. The sound was then introduced into the uterus, which was found to be enlarged, being slightly over 3 in. This manipulation caused free hæmorrhage. The possibility, then, of pregnancy in a bihorned uterus naturally presented itself, but a prolonged examination of the patient—by no means an easy matter in a child—satisfied me that the tumour was unconnected with the uterus, as this organ could be mapped out bimanually, and the conclusion arrived at was that it was a pediculated ovarian.

In considering the question of pregnancy, the pelvic measurements were taken, and found to be—interspinous, 8 in.; intercristal, $8\frac{3}{4}$ in.; external conjugate, $6\frac{1}{4}$ in. It is especially noteworthy that the development of her pubic hair, the uterine hæmorrhage, and the growth of the abdominal tumour, as well as the appearance of the linea nigra, were all phenomena entirely subsequent to the interference with her genital organs, and therefore apparently consequent upon

her rape. In the same connection it is well to observe the mother's statement, that the mammæ were enlarged to such an extent at birth that the development of mammary abscesses was feared. This goes far to show that the child had a tendency to precocity in development, which only required the stimulus of the repeated sexual acts to mature the activity both of the uterus and ovaries. Her mental development was rather under average.

The operation was undertaken on the 25th November. On cutting through the abdominal parietes, the bluish surface of the tumour at once indicated its true character. There was some degree of ascites. The tumour was aspirated, but only a small quantity of sero-sanguinolent fluid was withdrawn. There were no adhesions, and the tumour was perfectly free in every direction. The abdominal incision had to be enlarged up to within 1½ in. of the ensiform cartilage, owing to the fact of the tumour being absolutely incompressible. It was removed through the abdominal wound, and found to be attached to the left side of the pelvis by a long pedicle, which was secured in the ordinary way. The Fallopian tube was greatly distended and tortuous. The ovary on the opposite side was quite small and undeveloped. The tube on the same side was hypertrophied. The uterus was enlarged, corresponding to the dimensions indicated by the sound previous to operation. The abdominal wound was closed, and the child made an uninterrupted recovery. The chart showed the usual temperature curve in ovariotomy performed on children.

The tumour weighed over 6 lb. Its surface was smooth and soft, and its walls were very vascular. In its substance were a number of cysts separated by loose septa, which were very fragile. The cystic contents were grumous or gelatinous and transparent fluid. The microscopic appearances were those of a rapidly growing round-celled sarcoma with mucoid degeneration in parts.

On the 11th January 1893, the child was examined under chloroform before dismissal from hospital. The mammary outline is much less distinct, and the dark areola has somewhat faded. The linea nigra is less distinct, but there appears to be rather an increase of hair on the pubis. The labia minora, which had been large and dark, have now assumed a normal size and colour, and are less gaping; while the vaginal mucous membrane, previously dark and injected, has become of a normal pinkish colour. On vaginal examination, the cervix is found to be small and closed, and to have resumed its infantile form. The sound now only enters to the extent of 2 in., being a full inch less than before operation, and there is no hæmorrhage from the vagina.

On Some Peculiar Relations of Abdominal and Pelvic Tumours.

The object of the present communication is to place on record some cases of abdominal tumours which have had exceptional and peculiar relations. That it is often the unexpected which occurs is equally true in abdominal surgery, as it is in daily life, and perhaps in no department of surgery do unlikely complications occur more frequently than in that to which I now refer.

I have no intention of discussing difficulties and mistakes in diagnosis, both of which are grave and frequent, but rather to refer to a series of cases of ovarian, fibroid, and other tumours which presented peculiar and interesting relations.

Case 1.—First of all, with regard to ovarian tumours, the accompanying diagram (Fig. 2) will sufficiently show a very unusual position and relation of an ovarian cyst. It indicates a distinct dull area above the umbilicus, while between that point and the pubes the resonance is clear and tympanitic. The tumour was fixed, spherical, and cystic, and its nature was a matter of extreme doubt. On opening the abdomen, the characteristic blue appearance of an ovarian tumour was at once recognised. It was quite free of adhesions everywhere, except on the anterior surface, where it was attached to the abdominal wall. The pedicle was the longest I have ever seen, measuring 10 in., and was not in the least twisted, which in itself is a remarkable fact. It is equally remarkable that this tumour should have become

attached in the upper abdomen rather than lower down. The history throws some, though little, light on the peculiar features of the case. The patient was a young lady, æt. 25, sent to me from Ardrossan. Menstruation was perfectly regular; she was in the enjoyment of robust health, and complained of no symptoms whatever except distension of the abdomen and occasional attacks of peritonitic pain. For some months previously she had complained of urinary discomfort, and two months before I saw her, after a long night of dancing, she fainted, and thereafter was laid up with abdominal pain from slight peritonitis. Beyond that there is nothing in the history of the case of any importance.

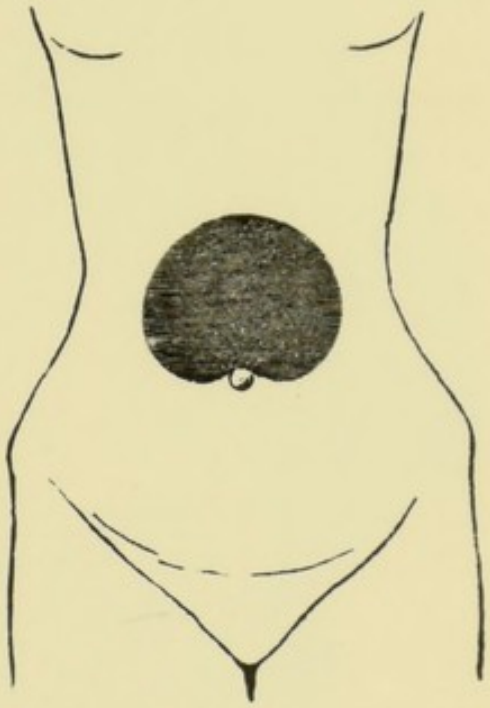

FIG. 2.

The usual mechanism of the growth of all ovarian tumours with long pedicles is, that in the first stage the tumour is in the pouch of Douglas, with the tube coursing in front and transversely across the ovary. In this stage the bladder is pressed upon, and discomfort in micturition arises. Afterwards the tumour, as I pointed out in another communication, slips out of the pelvis, accompanied often by a certain amount of shock, and there is along with it often a torsion of the pedicle, usually at the uterine end, and a screw-like action commences, the uterus being left low down below the tumour. This particular case offered obviously an exception to the rule, and the tumour early formed adhesions to the parietal peritoneum, which possibly prevented the rotation of the tumour. As the history showed, the girl did complain of urinary troubles and nothing else, until after a night of pro-

longed dancing, when she fainted, suffered for some time afterwards from abdominal pain, and it was then the tumour was discovered. I have no doubt whatever that the tumour was freed from the pelvis by the patient's active exercise in dancing, and that, on escaping into the abdomen, its rapid enlargement was the immediate cause of the pain and peritonitis. As to how it reached its situation so high up in the abdomen, I do not venture to offer an explanation. A history of a tumour like this is, of course, very different from what occurs in intra-ligamentous or sessile tumours, where the uterus is lifted up by the growing tumour, and the neoplasm continues pelvic as well as abdominal during its life history. I may mention that the operation, as can be readily understood, was simple.

In regard to the length of the pedicle, Sir Spencer Wells[1] records a case where he diagnosed a floating kidney, and later operated for an ovarian cyst on the opposite side, and then discovered the supposed floating kidney was an ovarian tumour with a pedicle over a foot long.

Case 2.—A young woman presented herself at the Hospital with no very definite symptoms, except irregular menstruation and obscure pelvic pain. On examination, a tumour about the size of a small cocoanut was found occupying the pouch of Douglas, displacing the uterus upwards and forwards. The tumour was very tense, and, owing to its disposition with regard to the uterus, it was diagnosed as a sessile ovarian cyst. On opening the abdomen, and passing my hand into the pouch of Douglas, the tumour slipped up into the abdomen. It was quite free of any adhesions, and I was able to lift it out entire without securing or ligaturing anything whatever. It proved to be a simple ovarian cyst, and this was corroborated by the absence of the ovary on the right side. On putting my hand into the pelvis afterwards, I found no trace

[1] *Med. Times and Gaz.*, London, 1878, vol. i. p. 672.

of any pedicle, and there was no hæmorrhage whatever. The surface of the tumour was smooth, save at one point, where

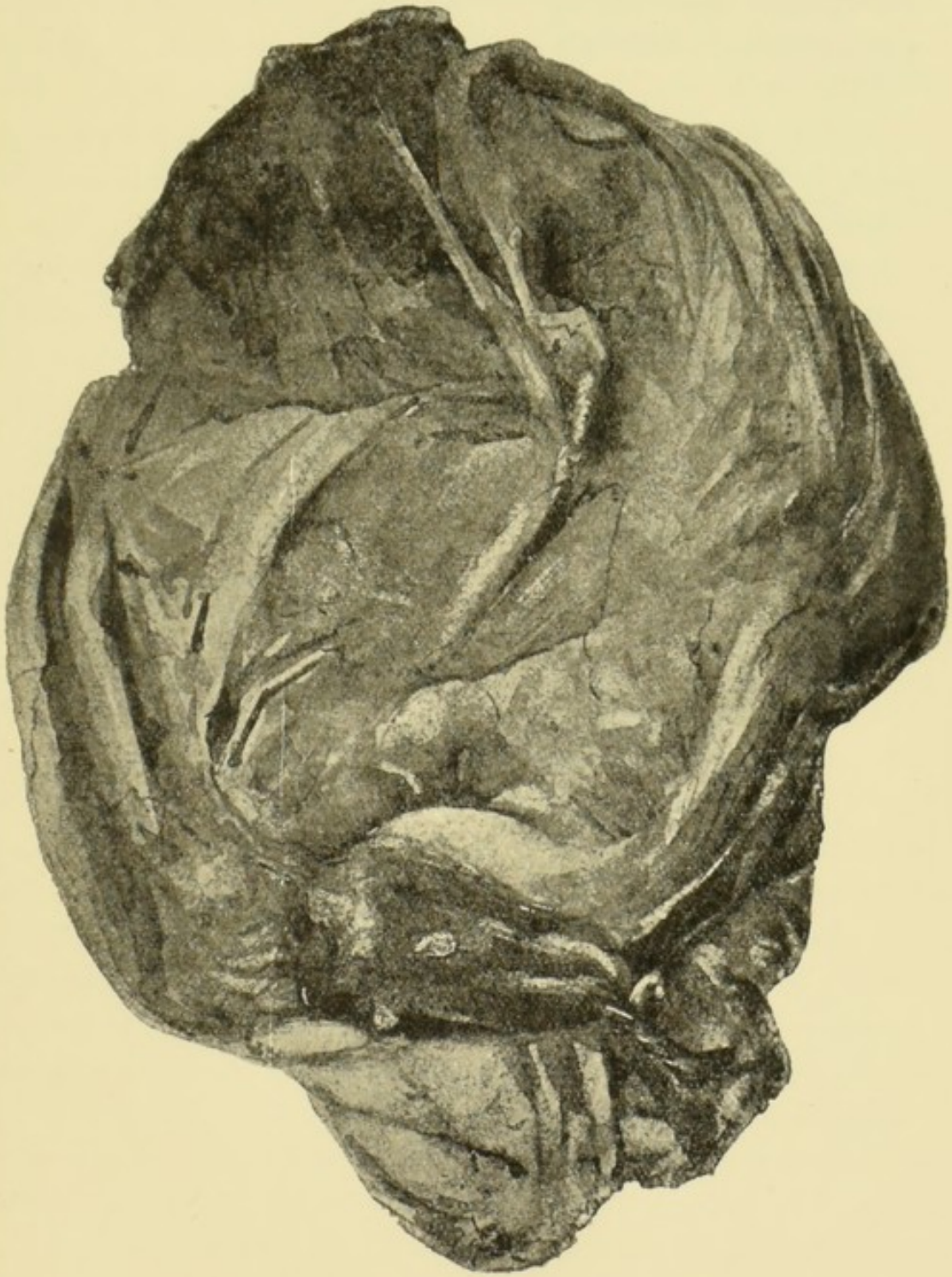

FIG. 3.

there was a little roughness. The problem, of course, is to account for the method by which this neoplasm was separated from its attachments and subsequently nourished.

One cannot but think that the only possible explanation is, that the small pedicle had been unconsciously torn during removal; if that were so, no trace of it could be found, and there was no hæmorrhage.

Case 3 presented some remarkable features. The patient, a married woman, was sent to me as suffering from acute peritonitis. After the severity of the inflammation had somewhat subsided, she was found to have a small dull area between the symphysis and the umbilicus, and a cystic tumour, probably with a twisted pedicle, was diagnosed. On opening the abdomen, the usual dark appearance of an ovarian tumour, into which blood had been extravasated, was observed. The tumour was adherent to the anterior wall, and, on being separated and removed entire, it was found that the pedicle was not only twisted and very small, but had given way (see Fig. 3) close to the neoplasm. Evidently this separation had taken place some time previous to operation, because the pedicle was dry and firm, and there was no indication of hæmorrhage. The pelvic end of the pedicle was not secured, for the very good reason that it could not be found.

Case 4 I record simply as a curiosity, because I am not at all sure of its nature. The facts are these:—E. M. was sent to the Hospital by Dr. Lindsay of Balfron, and the case seemed a simple parovarian tumour, which extended upwards to 1 in. above the umbilicus. After opening the abdomen, and exposing and tapping the tumour, which was pale in colour, one slight adhesion to the abdominal wall was secured with catgut, and thereafter the tumour was simply pulled out of the abdomen by my assistant, there being no further adhesion and no apparent attachment to any pelvic or abdominal organ. The fluid was absolutely clear, like water, and the tumour was not ovarian, because the ovaries

were intact. What it really was I regret to say I cannot tell, because the preparation was unfortunately destroyed immediately after the operation, through some misunderstanding. Here, again, it is remarkable that a tumour of such size should have maintained an independent existence in the abdominal cavity, with only a slight adhesion to the abdominal wall.

I have twice been called upon to operate on tumours occupying the pouch of Douglas, giving rise especially to bladder trouble, and in which, after the lapse of a week or two between the diagnosis and the day of the operation, the tumours have completely disappeared, rendering, of course, operative interference unnecessary. As no operation was performed, and fortunately no autopsy necessary, I can only surmise that these tumours were parovarian cysts, whose contents were perfectly harmless, which had ruptured and collapsed.

I have seen a somewhat similar case of a pear-shaped tumour on the left side of the uterus in a woman æt. 35, married, with three children, suffering from constant pain in the side, premenstrual dysmenorrhœa, menorrhagia, and leucorrhœa. From the shape of the swelling, the symptoms it gave rise to, the easy recognition of the ovary, and the apex of the tumour running into the uterus, I regarded it as a dilated Fallopian tube. Between seeing her at the hospital and her return for operation, a fortnight later, the tumour had entirely disappeared, leaving nothing but a slight fulness in the fornix. As no untoward symptoms resulted from its disappearance, it was either a ruptured hydrosalpinx or a hydrops tubæ profluens.

Case 5.—Another remarkable case of a disappearance of an abdominal tumour is that of Mrs. S., who was sent to me by Dr. John Moir of St. Andrews, in January 1895. She was admitted to my ward, suffering from a large abdominal

cystic swelling, situated rather more to the right side than to the left. Her history was, that she had complained of pain and swelling in the right side for two years, and during the past five months the tumour had considerably increased, while the pain had become much aggravated. The patient was markedly cachectic in appearance, so much so, that in spite of the undoubtedly cystic character of the tumour, it was believed to be of a malignant nature. Three days after admission, about 8 P.M., she suddenly complained of great exacerbation of pain, so that the administration of morphia was necessary. Thereafter the patient passed and continued to pass all night an enormous quantity of dark-coloured urine, and in the morning it was found that the tumour had entirely disappeared. From that moment the patient's general condition improved, and up to the present date there has been no return of the local symptoms.

Case 6.—A still more remarkable case, which must be very exceptional if not unique, and which I have recorded elsewhere,[1] may not be without interest in this connection. It was, in brief, that of a patient who was admitted to hospital suffering from premenstrual pain, menorrhagia, and sterility. On examination, a firm, hard tumour, about the size of a billiard ball (Figs. 4 and 5), was found lying in the pouch of Douglas. I decided to remove it, and on opening the abdomen and introducing my fingers into the pouch of Douglas, with great ease I lifted up the tumour, which was free of any

Fig. 4.

[1] *Trans. Edin. Obst. Soc.*, vol. xiv. p. 97.

attachment of any kind. No ligatures were required, there being nothing to secure, and there was no hæmorrhage. The patient made a good recovery, and subsequently became pregnant. The walls of the tumour, on examination, were found to be those of the Fallopian tube much thinned, and the contents old blood clot. It was therefore a case of hæmatosalpinx, whether from an early extra-uterine pregnancy, it is impossible to say. I know of no other possible explanation of this anomaly.

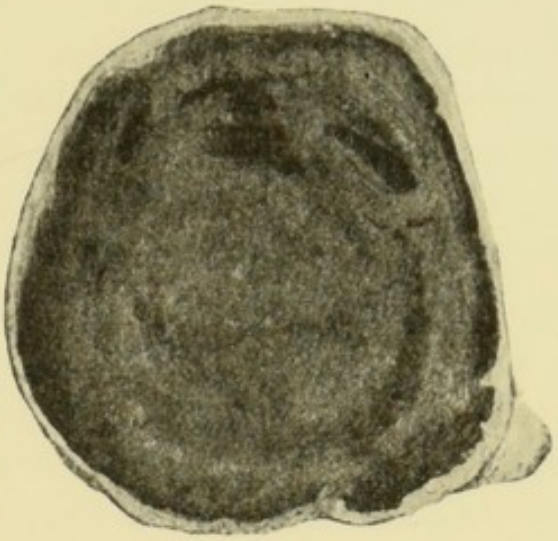

Fig. 5.

So far as I can discover, I can find no reference to detached ovarian tumours or cystic tumours without some definite relation to an abdominal or pelvic organ. It is true that Sir James Simpson[1] says he has seen several cases in the dead body, in which tumours were lying free in the abdominal cavity, but he gives no details, and evidently refers to fibroids, as he says that the tumours had no connection with the uterus.

With regard to some of the tumours I have just referred to, they must be very rare, but the case is somewhat different when we come to speak of fibroids; and they may be in this connection looked at under three heads:—(1) Fibroids with slight attachments to the uterus; (2) those actually detached; (3) those detached from the uterus, but adherent to other structures.

1. With regard to semi-detached fibroids, the following two cases may be of interest, in which the pedicle presented peculiar features, with unexpected results in dealing with it.

[1] "Diseases of Women," p. 667.

The first case I saw with Dr. Drysdale of Dunfermline. Its history is long and tedious. Suffice it to say that the operation was undertaken, on account of long and continuous hæmorrhage, and the presence of a tumour in the pouch of Douglas about the size of a large orange. On opening the abdomen and pulling the tumour up to the surface, it was found to be a subperitoneal fibroid, which could be easily dealt with. The pedicle was small and thin, and, having passed a needle through it in the usual way, so as to apply a ligature previous to removal, and while gently tightening it, the ligature came away in my hands, while the tumour remained in those of my assistant. Naturally I expected alarming hæmorrhage, but there was very little, only a slight oozing from a small denuded surface on the posterior wall. The peritoneum was drawn together over this surface, and the ovaries then being removed, the operation was speedily completed.

The other similar case occurred in hospital, and was so exactly similar to the foregoing, that I need not repeat the details.

The interest of these cases lies in the peculiar nature of the pedicle, and explains how tumours may become completely detached from the uterus. In most cases of subperitoneal fibroids the pedicle is firm and fibrous, and is continuous with the tumour on the one hand and the uterus on the other. In these two cases the fibrous tissue was entirely absent, the pedicle consisting of only two layers of peritoneum, and on removal the denuded surface of the uterus was quite smooth.

It can be easily understood that a tumour like this, situate in the pouch of Douglas, would be a considerable time in separating; but, had it been free in the abdominal cavity, one can easily imagine that it would drag on the thin vascular peritoneum, interfering with the blood supply, and ultimately causing separation. Such conditions of pedicle

would account for some of the second class of subperitoneal fibroids, namely—

2. Those which are found free in the abdominal cavity. Although these are referred to in most text-books, I have had considerable difficulty in finding reference to actual cases. I have not met with any in my own experience. Turner[1] refers to a case in which a calcareous fibroid was found free in the pouch of Douglas, and Depaul[2] found a fibroma entirely free in the same situation without any adhesions whatever.

I have already referred to the post-mortem cases mentioned by Sir James Simpson.

3. As to the third variety, they occur apparently much more frequently; that is to say, cases which have either become spontaneously detached, and formed adhesions with other viscera, or, while still remaining attached to the uterus, have become adherent to other structures. It is one of the characteristics of fibroids that they are, unlike ovarians, quite free, and do not readily form adhesions with surrounding structures. And yet a few well-authenticated cases are recorded, in which a pediculated subperitoneal fibroid has severed its connection with the uterus, and formed adhesions with other parts, and thereby derived its nourishment. Thus Homans[3] reports a uterine fibroid, which had been completely separated from the uterus, and had caused death by intestinal obstruction, it having formed adhesions with the intestines, and was nourished apparently from the omentum. The tumour weighed $2\frac{1}{2}$ lb., and on this one case Homans insists strongly on the removal of all subperitoneal fibroids to prevent a similar accident, which, considering the frequency of pediculated subperitoneal fibroids, and the rarity of intestinal obstruction from this cause, seems a somewhat

[1] *Edin. Med. Journ.*, 1861, p. 698.
[2] *Bull. Soc. anat. de Paris*, tome xix. p. 15.
[3] *Boston Med. and S. Journ.*, vol. xx. p. 165.

unnecessary radical operation. Huguier[1] and Nélaton[2] each record cases in which subperitoneal fibroids have become independent of the uterus, and attached themselves to some part of the pelvic circumference. Sir James Paget,[3] however, points out that fibroid tumours found in the pelvis, unattached to the uterus, sometimes are not the result of separation of the pedicle and adhesions to neighbouring parts, but are really primarily tumours of the muscular tissue of the round ligaments, or utero-vesical or utero-sacral folds.

I have not myself met with any detached uterine fibroid tumour which had formed connections with surrounding structures, but I have met with one which, attached to the fundus anteriorly by a long pedicle, had prolapsed into the pouch of Douglas, and there formed extensive adhesions to the rectum. It was removed with considerable difficulty, and its removal resulted in a cure of long-standing dysmenorrhœa.

Although it scarcely falls within the scope of this paper, it seems a suitable opportunity to refer to an exceptional relation of the liver and kidney respectively. As both of these cases have already been recorded elsewhere, I merely make a general reference to them now. The first was a case sent to me from Broughty-Ferry, where I found a large tumour occupying the whole abdomen, and which I could feel, per vaginam, projecting into the pouch of Douglas. It proved to be a large sarcoma of the liver. The other case was one in which a patient, a multipara, suffered from extreme pelvic and lumbar pain, and on examination I found a mass high up in the pouch of Douglas, and which I conceived to be a pelvic, probably ovarian, tumour. However, on opening the abdomen, it was found to be the lower end of a floating kidney.

I have ventured to record these cases simply because

[1] *Gaz. d. hôp.*, Paris, 1860, p. 411. [2] *Ibid.*, 1862, p. 77.
[3] "Surgical Pathology," p. 140.

such anomalies can, I believe with advantage, be reported for the benefit of future operators. It always seems to me that the records of mistakes and disappointed anticipations are equally if not more useful than the records of endless series of successful diagnoses and treatment.

A Group of Abdominal Sections: (1) Ovarian Tumour with Twisted Pedicle; (2) Cholecystotomy; (3) Enucleation of Ovarian Tumour; (4) Drainage; (5) Porro-Cæsarean Section.

The following cases of abdominal section present some features of special interest:—

1. A group of cases of ovariotomy complicated with twisting of the pedicle. I have met with four such cases in my last group of sixty. This accident is at once a comparatively frequent and interesting one. It is, further, a very serious one, as records of the post-mortem room abundantly show.[1]

Perhaps the most complete essay on the subject is that of Knowsley Thornton,[2] who found fifty-seven cases out of 600, upon which he had operated. Schröder, out of ninety-four cases of ovariotomy, had thirteen cases of twisted pedicle. Nothing supports the plea for early ovariotomy more than these cases. Nothing indicates more clearly that an ovarian tumour should be dealt with as soon as it is diagnosed. Take three illustrations, one of delayed and two of prompt interference.

Case 259.—Mrs. T. was seen by Dr. David Menzies on Thursday, December 25, in acute suffering and somewhat collapsed. The pain came on suddenly after some slight exertion, and was localised in the lower abdomen, accompanied

[1] Rokitansky described thirteen cases, of which eight were found in the post-mortem room.

[2] *Internat. Journ. Med. Sc.*, Edin. and London, 1888, vol. xcvi. p. 357.

by vomiting. When seen later on, the abdominal pain was general and intensely severe, and could only be modified, not entirely relieved, by large opiates. Through the tender abdominal walls a tumour could be recognised, cystic in character, and passing up from the pelvis on the right side to midway between pubes and umbilicus. The nature of the case was obvious enough. Two days after, the tumour was removed with entirely satisfactory results. The temperature at the time of operation was 103°, and pulse 130. The relief to the patient was immediate. The tumour showed intense congestion, not only in its walls and contents, but in the tube also. The pedicle was twisted four times.

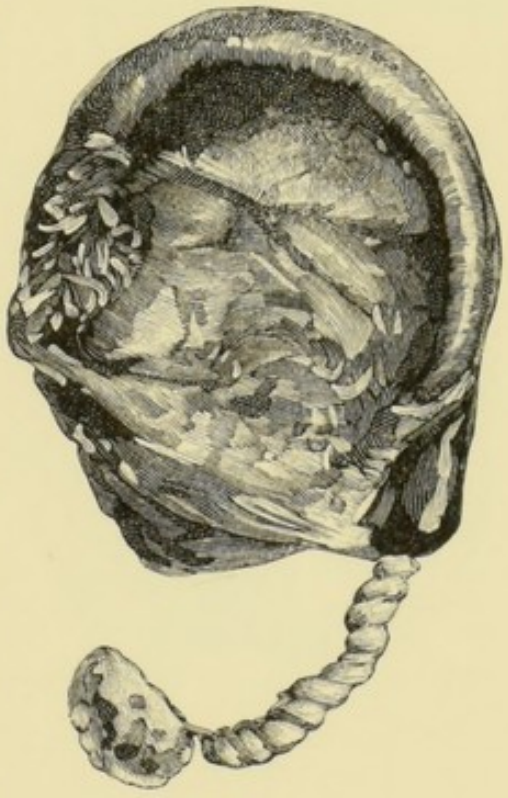

Fig. 6.

Case 234 was seen by Dr. Cappie on September 16, apparently suffering from acute peritonitis, which had come on early in the morning after an extra exertion in cleaning. Dr. Cappie recognised the general peritonitis, and, passing his hand over the abdomen, felt the tumour. Next day he asked me to see the case with him.

I operated two days after, while still the peritonitis was marked, and removed the tumour, which is represented in Figure 6, showing a well-marked twisted pedicle (there were altogether twelve twists), and though the adhesions were many, they were recent and easily managed. The patient did absolutely well, without a single hitch.

Compare this again with Case 210, which had been seen early in November 1889, and diagnosed as an ovarian

tumour, but the recommendation of the physician who saw it was that nothing should be done beyond the application of a bandage. This was done. What occurred to her in the meantime I do not know, beyond that she pursued her ordinary avocations. In any case I saw her six months afterwards with acute peritonitis. The ovarian tumour was there beyond a doubt. I operated some days afterwards, and found the tumour dark, black, and almost gangrenous, surrounded by numerous adhesions—peritoneal, intestinal, and indeed general. These were managed in the usual way, and the tumour removed. The patient died very shortly afterwards, and no wonder. If she had been operated on six months previously, it is as absolutely certain as anything can be that she would have been alive now. The accompanying figure (Fig. 7) shows the pedicle extremely attenuated, not larger than a crow-quill.

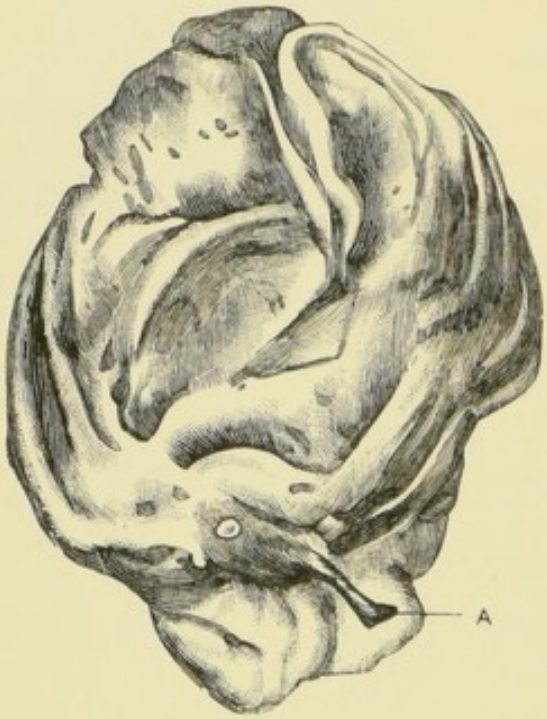

Fig. 7.

I am well aware that Knowsley Thornton denies that gangrene ever occurs as the result of twisting of the pedicle, but I mean to say that the tumour I now refer to was as distinctly cut off from all circulatory help through the pedicle as any tumour could be. It will further show the nature of the tumour, when I say that the adhesions were old and firm, and by no means vascular. It will not be difficult to understand that the tumour was not very different from a gangrenous mass.

The sort of growth that Thornton refers to is more a matter of transplantation, and occurs in those tumours which

are dermoid, and which are nourished, even after strangulation of the pedicle, by their vascular adhesions.

These three cases illustrate the condition very fairly. In all of them the adhesions were extensive, and to these, along with the peritonitis, the danger of the case is mainly due. The contents in each case were clotted and dark fluid blood. I did not meet with any one containing pus, nor did I meet with a dermoid tumour, which Thornton says is so frequent under such circumstances. The diagnoses were not difficult; the presence of the tumour and the sudden and acute pain over the region of it, with more or less collapse, were sufficiently indicative of the condition. Of course, acute peritonitis very often masks the condition, but a careful examination into the history and local conditions will, in most cases, make the diagnosis clear.

It seems very difficult to account for the accident. Tait attributes its occurrence to the passage of fæces down the rectum. This may be the case in many, but obviously cannot be in all, because the twist is by no means always in the same direction, namely, from left to right, but frequently from right to left.

Thornton suggests that in the cases in which he met with it the patients were multiparous and young, and in active menstrual life, and the twist was the result of some sudden accident or strain. He also refers to tapping the cyst, and leaving it as a possible cause of twisting, and I can readily understand how this takes place, though I have not met with cases of the kind.

Alban Doran explains it by the presence of the costal cartilages above, and the pelvic structures below, the tumour moving freely, laterally, and anteriorly.

In two of my cases the accident seemed to occur after the tumour had just emerged from the pelvis. Being freed from the restraint of the pelvic walls, the cyst enlarges rapidly, and, being movable in the abdomen, the pedicle

becomes stretched and the tumour tense, so that the movement of the intestines and abdominal walls causes it to rotate on its own axis. It is only by some recurring cause such as this that ten or twelve twists can be accounted for. Any accident or strain may cause one, but the difficulty is to explain the repeated twist. In the two cases I refer to, the tumours were known to exist in the pelvis previous to the occurrence of the twist, and in both cases the patients were conscious of rapid abdominal enlargement. It seems likely that the filling and emptying of the bladder, giving rise to increased or diminished abdominal pressure, may play a more active part in the production of these repeated twists than the rectum.

2. The next case of interest is one of cholecystotomy. The patient, a married woman, æt. 45, was sent to me by Dr. Macleod of Hawick as suffering from gall stones. She was suffering pain over her liver, and had repeated attacks of jaundice. I could feel no swelling over the border of the liver, only an obscure tenderness. As her attacks of jaundice were frequent, however, and the tenderness over the liver, though slight, yet continued well marked, I arrived at the same conclusion as Dr. Macleod, that she was suffering from gall stone.

The ordinary incision was therefore made in the side, and with some difficulty the median fissure of the liver was reached, and the small shrunken gall bladder with difficulty recognised. It was not bigger than a filbert, and was firmly contracted round the gall stones. It was drawn with difficulty to the surface and incised, and two gall stones were extracted. The gall bladder was sewn to the abdominal wall, and the fistula treated in the ordinary way. The operation was a long, tedious, and difficult one, lasting over an hour and a half. The patient was well that night and the following day, but died suddenly with obscure symptoms, and as no post-mortem was allowed, I cannot give any definite explanation of the untoward result.

The extreme contraction of the gall bladder was interesting, and it is entirely due to the information gained from Mr. John Duncan that I was able to recognise the gall bladder in its small and attenuated state, he having described a similar condition. When the gall bladder is large, and forms a distinct cystic tumour, it is sometimes apt to be mistaken for a kidney; but when the distension is moderate, the diagnosis of the condition is simple, and the operation comparatively easy. This extreme contraction of the gall bladder rendered it very difficult to bring it to the surface, and still more difficult to stitch it to the walls.

Küster's method seems to me in such cases more satisfactory and much easier, namely, to extract the calculi and close the internal wound. This operation has been performed repeatedly and with satisfactory results, notably by Küster,[1] Zielcwicz,[2] and Stewart.[3] Another, easier still, would be the operation of cholecystectomy; but then it has not yet been shown that the gall bladder is superfluous, though two cases have been recorded where the operation was immediately successful, though what was the ultimate effect I am unable to say.

Though the issue of my case was unfortunate, yet the general result in gall bladder surgery is entirely satisfactory. For instance, Mayo Robson had fourteen cases, all of which recovered, not to mention Tait's brilliant results in this form of interference. Kocher, Sanger, Thornton, and many others, all record lists with a single death. Of course there will always be two great sources of danger both in cholecystotomy and cholecystectomy, namely, bleeding and peritonitis, for one can never be sure that the stitches in the gall bladder will hold, for the walls themselves are diseased.

These operations are not by any means easy when the bladder is small, as my own case indicates; but statistics

[1] *Arch. f. klin. Chir.*, Berlin, 1887, Bd. xxxvi.
[3] *Centralbl. f. Chir.*, Leipzig, May 31, 1888.
[2] *N. Y. Med. Journ.*, May 25, 1889.

show that, with due care, they are attended with little danger, and what risks do exist are fully compensated by the great relief obtained. Of course the diagnosis of gall stones will always be difficult, and twice I have refused to operate because I could not satisfy myself of their presence. Certainly the symptoms are very uncertain, and unless the tumour can be felt, the diagnosis is doubtful.

3. I have been obliged to resort to the enucleation of sessile tumours on three occasions.

These tumours have invariably originated in the broad ligament. They offer, perhaps, the greatest difficulty of any set of cases that I have met with. When such a case occurs, after the hand has been carefully passed round the whole site, and the relation of the tumour carefully settled, one of two things can be done. Make an incision in the peritoneum, say, in the middle of the tumour, and set to work to peel the peritoneum straight off it, securing any vessels with forceps as the case proceeds. Ultimately, when the base of the tumour is reached, it is simply lifted out, and the bare, bleeding peritoneum left beneath. The peritoneum is then ligatured by an ordinary knot at the base, and the redundant peritoneum removed. This, however, is not uniformly possible. Sometimes, as in one of my cases, the peritoneal base was so big and broad that it required to be stitched by a whole series of ligatures.

In the one case where I was obliged to do this, the patient made an excellent recovery; and in one other case, where the peritoneum was easily stripped off, easily ligatured, and equally easily removed, the patient died, the reason being that in the former case the tumour was small, and the shock comparatively slight; whereas in the other case the tumour was half as big again as an ordinary full-time pregnancy, and had been repeatedly tapped before I saw her, and the shock on removing the fluid and stripping off a large

amount of peritoneum was of course correspondingly great.

Certainly, enucleation of ovarian or broad ligament cysts is an enormous addition to the possibilities of abdominal surgery, and, though requiring care and trouble, gives, at least when the tumour is small, excellent results.

4. The following case illustrates the need of careful drainage and washing:—

The most interesting of these was Case 201. She was a lady of 38 years of age, sent to me by Dr. Macnee of Inverness, and on opening her abdomen I found an ovarian tumour about the size of an ordinary football. After emptying the cyst, and separating the adhesions above, I found there was no trace of pedicle whatever. I therefore proceeded to enucleate, and, having made an incision in the peritoneum towards the base of the tumour, I succeeded in separating the one from the other. The remaining peritoneum and broad ligament had to be secured by separate ligatures in three places. The peritoneal cavity was carefully washed out, but no drainage tube was used. Three days afterwards patient showed symptoms of internal hæmorrhage; I therefore placed her under chloroform and reopened her abdomen, and removed several pints of dark fœtid blood. I again washed her abdomen carefully out, put in a drainage tube, and for six weeks there was a continuous outpouring of dark fœtid blood. Each day the cavity was washed out; and at the end of two months she went back to Inverness quite well.

5. In my last sixty cases of abdominal section there have been three hysterectomies, all of which proved successful. The first two were for fibro-cystic tumours of the uterus. The only points of interest about them were, that in both I freed the broad ligaments; and what seems to me equally

important, in both I used the elastic ligatures, through which I put ordinary pins, and then allowed the pedicle to slough off. My previous experience of all forms of metallic clamp had been so unsatisfactory, that indeed, until the three to which I now refer, I had never had a successful hysterectomy—I mean, of course, by abdominal incision. To the last of the hysterectomies I wish to draw special attention.

I. H., æt. 25, a dwarf, was recommended to me by Dr. Basil Orr as a suitable case for Cæsarean section, in February 1890. She gave the following history:—She had noticed a swelling in her abdomen for the last four months, which was rapidly increasing in size. She had not menstruated since September, seven months ago, but otherwise was in good health.

On examination she presented all the usual signs of pregnancy, the uterus being, however, drawn up entirely out of the pelvis, which gave the following measurements:—

Conjugata vera .	$1\frac{1}{2}$ in.	Interspinous . .	$8\frac{1}{2}$ in.
Conjugata externa	$5\frac{1}{4}$,,	Intertrochanteric .	$10\frac{1}{4}$,,
Intercristal . .	$8\frac{3}{4}$,,	(Height of patient, 3 ft. 8 in.)	

Of course delivery *per vias naturales* was an absolute impossibility; therefore operation was recommended about the middle of the ninth month; but as some uneasiness and suspicious labour symptoms showed themselves at the end of the eighth month, it was thought advisable to perform operation at that time.

The question then arose as to the nature of operation to be undertaken, and the choice lay between Cæsarean section and hysterectomy by Porro's method. Cæsarean section has given excellent results in Germany, and the remarkable series of successful cases of Dr. Cameron of Glasgow entirely bear these out. In my case the special indications for a Porro-Cæsarean section were not present, namely—

1. When the uterus is the seat of any disease, such as myoma, which if left behind might soon require removal.

2. When the patient has already been so long in labour that it is probable that the discharge is beginning to decompose, or when she has been examined by persons who may easily have infected her, or where she shows evident signs of infection having taken place.

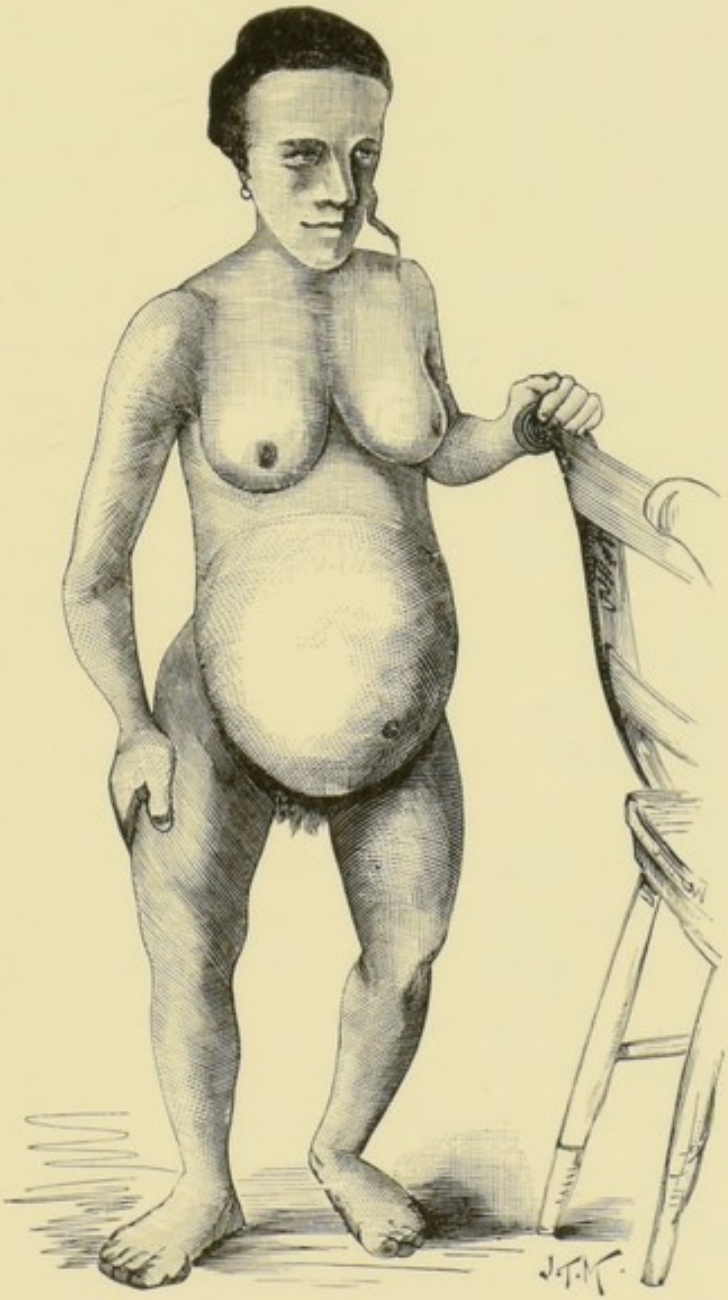

FIG. 8.

Although this girl presented none of the indications insisted on, yet to my mind three considerations weighed with me in deciding on the Porro operation :—

1. The operation is itself much easier and more rapid than the Cæsarean section.

2. It would, if successful, save the woman from any risk of a similar operation having again to be performed.

3. There was no object to be attained by preserving her uterus.

The simplicity of the operation, and the immunity of the patient from any further trouble, decided the point, and there-

fore Porro-Cæsarean was performed on the 30th April last. This was, as I anticipated, simple and rapid. The incision was made from umbilicus to pubes, and the uterus rapidly exposed. The uterus was pressed up close to the abdominal wound, and made to protrude somewhat through it. I then carried a strong elastic ligature over the uterus down to the cervix. This was the only difficult part of the proceeding, and the difficulty lay in keeping the intestines out of the bite of the ligature. This ligature was then drawn tight, and held so. Immediately this was secured, I made an incision in the uterus, very fortunately escaping the placenta. The fœtus was quickly extracted, firm pressure being all the while made by the elastic ligature. The child when born showed symptoms of asphyxia; but, thanks to the efforts of Dr. J. C. Webster, it was with difficulty resuscitated. After the birth of the child, strong needles were inserted through the knot on the elastic ligatures and cervix, the uterus amputated, and the wound closed. The whole operation lasted about twenty-five minutes, and was done under careful antiseptic precautions. There was no shock whatever.

Size of child.—Weight, 4 lb. 6 oz.; length, 17 in.

Diameters of fœtal head at birth.—O.M., 4·75; F.M., 3·5; S.O.B., 3·5; B.P., 3·5; B.T., 3; B. front., 2·4; trach. breg., 3·5. The uterine stump dropped off on the thirtieth day after operation. Child and mother both doing well after a lapse of six months.

The last case to which I venture to refer is one of extra-uterine gestation at term.

Case 6—when first seen with Dr. Dickson of Newton-Stewart—presented all the appearance of a woman at full-term pregnancy; but her enormous size and the constant pains from which she suffered, as well as the history of her case, made Dr. Dickson suspicious. When I saw her she was suffering from a large abdominal tumour, reaching up to her

ensiform cartilage, and its dimensions were larger than a full-time pregnancy. The history of her case was, that six months previously she had suffered, after three months' menstrual suppression, from acute pains in her left side. Accompanying the pain there was also marked collapse, and the patient was in imminent danger for some days. From that time until I saw her she had occasionally small hæmorrhages, and now and then attacks of pain, which were most properly attributed to peritonitis.

On examination, the fœtus could be felt lying obliquely across the abdomen, and enveloped in fluid. The uterine souffle and fœtal heart were plainy audible. Per vaginam the uterus could be felt enlarged and to the right side, as big as a large jargonelle pear, and separate from the abdominal mass. The diagnosis lay between a pregnancy in a bicornuous uterus and an extra-uterine pregnancy. I inclined to the latter.

She was brought into Edinburgh, and two days later labour set in in the small uterus. The pains were regular. Gradually the os opened, and the first stage of labour was complete. I introduced my fingers and found the decidua separating in shreds; gradually the labour pain increased in severity, and the decidua were shed off. Then the labour ended, being, it will be observed, an exact counterpart of the phenomena which occurs in ordinary parturition.

Three days later I operated, and removed a full-time fœtus. The naked-eye and microscopic anatomy was published in detail by Dr. Webster later on. From the nature of the case, the death of the patient was almost inevitable.

I am indebted to the most careful and untiring work of Dr. Webster for a complete knowledge of the nature of the case, which, so far as I know, is unique. The case was found to be tubo-peritoneal, partly extra- and partly intra-peritoneal.

The Diagnosis of Early Extra-uterine Gestation, with Illustrative Cases.

Though the difficulties surrounding the accurate diagnosis of early extra-uterine pregnancy are numerous, and for the most part well recognised, yet it is at once curious and disappointing to find such a variance of opinion. For instance, Tait virtually says that it cannot be made until after rupture; and although this is too general and dogmatic, yet it is, so far as my experience goes, in the main true. Nevertheless Aveling asserts "that it has so many prominent and characteristic symptoms, that its detection is more easy then than that of an ordinary pregnancy in the early months." Barnes maintains that the diagnosis of tubal pregnancy may with ease be made about the seventh or eighth week.

It would serve no good purpose to recapitulate all or even a selection of the opinions that have been advanced as to the probability or certainty of diagnosis of early extra-uterine fœtation. It seems to me that, in offering any remarks on the subject, they should be based on personal experience and by the record of actual cases.

First of all, what are the definite signs or symptoms to which authors attach importance in the diagnosis of the condition? and, second, what the value of these signs in cases which have come under my own observation?

Now, with regard to the signs and symptoms of extra-uterine gestation in the early months, they may be arranged thus. I do not at all mean to say that this is the most satisfactory classification, but it includes the various signs alluded to, and at the same time indicates the value of each.

(*a*) The general and reflex symptoms of pregnancy, especially if the pregnancy has occurred after a considerable period of sterility. (*b*) Disordered menstruation, especially metrorrhagia, coincident with symptoms of pregnancy; gushes of blood, accompanied by severe pelvic pains. (*c*) Severe pains in the pelvis; attacks of pelvic pain, followed by tenderness in either iliac region, and other symptoms of pelvic inflammation. (*d*) The existence of a tumour; this tumour presenting the characteristics of a tense cyst, sensitive to touch, actively pulsating; steady and regular growth of the tumour. (*e*) The os uteri patulous, the uterus displaced and empty. (*f*) Paroxysms of severe and spasmodic pain in the pelvis, with general symptoms of collapse. (*g*) Expulsion of the decidua in whole or in part.

Such is the short synopsis of the signs and symptoms gathered from various sources; and a record of cases which have come under my own observation will form a sufficient commentary upon their individual or collective value.

Case 1 was under the charge of Dr. Byrom Bramwell and Dr. Duddingston Wilson.

She was a multipara of 32, who had borne two children, the youngest 6 years old. She had missed one menstrual period, and her second was due on Christmas Eve. I saw her on Christmas Day 1888. The night previous she had been seized with acute pelvic pain, localised to the right side. So violent was the pain, that Dr. Wilson had to keep her under opium the whole night. It was accompanied by slight uterine discharge, which had been occasional in the preceding two months. The following day she showed marked symptoms of abdominal hæmorrhage and collapse, and Dr. Bramwell was called in. In the afternoon I saw her, and was asked to decide as to extra-uterine fœtation. I found her collapsed, the abdomen distended, and evidently filled with blood. Per vaginam the uterus was soft and slightly enlarged; there was

an indistinct, though perceptible, fulness in the right lateral fornix. The question was pressing—Was it a ruptured tubal pregnancy or a hæmatocele? I confess that the menstrual suppression, the long interval between the last pregnancy, and the sudden and acute symptoms of collapse, along with the conditions found per vaginam, decided me in favour of an ectopic gestation.

I opened the abdomen, therefore, and found it filled with fresh blood and enormous clots. These I cleared out partially, and then went direct to the pelvis and examined both uterine appendages. Both of these I brought to the surface, examined and removed; and though I found the ovaries enlarged and cystic, yet there was no evidence of any gestation sac. I was unable to find the source of hæmorrhage anywhere, and, being unwilling to further jeopardise the patient, I closed the abdomen. The hæmorrhage continued, however, unabated, and the patient died the following day. No post-mortem examination was permitted, therefore I am unable to say whence the hæmorrhage actually came; but it is enough, for the purpose of the present communication, to point out that my diagnosis was not borne out by the result.

On looking back on such a case, I cannot see that I could have arrived at any conclusion other than that I did. The menstrual suppression, the acute pain coming in paroxysms accompanied by hæmorrhage, the softness and enlargement of the uterus, all pointed, it seems to me, conclusively in this direction; and yet the abdominal section, whatever may have been the cause of the hæmorrhage, showed that pregnancy, either intra-uterine or ectopic, did not exist.

Although rupture usually takes place later on in tubal pregnancy, it is by no means infrequent at the seventh or eighth week. I cannot suggest what means there are at our disposal to arrive at any conclusion other than the one I was forced to, except that there was no history of passage of decidua or shreds; and I fear that, under similar circum-

stances, I should be disposed to do again as I did, though with a feeling both of doubt and misgiving.

I do not know that the opening of the abdomen hastened the patient's death, but it certainly proved the utter insufficiency of acting on the generally recognised signs and symptoms of extra-uterine pregnancy. The case was to me more a warning than a lesson, and does not by any means add to our satisfaction in operating.

Case 2.—Mrs. M., married, one child four years previously, was brought to Ward 28, suffering from irregular hæmorrhages. These hæmorrhages had been going on for six weeks, previous to which her menses had been suppressed for two months. She complained of constant pain in the right side. The pain was spasmodic in character.

On examining over the pelvis, a distinct fulness could be felt in the right side, elastic and tender. On auscultating, a very well-marked bruit could be distinguished all over the surface. Per vaginam the uterus could be felt pushed over towards the left side, and backwards, somewhat enlarged, and the os patulous. Occupying the whole of the right roof of the vagina was a soft pulsating mass, irregular in shape, and very tender to touch. Bimanually, the mass seemed about the size of a cocoanut, and the uterus felt slightly enlarged. During her continuance in hospital for a week the tumour seemed to increase in size, and the pulsations in it were not only felt repeatedly per vaginam, but could be seen and recognised on the abdominal wall. During the week she was under observation the bruit became distinctly louder. She had occasional slight hæmorrhages, but no shreds of decidua passed, nor was she able to give any record of having passed any shreds previous to admittance.

The diagnosis forced upon me was an extra-uterine pregnancy between the twelfth and fifteenth week; and I think that the physical conditions justified the diagnosis. The

souffle to which so much importance has been attached was present. The pulsating, rapidly growing extra-uterine tumour was present. The menstrual suppression and subsequent hæmorrhages were present; and although I did not get a record of or find any decidua present, yet the woman's statements with regard to the blood and clots which passed made it more than likely that some shreds had escaped. Here, then, it seemed to me at last I had fallen across a well-marked extra-uterine pregnancy. I accordingly opened the abdomen, and came down upon a large dark mass lying in the right side of the pelvis. It was soft, and entirely fixed in every direction. All this exactly corresponded with what one expects in extra-uterine pregnancy. I proceeded to separate the adhesions carefully, and succeeded in freeing the mass after very considerable trouble.

I drew it to the surface, and just as it reached the surface of the abdominal wound it ruptured, and a considerable quantity of blood escaped over the abdomen. I ligatured the pedicle and removed it, still believing that I was dealing with an extra-uterine pregnancy. It was carefully examined at the College of Physicians' Laboratory by Dr. Woodhead and others.

No trace of pregnancy whatever could be found in the sac, and the tumour was found to be a huge distension of the tube with blood, or, in other words, a hæmatosalpinx. It seems to me that the only point in the case which failed to substantiate extra-uterine pregnancy was the absence of decidua. Every other symptom was present. Of course this may have been an early extra-uterine pregnancy in which the ovum had been absorbed; but there was no trace either of chorion or decidua.

I do not discuss this point; I only mean to say that the ordinary physical characteristics of pregnancy were wanting in the sac.

Case 3.—On November 25, 1890, I was asked to see M. R., who gave me the following history :—On November 26, 1889, she was confined of a second child easily, and made a good recovery. Menstruation returned about the third month. On August 21, 1890, she had a miscarriage, apparently about eight weeks. On September 22 following, her menstrual period occurred, apparently normal. There was no menstrual discharge in October. On November 1 there was a quasi-menstrual discharge, which was thought to be menstruation, but it disappeared in a few hours. There was frequent recurrence of this discharge throughout the month of November, coming on in the morning and disappearing in the afternoon. On November 26 I saw the case. There was a distinct swelling on the right side of the uterus. On the 28th an entire decidual cast of the uterus came away ; slight pains were complained of. The decidua was examined very carefully, said to be complete, and considered of six weeks formation. No ovum, however, was found. On November 29 the patient was seized, about 6 P.M., with violent pains in the region of the stomach and right iliac fossa. These lasted about half an hour in a very severe form ; then they abated. I saw her shortly after this, and found the swelling larger and more tender.

On December 1 the severe pains in the stomach and iliac region returned. Relief was obtained by a large opiate. Coloured discharge continued to come at intervals. On December 12 I saw the patient after she had severe pain ; there was a distinct swelling behind the uterus, continuous with a swelling on the right side. There was pain and discomfort in passing water. The question which all along had been present to my mind was that of extra-uterine pregnancy.

From the fact of the entire escape of the decidua, which, so far as my reading goes, is exceptional in cases of ectopic gestation, I was disposed to think that the ovum had escaped, and that the pregnancy was intra-uterine, and that the swell-

ing might be a hæmatocele. Still, the paroxysmal pain on the right side and the slight enlargement of the swelling continued, and therefore I kept a strict watch on the patient. Gradually, little by little, the tumour on the right side became more cystic, more tender, and more elastic to touch. Hæmorrhage continued from time to time from the uterus, and well-marked paroxysmal pain was present every four-and-twenty hours. I did not use the vaginal stethoscope. No auscultatory sounds could be heard through the abdomen, but the enlargement of the right side tumour, gradual and definite, was a sufficiently characteristic symptom, and that, superadded to the passage of the decidua and the enlargement of the uterus, led me to the conclusion that the patient was suffering from an early extra-uterine gestation.

The local examination was conducted with the utmost care, and the uterus, enlarged and heavy, was found shifted to the left lateral and posterior side of the pelvis. The cystic mass which I have just described occupied the right side. The mass felt particularly tense and elastic, and gave the impression of being about double the size of a large orange. It was very tender and painful to the touch.

On December 26, having decided that the case was one of extra-uterine pregnancy, the further interference was readily enough settled. Of course, any treatment other than that by abdominal section was not entertained. I therefore opened the abdomen on the 26th of last December, and came on a firm resistant mass in the right side. It was firmly adherent in every direction. The great difficulty was to find a place to commence the work of separation and removal. I was surprised to find the mass so fixed and so solid. From my previous examination per vaginam, I expected to find it elastic and fluid, and much more mobile.

I began by ligaturing the proximal end of the tube, and, after freeing the adhesions and separating the broad ligament and peritoneum, I ligatured the distal end and the broad

ligament below, and so removed the mass. I left in a drainage tube for some hours. The patient made an uninterrupted recovery. The macroscopic and microscopic examination proved it to be an extra-uterine pregnancy about the eighth week.

This case proves beyond question the possibility of deciding the presence of an extra-uterine fœtation, and removing it successfully before rupture, provided only pains and care be taken in watching the symptoms as they develop.

"Any man who gives an opinion that he diagnosed a tubal pregnancy, merely upon the unaided discrimination of symptoms or the dim light of a pelvic examination, I regard with so much suspicion, that I do not accept his evidence for argument, save under exceptional circumstances."

Such is Tait's opinion. It is certainly not wanting in strength.

Now, the record of these three cases shows very plainly the difficulties which surround the diagnosis of extra-uterine pregnancy, not only before but after rupture; but the case which I describe last goes far to show that, with careful watching, a case of early extra-uterine pregnancy can be diagnosed with a very considerable amount of certainty.

Certainly there is no one symptom or sign, such as in ordinary pregnancy, which is pathognomonic; and, more than that, there seems to be no one symptom or sign which is even of greater value than another; but upon the following four grounds, if seen early and watched carefully, a diagnosis can be made with a very great amount of precision:—

1. The general signs of pregnancy—for example, the cessation of the menses.

2. The displacement of the uterus to one side by a tumour, which gradually grows.

3. The passage of the decidua in whole or in part, and irregular hæmorrhages.

4. The presence of paroxysmal pain localised to one side, though not to one spot.

All those conditions must be present, but my cases seem to show that the essential point is passage of the decidua.

In the first two cases this did not occur, and that was the weak point in the diagnosis; in my third case, where the diagnosis was made accurately, the passage of the decidua and the subsequent rapid growth of the lateral tumour placed the nature of the case to my mind beyond dispute. Indeed, these three cases would seem to show the converse of what Mr. Tait insists on. He seems to imply that extra-uterine pregnancy can only be diagnosed after the rupture of the gestation; but it would seem to me that there is more difficulty in recognising the condition then with exactitude, than in forming a conclusion, after careful watching, as to the presence of an extra-uterine pregnancy before rupture.

The whole question turns upon the point—whether the case is seen sufficiently early to admit of careful examination of it being made at intervals, before a definite conclusion is arrived at.

I have avoided speaking of operation; but there is this much comfort, that whatever the nature of the tumour may happen to be, so long as the uterus can be carefully excluded, the sooner the tumour is removed the better.

Case 4.—The fourth case was sent to me by Dr. Doig of Galashiels, and diagnosed by him as an early extra-uterine pregnancy. The patient was a young married lady. She had missed two periods, and had irregular hæmorrhages accompanied by paroxysmal pain. On the right side she had a soft elastic swelling. The uterus was pushed over to the left side, and was soft and enlarged. She passed an

entire decidual membrane after coming under my care. With the assistance of Dr. Doig, I opened her abdomen and removed an extra-uterine tubal pregnancy about the third month. She made an excellent recovery, though a sinus remained for some time afterwards.

This case entirely bears out the conclusions arrived at in regard to the former cases.

Two Cases of Extra-uterine Gestation Operated on after Rupture, at the Fourth Month.

I have frequently operated earlier, but only twice have I been called upon to operate on an extra-uterine pregnancy between the fourth and fifth months after rupture.

The record of these cases is as follows :—

On the 2nd of June 1894 I was asked by Dr. Macdonald of Cupar to see with him Mrs. R.

The history of her case was, that she had been married for two years, and had menstruated regularly till February. In March there was amenorrhœa, but in April, at the time corresponding to the menstrual period, the patient had some slight discharge of blood, accompanied by severe spasms of pain in the left side. These symptoms, with rest, gradually disappeared, and the patient seemed well again. However, from that time up till the day I saw her, she suffered from irregular hæmorrhages and pains in the abdomen, especially in the left iliac region. Dr. Macdonald observed the gradual development of a tumour on the left side. Though carefully watched for, no traces of decidual membrane were observed.

On examination, the existence of a swelling on the left side, hard yet doughy, and growing up from the pelvis to near the umbilicus, was very evident. Fluctuation could not be detected, nor could any souffle be heard over it. Per vaginam, the uterus was tilted up above the symphysis pubis, and lying behind it was a boggy swelling continuous with the abdominal mass, the whole being fixed but not specially tender. The sound entered the cavity of the uterus $3\frac{1}{2}$ in.

From the history of the case, and from the examination made, I came to the conclusion that the patient was suffering from an extra-uterine gestation, growing within the broad ligament, and therefore still extraperitoneal. The patient was removed to Edinburgh on June 11. After examination, under chloroform, I was unable to make out anything further, except that one could hear over the tumour a pulsation which very closely resembled that of a fœtal heart.

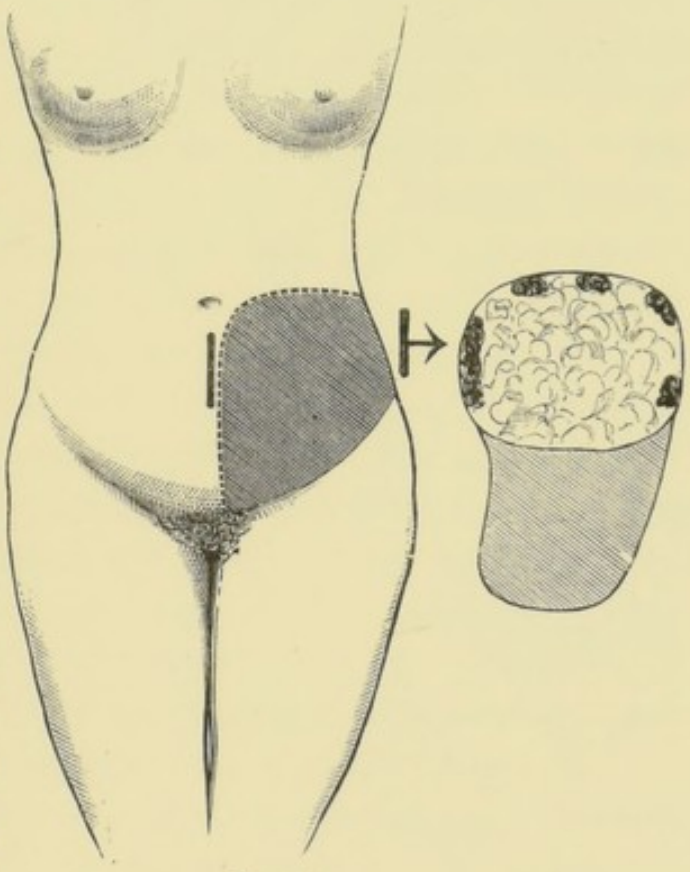

Fig. 9.

The question of operation now became urgent. As waiting until the full term offered no advantages, beyond the very distant possibility of a living fœtus, and it seemed much easier to deal with a sac and placenta at this stage of development rather than at full term, I decided to operate. I opened the abdomen in the middle line, a proceeding which I now regret, as it would have been much more convenient to have made the incision over the site of the tumour. On reaching the sac wall, I found it thick and vascular, and as the slightest touch with the knife caused profuse hæmorrhage, I cut through the wall with the thermo-cautery, and recognised that I had opened the sac in the site of a portion of placenta. I found the cavity of the sac filled with blood clot, which was carefully cleared out. I then found that,

attached to the wall of the sac, and near to, but not connected with, the placental mass, through which I first had cut, there were five or six little masses which felt like placental tissue. These, along with the main placental mass, I removed. On subsequent examination, they were shown to contain villi in various stages of degeneration. I was surprised to find no trace of either fœtus or cord, although very careful search was made for both. After some time, at the base of the sac, towards the pouch of Douglas, I discovered a small aperture, through which I gently pushed my finger, and then found a second sac, probably as large as a Jaffa orange. This sac contained blood clot only, and no trace of a fœtus could be discovered there either. Both sacs were then carefully washed out. I was very reluctant to close the operation without discovering the fœtus, but of course there was no alternative left. The walls of the sac were then stitched to the abdominal wall, and the cavity packed with iodoform gauze. The patient remained in a very collapsed condition for thirty hours, but gradually recovered from the shock. Two days afterwards the gauze was removed, and the cavity washed and drained in the usual way. Thereafter she made an excellent recovery.

This was evidently a case where a tubal pregnancy had, without any severe symptoms, slowly ruptured between the layers of the broad ligament. The primary sac was first opened, and the secondary sac was reached deep down in the pelvis. The question at once arises—In a pregnancy so far advanced, and with well-marked placental tissue, what became of the fœtus? Now, in a somewhat similar case some years ago, I opened a sac equally large, and removed nothing but blood clot. Whether that was an extra-uterine pregnancy or not, in the light of recent developments, I do not profess to say. This I do know, that in that special case absolutely no trace of placental tissue could be found. It was otherwise, however, in the case before

us now. In cutting through the sac wall with the thermo-cautery, I passed through a mass of friable placental tissue, and detached over the interior of the sac I found smaller pieces of altered placental tissue separate and distinct from the larger mass. As to the nature of this tissue, it is sufficient to say that, after being subjected to microscopical examination, it was proved to contain villi somewhat enlarged and greatly degenerated. Some of the larger villi, especially here and there, were distinctly distended, and gave the appearance almost of a mucoid condition.

I had before me a very distinct recollection of a case of extra-uterine pregnancy recorded by Dr. Hart to the Edinburgh Obstetrical Society, where he found no fœtus at the time of operation, but where the fœtus ultimately escaped from the gestation sac some days later on. I was therefore prepared to make a specially careful search for a fœtus, but neither in the primary sac nor in the secondary could any trace of it be found. There was no cord, and the sac wall was entire, so that the fœtus could not have escaped into the abdominal cavity. It seems to me that the explanation of this case is to be found in the altered condition of the chorion. Early, no doubt, in gestation, degeneration of the placenta had set in, probably in the direction of myxoma, and, as is well recognised in *intra*-uterine myxoma, the fœtus had perished and been absorbed.

A similar condition came within my observation in intra-uterine pregnancy some time ago. It was as follows:—The patient, æt. 54, was sent to me suffering from uterine hæmorrhage, which had gone on for many months. It was supposed to be a uterine polypus. I found the uterus enlarged about the size of a four months' pregnancy, and after dilating the cervix expected to find a large intra-uterine polypus. In lieu of that I found the uterine cavity filled with old blood clot and some fresh blood as well. I cleared this out, and found irregular rough masses attached to the posterior uterine wall.

These were removed, not without very considerable hæmorrhage, and proved to be pieces of degenerated placenta. As in the previous case, some of the villi could be found very much enlarged and distended. No fœtus or trace of fœtus was found, and at no time was there any record of a fœtus having passed; and as the patient was very careful in her observations, and had no reason to conceal the truth, I feel confident that nothing of the nature of a fœtus did pass.

I need not further enlarge on this case, except that it is interesting to have pregnancy occurring at 54, and that such a complication is a very rare factor in the production of hæmorrhage so long after what is usually recognised as the fertile period of a woman's life.

Of course the question naturally arises, How long had this condition lasted? And, as far as I can discover, the longest duration of a myxomatous gestation is fourteen months; so, therefore, in any case, as the symptoms of hæmorrhage had been present for five months, it is more than probable that the duration of the pregnancy had been eight or ten months.

Another very interesting feature in this case was, that a week afterwards large pieces of decidua were passed. Evidently the decidua had been adherent, had exfoliated, and been expelled. This of course is a very rare coincidence, because usually, in this disease, the chorion and decidua are so adherent that they come away together.

To return to the extra-uterine pregnancy we are considering. It would seem, therefore, that the condition of this extra-uterine placenta was one analogous to an early intra-uterine myxoma. No doubt I did not find the gestation sac filled with the usual vesicles, the growth and development of which would have caused an early rupture; the cause of rupture here was the accumulation of blood from the diseased placenta, and this accumulation was slow, and, even when

it had distended the tube, the rupture was small, and the symptoms to which it gave rise were practically *nil.*

In brief, I wish to point out that in a case such as this, the failure to find a fœtus is in no way inconsistent with what occasionally happens in intra-uterine pregnancy. The chorionic villi had been abnormally developed, not to the extent as occurs in the typical myxoma, where the whole cavity is filled up by the well-known vesicles, but the nutrition of the fœtus had been so impaired by the abnormal development of the villi, and the degeneration of the placenta generally, that the fœtus had perished and been absorbed.

The other case to which I wish to refer is one that presented an equally easy diagnosis, and where the result of the operation itself was more satisfactory, though the ultimate issue of the case was fatal.

The case runs as follows :—

Mrs. M., æt. 32, admitted to Ward 28 on November 22, 1894.

COMPLAINT.—Pain in the left side, lasting for two years. During the past month this pain was very much aggravated on three occasions with symptoms of collapse, continuing for a few hours.

HISTORY.—*Menstruation.*—Up till two years ago, normal and regular; since then, marked premenstrual dysmenorrhœa, and on the first and third days of the flow. Has not menstruated for the last eleven weeks.

Family.—Four children, the youngest, æt. $3\frac{1}{2}$; one miscarriage between the second and third children.

Present illness.—On October 22, having missed two periods, patient lifted a heavy weight and felt "something crack" (as she said) in her left side. Two days after, severe pain set in with collapse, lasting for two hours, and this was followed by slight vaginal hæmorrhage. Subsequent to this date, before admission, she had two other similar attacks.

On admission, the physical examination revealed a well-defined swelling, reaching 2 in. above Poupart's ligament on the left side, and on vaginal examination the uterus was felt low down, soft; and behind it, in the pouch of Douglas, an ill-defined swelling could be determined. On November 23 (the day after admission) patient was still in a critical condition of collapse; pulse 150, small, and temperature 96°, while the severe pain continued. However, she gradually improved, and in a day or two was very much better in every way.

On December 2, after the continuance for some hours of severe bearing-down pains, what proved on microscopic examination to be a decidual membrane, was passed, and after this the patient seemed much relieved, and improved so much, that at the end of ten days she wished to leave her bed.

On the morning of December 21, patient collapsed again, a more or less continuous hæmorrhage going on for thirty-six hours. Pulse was almost uncountable, and indeed, for an hour on the afternoon of the 22nd, it could not be felt at all.

During her residence in hospital the tumour had gradually grown upwards to within 1 in. of the umbilicus; and, after the attacks of December 21 and 22, it rose rapidly till the upper limit was 1 in. above the umbilicus.

Patient having rallied from this last attack of internal hæmorrhage and collapse, she was placed on the operating-table on December 27. The abdominal wall was cut through slightly to the left of the middle line, when it was found that the sac wall was intimately adherent to the parietal peritoneum. On opening into the sac, a large amount of blood clot escaped, and it was then determined that the sac extended in three directions—downwards into the pouch of Douglas, across the middle line 2 or 3 in. below the level of the umbilicus, and upwards to within 2 in. above and to the left of

the umbilicus. The lower part of the sac was filled with blood clot only, and this was shut off from the upper part by fairly strong organised tissue, probably part of the Fallopian tube forming the original sac.

The lower part having been cleared of blood clot, I pushed my finger through the septum into the upper, and here I found a large amount of blood clot; but besides, from the left side, I was able to remove a large amount of placental tissue, and here also I came upon the umbilical cord. On tracing this upwards, I found the fœtus, which showed no sign of decomposition, was between three and a half and four months, and was easily removed. The whole sac was then thoroughly cleared and washed out, and thereafter packed with iodoform gauze. A few stitches were used to ensure the adhesion of the sac to the abdominal wall. The whole interference was therefore entirely extraperitoneal.

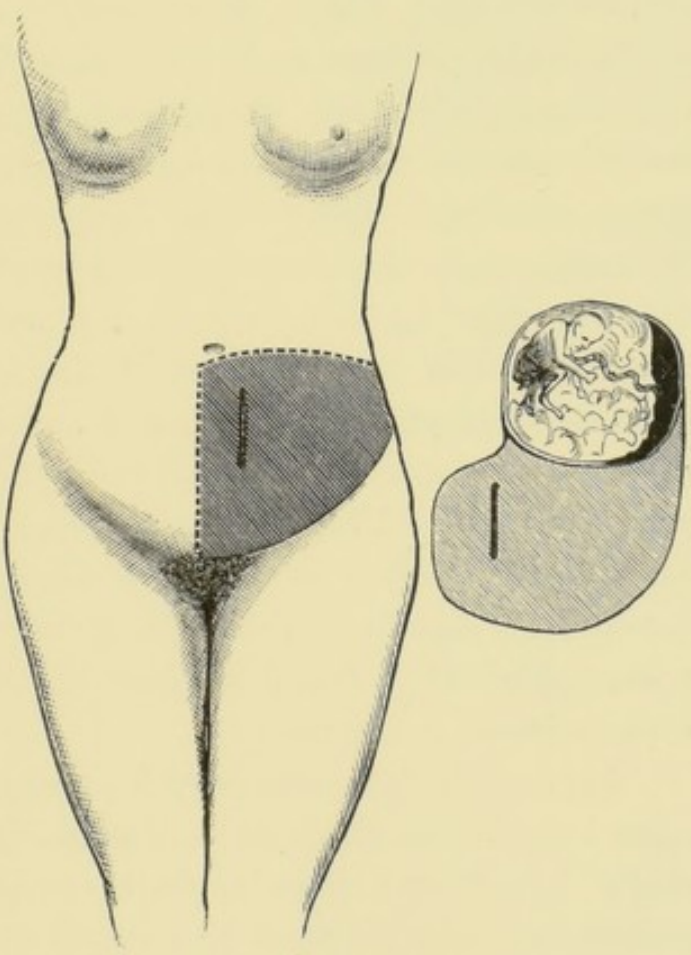

FIG. 10.

Patient did well after the operation, but still maintained the rapid pulse which had continued since the last hæmorrhage. The gauze was removed on the evening of the 28th, and the cavity thoroughly irrigated with weak corrosive solution, and a drainage tube inserted. The washing out was

continued every six hours, and everything seemed satisfactory, except the rapid condition of the pulse.

On the 29th, at 7.30 P.M., the pulse, which had been fairly constant at 120, became irregular and intermittent. In spite of stimulants, the condition did not improve as the evening went on, and the patient died somewhat suddenly at 11.30.

Post-mortem.—Considerable hæmorrhage was found beneath the lower sac, in the pouch of Douglas, and an ante-mortem clot, several days old, was found in the right heart.

This case presents no features of special interest. It is a very characteristic case of an extra-uterine tubal pregnancy, rupturing about the twelfth week, between the layers of the broad ligament. There were four distinct indications at different periods of hæmorrhage and extended rupture.

In comparing the two cases, however, with regard to causation, it is very interesting to notice that the first occurred in a young woman of 27. She was a primipara, who had absolutely no indication of pelvic disturbance before her pregnancy, and the latter case had a history of two years' constant pain and premenstrual distress, so that to whatever extent desquamative salpingitis, or some such lesion, may account for the latter, it is extremely difficult to offer any explanation of the former.

As regards the mortality, it was just the converse of what I should have expected. In the first case the abdominal cavity was opened into before I reached the sac, and the patient remained collapsed for more than thirty hours; while, in the second, the operation was entirely extraperitoneal, and the patient did well for two days, and then died somewhat suddenly, and evidently from the effusion of blood into the pouch of Douglas. I shall always regret that I did not leave the iodoform gauze in longer, because I believe the continuous pressure might have prevented the hæmorrhage and saved the patient.

Sessile Cysts.

Sessile cysts form a variety of ovarian tumour which is always of special interest, both with regard to their management and diagnosis. Ovariotomy is now so thoroughly well understood, that one can nearly always rely upon a fairly accurate diagnosis and on uniform success. Formerly many of the individual operations in a series of abdominal sections were described by the surgeon as having been incomplete, due to the fact that the operator discovered the wall of the cystic growth in most intimate connection with the peritoneum and appendages, or the base of the tumour firmly adherent in the pelvic cavity, and where removal was apparently an impossibility.

From the table of cases on the following pages I give only two in detail, respectively Nos. 352 and 353 :—

Case 352.—On per vaginam examination the uterus was found to be small, and no trace of a tumour was revealed. On opening the abdomen, one was immediately struck with the deep, dark red, congested appearance of the tumour, and the large veins which ramified in great variety over the surface. Its walls were extremely tense. It presented characteristics, in short, closely simulating a pregnant uterus. On passing the hand into the abdomen, I found no adhesions; on carrying it deeply down into the right side of the pelvis, I felt the tumour to be continuous with the uterus itself, and no suspicion of a pedicle was to be discovered; on the left side the peritoneum seemed to be so reflected as to prevent the hand passing further down than the brim of the pelvis.

The tumour having been aspirated, and its contents—clear, limpid, and in quantity about three basinsful—withdrawn, the nature of the case was recognised, namely, a sessile tumour connected with the right broad ligament. I accordingly proceeded to deal with it by cutting through the capsule, and little by little separating the cyst wall therefrom. This I was able to accomplish completely, excepting the portion above referred to, on the right side of the uterus, which was so closely incorporated with the wall of that organ that it was necessary to ligature the connection in three places, remove the cyst, and drop the so-called pedicle back into the abdominal cavity.

The bleeding capsule remained and formed a deep cavity, passing to the very floor of the pouch of Douglas. I removed its redundant parts, but found it impracticable to deal with the portion in the pelvis and pouch of Douglas in any other way than by sewing its edges to the wound, and draining.

Case 353.—The abdomen being opened, the usual blue appearance of an ovarian cyst presented itself. It was tapped with an ordinary trocar and cannula, and several basinsful of a thick grumous fluid drawn off. The tumour had a few unimportant adhesions, and was without difficulty turned out through the abdominal wound. It was then found that there existed no pedicle whatever, the whole pelvic part of the tumour being encapsuled in broad ligament, which had in due course to be peeled off bit by bit, and the cyst shelled out. As it had not dipped very deeply, however, I succeeded in sewing up the remains of the capsule by continuous suture and dropping it back in the abdomen, treating it, in fact, as an ordinary intraperitoneal ovarian stump, without any drainage.

This is evidently one of a group of cases specially referred to by Doran, which is compound in its nature, the upper portion being true ovarian in its character, and therefore free, the lower portion developing from the hilum of the ovary, and

growing downwards between the layers of the broad ligament. Hence the upper portion offered no difficulty, while the lower portion was sessile and intra-ligamentous.

From a clinical aspect, cysts of the internal generative organs may be classified as follows :—

1. Arising from the ovary, and loosely connected to the appendages by a pedicle.

2. Connected with the broad ligament, also pedunculated.

3. Having their origin in the ovary, or in one of the structures situated in the broad ligament, burrowing in the broad ligament, and ultimately extending beyond that structure to gain attachment to the pelvic walls or to the viscera—sessile cysts.

The scope of the present paper does not permit of my entering into any consideration of those small sessile cysts which frequently affect the appendages, but which are not of sufficient magnitude to be of any clinical significance. Within the last decade sessile cysts have obtained a new interest in abdominal surgery, inasmuch as, in a great majority of instances, they are capable of removal, no doubt with considerable difficulty, by a method of treatment designated "enucleation."

The tumours which incline to spread beyond the broad ligament into the pelvic cellular tissue, or extraperitoneally into the abdomen, are in the majority of cases—

1. Papillary cystomata (Olshausen), paroöphoritic cysts (Bland Sutton).

2. Parovarian cysts (cysts of the broad ligament).

3. Other broad ligament cysts.

Bland Sutton recognises three distinct regions in the appendages, which give rise to their own peculiar cysts. These are—

1. The oöphoron, giving origin to the usual ovarian multilocular and unilocular cysts;

[*Continued on page* 60.

Table of Cases of Sessile Tumours.

Case.	Name.	Recommended by	Nature of Tumour.	Treatment.	Further Treatment.	Result.
39	E. O. . .	Hospital waiting-room.	Right dermoid ovarian, sessile incorporated with right side of uterus.	Removal.	No drain.	Recovery.
72	Mrs A. . .	,,	Large semisolid ovarian, absolutely adherent and incorporated with uterus.	Uterus and tumour both removed.	Treated extraperitoneally.	,,
80	Mrs. J. H. .	Dr. Ronaldson, Haddington.	Left broad ligament cyst.	Capsule stitched.	No drain.	,,
95	Mrs. E. B. .	Dr. Brown, George Square.	Right semisolid ovarian; upper portion free, lower portion encapsuled.	Capsule treated as a pedicle, and dropped back.	,,	,,
111	Mrs. J. B. .	Dr. Jeffrey, Ayton.	Broad ligament cyst of left side, with hæmatoma of right ovary.	Enucleated.	,,	,,
121	J. W. . .	Dr. Menzies, Rutland Square.	Right ovarian sessile cyst.	,,	,,	,,
159	Mrs. F. B. .	Dr. Menzies, Rutland Square.	Suppurating sessile cyst of left broad ligament.	,,	,,	,,
171	Mrs. M. A.	Dr. Thom, Crieff.	Sessile ovarian in pouch of Douglas, size of cocoanut; uterus displaced upwards and forwards.	,,	,,	,,
195	G. M'K. .	Dr. M'Kie, Inverness.	Left broad ligament cyst.		Secondary hæmorrhage, six days afterwards reopened, drained.	,,

240	Mrs. M. K.	Dr. Kirkland, Airdrie.	Right ovarian sessile incorporated on right side of uterus.	Base stitched and dropped back.	Drainage for three days.	Recovery.
252	J. D. . .	Dr. Milne Murray.	Large sessile parovarian.	Enucleation.	Drainage.	Death from shock.
260	Mrs. W. .	Dr. Bowser, Penrith.	,,	Enucleation; capsule cut short, ligatured, and dropped back; over 6 gals. of fluid.	No drain.	Recovery.
272	M. R. . .	Dr. Wemyss, Broughty-Ferry.	Large cystic ovarian; large abscess of left broad ligament burrowing into uterus.	Enucleated entirely; hysterectomy.	Extraperitoneal stump.	Death from sepsis.
274	M. W. . .	Dr. Doig, Galashiels.	Small cyst of broad ligament.	Enucleation.	No drain.	Recovery.
301	Mrs. S. . .	Dr. Campbell, Dundee.	Intra-ligamentous right cyst; suppurating papilloma.	Enucleation; clamp.	,,	,,
304	Mrs. L. . .	Dr. Anderson, Dundee.	Intra-ligamentous cystoma, partly encapsuled, partly free.	Enucleation.	Drain for some weeks.	,,
340	J. W. . .	Dr. Lundie, Edinburgh.	Sessile left ovarian cystoma.	,,	No drain.	,,
352	Mrs. R. . .	Dr. Anderson, Brechin.	Sessile ovarian cystoma entirely adherent to the right side of uterus.	,,	Drain.	,,
353	Mrs. L. . .	.....	Sessile ovarian.	,,	No drain.	,,
359	Mrs. W. .	Dr. Calderwood, Longriggend.	Sessile ovarian incorporated with right side of uterus.	,,	Drain for twelve hours.	,,
360	Mrs. P. . .	Dr. M'Fayden, Sanquhar.	Small sessile ovarian.	,,	...	,,
364	...	Dr. Crole, Leven.	Large cystic papilloma deeply.	Enucleation; capsule stitched to wall; operation long and tedious; copious hæmorrhage.	Drain.	Death from shock.

2. The paroöphoron, producing papillary cysts; and

3. The parovarian—the source of the parovarian cysts. In addition to these origins of tumour growth, Tait considers that the horizontal or Gärtner's tubes, which can occasionally be traced down the uterus and along the vaginal walls, are occasionally occluded at intervals, and to the remnants which remain patent there is the possibility of degenerating into large cystic formations.

I. Papillary Cystoma or Paroöphoritic Cyst.

Origin. — Olshausen, in 1877, suggested that these growths arose from the parovarium, because of the cylindrical epithelium and the intra-ligamentary situation. Since then, however, as the result of numerous clinical observations, he has been led to the conclusion that papillary cystomata must spring from the ovary itself.

The paroöphoron, or that part of the ovary which, in the adult, constitutes the hilum, is composed of fibrous tissue, interspersed with blood vessels, and into it run the vertical tubules of the parovarium. It is derived from the fœtal mesonephros, which has become degenerated; hence is originally tubular in character, which feature may persist after birth.

Anatomical characters and relations.—Originating in the ovary, these cysts pass between the layers of the mesosalpinx, to gain the broad ligament proper, between the two layers of which they burrow until they may even pass beyond this structure. Whilst still small they do not affect the appearance of the true ovary, as an ovarian tumour does, though ultimately the ovary may become incorporated and lost in the wall of the tumour. At no time do they ever reach the huge dimensions attainable by a multilocular ovarian; nevertheless they may, as in Case 364, pass superiorly beyond the umbilicus, and inferiorly deep into the pelvis, so as to be felt immediately on introducing the finger into the vagina.

Whilst the tumour is yet of small size it may be unconnected to the uterus or other organs, but as it increases it separates the layers of the broad ligament, until it receives a broad base of attachment to the side of the uterus.

With the growth of the cyst, the uterus is elevated in the pelvis, and becomes pushed to one or other side, that is, if the tumour be unilateral; and a bilateral position in these cases is not uncommon, being also generally anteverted.

The further spread of the tumour is in the direction of cellular tissue, beyond the broad ligament, between the uterus and rectum into the pouch of Douglas, or into the retro-peritoneal space proper, coming in contact with the spine and the great blood vessels situated there; or it may proceed between the folds of the mesentery, being in intimate relation to the walls of the intestines. More rarely it passes anteriorly between the uterus and the bladder, which it involves in its progress until it has reached the abdominal wall.

One such case I operated on, which turned out to be a large suppurating cyst, which had been mistaken for a vesical tumour. After long draining and washing out, the patient made an excellent recovery.

When the tumour is bilateral, the uterus is dragged upon till it is raised out of the pelvis, and the vagina appears, on examination, to be increased in length and diminished in calibre. The uterus may be indistinguishable, being encroached upon from either side by the tumour mass till it is completely involved.

The cysts often contain a large number of papillary growths, which fill the smaller cysts, then rupture them, and finally may even burst through the primary cyst wall; after which they extend to the neighbouring organs, or they may perforate through the floor of the cyst and grow into the subjacent organ, thus fixing the tumour. The parts chiefly affected thus are the pelvis, uterus, rectum, and bladder. The smaller cysts are mainly filled with papillomata, the larger

cysts may have only a few nodules studded on the internal surface of their walls.. These papillomata are generally of small size, being no larger than a walnut; but, in the case previously alluded to, I removed two cauliflower-like masses, one of the size of a walnut, and one, which was firmly adherent to the pelvic structures, of a diameter greater than that of a large orange.

These tumours are rare before the 25th year, and occur most frequently between 25 and 50. Occasionally, they are associated with dermoids and sarcomata of the ovary.

One of their most notable features is their great tendency to metastasis. When rupture of the cyst takes place, there is a rapid and often fatal papillomatous infection of the peritoneal surfaces of the abdominal cavity, This speedily gives rise to ascites, which, after the peritoneal cavity has been depleted, rapidly accumulates again. Fortunately, however, it is not the invariable result, as, after removal of the primary tumour, the metastatic growths sometimes cease to develop further, and ascites does not result.

II. Parovarian Cysts.

In describing the nature of these tumours, and of cysts of the broad ligament, I have followed the more recent theories regarding their origin and pathology, especially those advanced by Doran, as they seem to me to give a better scientific explanation of the clinical manifestations than has been presented hitherto.

Their true origin can only be arrived at after careful investigation, not only of the large, fully developed cysts, but of the relations and position of such smaller cysts as are *pro tempore* of no clinical significance, but which have the inherent possibility of a further increase only limited by the pelvi-abdominal capacity.

Only those cysts which originate in some part of the

parovarium, or Wolffian relics, can be truly designated "parovarian."

In the adult the remains of the Wolffian body are represented by Kobelt's tubules: the horizontal and the vertical tubes, permanent and occluded, of the parovarium; and the remains of Gärtner's duct.

The cysts which arise from the vertical tubes of the parovarium are similar in pathological appearance to those tumours already described as arising from the hilum of the ovary. At first, while diminutive, they can be recognised by their position, as occupying the site of the true parovarium, or, if they arise from the obliterated portion, then appearing between the straight tubes and the uterus; but when the cyst has increased in size, and has parted asunder the layers of the broad ligament, and the ovary has become altered in configuration, it may be only matter of conjecture whether it be of parovarian or paroöphoritic origin.

Their appearance is similar in all respects to those previously described. Their wall is lined by cubical epithelium, which in the early stages may be ciliated or cylindrical; usually they contain clear fluid, tend to the production of papillomatous masses growing from the sac wall, and bear a similar character of frequent malignant metastasis. They spread deeply in the broad ligament, and are often a great source of trouble when the surgeon undertakes their removal.

From the terminal cyst of the parovarium, and from the horizontal tube, is developed quite a distinct variety of tumour, corresponding in its pathology more closely to the simple cyst of the broad ligament. It is lined by a simple layer of flattened epithelial cells or endothelium, and in its other manifestations simulates the appearance described as pertaining to those simple broad ligament cysts, although being of true parovarian origin.

These cysts may enlarge without being pediculated, may

separate the broad ligament, and become large, sessile, unilocular cysts. While admitting that tapping of a simple cyst may sometimes be of advantage, it is superfluous to remark that such a proceeding in cysts, which are possessed of papillomatous characters, can be only ultimately detrimental.

III. Other Broad Ligament Cysts.

By these are intended those numerous simple cysts of the broad ligament, often of large size, which cannot be shown to have any ovarian or parovarian origin, and which were formerly included under the general term, "parovarian" cyst.

"Far away," writes Doran, "from the parovarian tubes, some minute cysts are often observed, adherent, as a rule, to the anterior layer of the broad ligament. . . . As a rule these cysts, when they increase in size, push apart the layers of the broad ligament. I have invariably found that their inner layer is endothelial. It is often from a minute cyst of this kind, free from the parovarian tubes, that is developed the large cyst commonly called "parovarian," with its thin, transparent wall, its single cavity, lined with flat or low columnar epithelium, and its clear, watery contents."

These simple cysts, although not pediculated in the sense in which a multilocular ovarian is, yet nevertheless are commonly provided with an attachment free enough to permit of easy removal. Not infrequently, however, they burrow downwards beyond the broad ligament, and take on a sessile nature, becoming embedded among the pelvic structures. The latter condition is the one we are now specially concerned with, when the tumour, passing from the broad ligament, reaches the retroperitoneal space, the mesentery of the colon, or the pouch of Douglas.

Anatomical characters.—These cysts are almost uniformly single and simple, and when it appears to be otherwise the

cysts can be shown to be distinct and separable. A few exceptions to this have been recorded, notably a multilocular by Tait, and a bilocular by Sir Spencer Wells. Their outline is uniform, and their walls are extremely thin, being covered by a peritoneal investment distinct from the sac wall, and over which the fine peritoneal vessels can be seen to course. This peritoneal layer is generally easily stripped off from the free surface of the tumour. The Fallopian tube is stretched over its surface, to which it is closely applied, until it may have attained a length differing greatly from the normal condition. The ovary also may become approximated to the surface of the cyst, but is never incorporated in its wall, as in the ovarian, or to a lesser degree in the paroöphoritic cyst. The contents are clear and watery.

Tait describes one kind of cyst as being not uncommon in the broad ligament, which develops a large quantity of unstriped muscular fibre in its walls, so that occasionally it looks almost like a recently pregnant uterus greatly distended. He at the same place refers to a cyst of the broad ligament which he removed, the walls of which, when collapsed after removal, were more than an inch thick.

The possibility of extirpating these sessile cysts depends greatly on the amount of embedding of the tumour which has taken place, and on the degree of absence of the pedicle. The broad ligament may be separated close to the uterus, and the tumour in close juxtaposition to its wall; or the infundibulo-pelvic ligament may be unfolded, and a close connection formed with the pelvic muscles; again, the peritoneum may be elevated from the pouch of Douglas, and the tumour become adherent to the walls of the intestines; or the cyst, primarily unilateral, may pass across to the broad ligament of the opposite side; or it may raise the peritoneum from the paravesical fascia, and come in relation to the abdominal wall, so that in operating the peritoneal cavity is not opened into.

Haig Ferguson, in an interesting paper on this subject,

records a case which came under his observation. Detailed reference to this class of case would lead us beyond our present subject. The paper is well worthy of perusal.

Although much depends upon the direction in which they grow, the following seems to be the simplest classification of sessile cysts, so far as their origin and nature is concerned :—

1. Ovarian, from the hilum, and usually papillomatous.

2. Parovarian—(*a*) either simple from the horizontal tubes, or (*b*) papillomatous from the vertical tubes.

3. Broad ligament cyst proper, without reference either to the ovary or parovarian.

Diagnosis.—With regard to the diagnosis of sessile tumours, though it is surrounded with considerable difficulty, it can be made fairly accurately. It may be extremely difficult in the early period of the tumour's existence, when it is apt to be mistaken for a broad ligament hæmatoma. Their slow, steady growth, and the presence of a tense elastic feeling, will lead to a suspicion of its nature. Later, they become less spherical and less circumscribed than other ovarian tumours. They are unilateral or bilateral, and are in close contact with the uterus, being more or less fixed.

In the abdominal examination two points are especially of importance : the one is, that the cyst is usually very tense, and that occasionally the uterus, as in Case 171, can be distinctly felt *tilted up above the brim of the pelvis*, and in the case of unilateral tumours the uterus is shifted to one or other side. But the main point, which, if not absolutely pathognomonic, is very nearly so, consists in the fact that, on introducing the fingers into the vagina, the vault is found occupied by a firm, tense, resistant mass, and that the cervix cannot be reached, or, if felt at all, only the lip is discovered high up behind the symphysis pubis, almost beyond touch. Of course, I have seen the same produced occasionally by a pediculated dermoid ovarian, or by a sacculated pregnant uterus.

The accompanying figure (Fig. 11) illustrates a dermoid (Case 39) containing fat and hair, which I removed by enucleation. It had no pedicle, and was so firmly incorporated with the uterus that it would admit of removal in no other way.

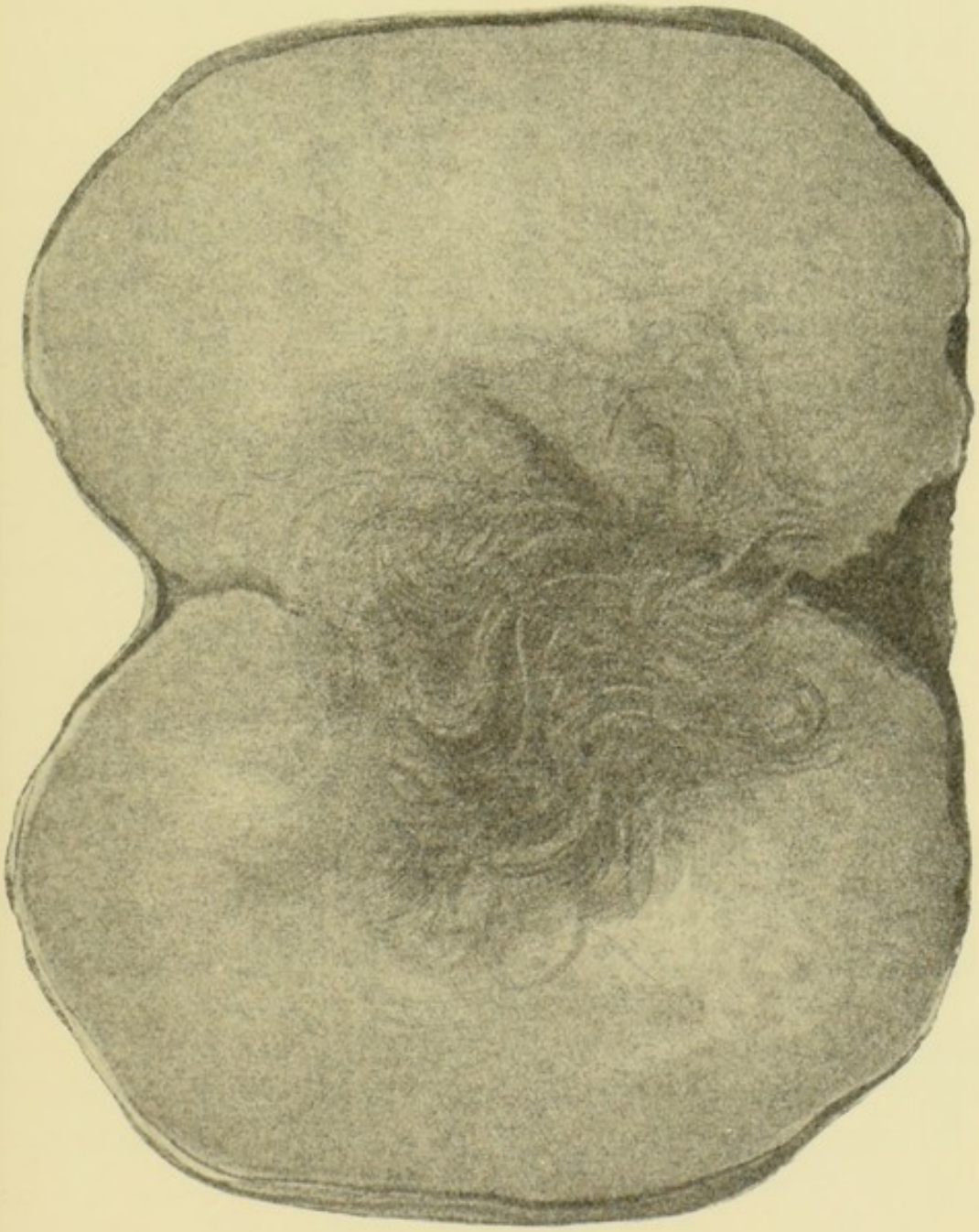

FIG. 11.

CASE 352, which is recorded in full, did not present, per vaginam, the characters alluded to, and therefore no notion as to its true nature could be formed previous to opening the

abdomen. The cervix, however, was somewhat pushed to the side, though there was no bulging into the fornices.

When the abdominal walls were cut through, and the tumour exposed, the surface presented exactly the appearance of a pregnant uterus. It was of a deep red colour, highly injected, and with large venous trunks inosculating freely on the surface. Though before the abdomen was opened the tumour felt tense, after the abdominal walls were cut through the consistence of the tumour felt softer and doughy. So exactly did the surface of the tumour tally with the appearances presented in a Cæsarean section, that I hesitated for a time before proceeding; and in this connection I would desire to refer to a point that I have not seen mentioned, and which adds to the difficulty of diagnosis, even after the tumour has been exposed. It is this: In most cases a sessile tumour can be recognised, from the fact that the capsule is but slightly, if at all, adherent to the tumour below, and therefore the tumour can be seen moving underneath it, which of course decides the question as to pregnancy. But in some cases, as in the one at present referred to, the capsule walls are very thick, very vascular, and adherent to the tumour beneath. Hence the condition is masked. Further, it must be kept in view that, on passing the fingers round the tumour, one finds the peritoneal surface of the uterus continuous with that of the cyst, and if the case has advanced considerably, the pouch of Douglas and so-called pouch of Retzius may be entirely obliterated, the peritoneal layer passing directly from the surface of the tumour on to the iliac fossa and spinal column. It is impossible, then, to get the fingers into the pelvis, except by the cellular tissue behind the symphysis pubis.

Treatment.—With regard to operative interference, no definite technique can be laid down for all cases; each must be managed according to its own merits. Usually, when the tumour is large, and after its nature has been recognised, an incision is made somewhere in the capsule, and a commence-

ment made by peeling off the broad ligament from the tumour wall. Then the tumour is tapped, and a continuation made in the process of enucleation. In many of these large cysts the whole tumour can be absolutely removed; in one, indeed, where the contents were very thick, the whole mass was removed without tapping. The bleeding from the torn vessels in the broad ligament is often very profuse, and must be dealt with as the operation proceeds. Then the redundant peritoneum is removed; sometimes it can be secured by ligature at the base, and dropped back; at other times it is better to stitch it to the abdominal wall and drain.

When the tumours are smaller in size, a similar process, but somewhat modified, is to be carried out; the tumour is exposed and enucleated so far, and then its connection with the uterus is dealt with by a series of firm stitches; or else, if the exposed cavity be too deep to be treated in this way, the walls of the capsule, after bleeding has been checked as far as possible, can be stitched to the abdominal parietes, and drained. Frequent washing out may be required for a considerable length of time.

Much assistance in these operations, which often involve considerable manipulation deep in the pelvis, is to be obtained by the electric light, and sometimes the operation will be further facilitated by employing Trendelenburg's method of elevating the pelvis so as to allow of the intestines being kept out of the way.

Prognosis.—In ordinary pediculated tumours, provided the kidneys are healthy and the patient not alcoholic, a favourable issue is uniformly to be expected. The prognosis, however, in sessile cysts is distinctly less favourable—first, owing to the shock of removing a large surface of capsule; secondly, from the length of the operation; thirdly, from the difficulty of controlling hæmorrhage; and, lastly, from the fact that in many cases drainage has to be relied on.

Mortality and cause of death.—Out of the twenty-two cases

recorded, there are two deaths, both due to "shock"; and this is scarcely matter for surprise when regard is had to the nature and severity of some of those difficult cases. The peeling off of a large amount of peritoneum, the length of time taken to accomplish this, the difficulties encountered in separating the large papillomatous masses from the subjacent structures, the amount of hæmorrhage, and the fact that it does not lend itself easily to control, are sufficient explanation of the greater mortality in sessile as compared with pedunculated cysts.

Glycosuria Complicating an Ovarian Tumour and Ovariotomy.

The existence of slight traces of sugar in the urine in late pregnancy and during the puerperium is almost physiological, and of course there is in such cases no relation to diabetes proper; while the occurrence of actual diabetes, as a serious complication of pregnancy, is well known, as the publication of a considerable number of cases show. But the presence of sugar in the urine in large quantities, complicating an ovarian tumour and a serious ovariotomy, is sufficiently rare to warrant me in recording this case.

Mrs. W., æt. 53, was admitted to Ward 28, on November 24, 1894. She complained of great swelling of the abdomen, with consequent dyspnœa. Being an excessively corpulent woman, she had not noticed the additional enlargement caused by the tumour until five months previous to admission, though in all probability its presence might have been detected by a physician some months before. As her symptoms began to get urgent, with the growth of the tumour, she consulted Dr. Jeffrey of Ayton, who at once sent her to the Royal Infirmary.

When she presented herself at the ward, her appearance was—to say the least—extraordinary. Her height was about 5 ft. 4½ in.; her weight, without clothes, a little over 17 stone, and the girth of the abdomen 60 in. Her complexion was pale, the lips somewhat cyanosed, with a distinct growth of hair on the upper lip and chin.

Her family consisted of one child, æt. 14. Menstruation

had been normal and regular up till six months previous to admission, when it ceased suddenly, there being no vaginal discharge of any kind from that date. Micturition gave rise to no pain or uneasiness, and the amount of urine secreted did not exceed the normal. On examination, however, the urine was found to contain blood, a small quantity of albumin, and a large amount of sugar; its specific gravity was 1047; nevertheless, it contained a normal or diminished proportion of urea. On November 26 she passed 25 oz. of urine and 545 grs. of sugar, the urea being about 270 grs. The albumin was due to the presence of blood, the result of cystitis, and disappeared along with the cystitis under treatment.

There was no excessive thirst or appetite; the thoracic viscera were normal, and the skin healthy, moist, and free from any eruption—not even the labia showing any signs of irritation. Her general health seemed good, in spite of her many troubles.

On examination, the abdominal walls were found to be thickly lined with adipose tissue, a pelvi-abdominal tumour was felt rising as high as the eighth costal cartilage, freely movable, painless, non-fluctuating, and dull on percussion. A resonant note was obtained in both flanks. Auscultatory signs were negative per vaginam, but little further information was obtained. The cervix was very high up and atrophied, the uterus small and lying to the front, and the posterior and lateral fornices were empty.

With respect to the diagnosis, I had no doubt as to the nature of the tumour, regarding it as a large colloid ovarian. The nature of the glycosuria, however, required some consideration. That it was not a typical case of diabetes was evident from the absence of polyuria, thirst, etc., and the question arose, Was it a form of glycosuria which would contra-indicate surgical interference?

The danger of operating on diabetic patients is well recognised by surgeons. Indeed, it has been laid down as a

law by many that only under extreme necessity, and with particular caution, should any operation be undertaken on a patient suffering from this condition, because of the tendency to the occurrence of gangrene, causing sloughing of the surfaces of the wound, with septic absorption, rapid collapse, and death; to say nothing of the liability to intercurrent affections, such as bronchitis and pneumonia.

Glycosuria is by no means a common complication of ovarian or other large abdominal tumours, but, taking into consideration the absence of the usual diabetic symptoms, it seemed more probable that it was caused by, and not merely coincident with, the growth of the tumour.

From November 27 to December 6, 2 grs. of codeia were administered to the patient every six hours, the diet being modified within reasonable limits. This, however, produced but little effect on the amount of sugar passed daily, the lowest record being 340 grs. (10 grs. to the oz.), and the drug began to cause sickness. Morphia was then tried, with no better result so far as the sugar was concerned.

As the growth of the tumour was distinctly progressing, and the dyspnœa becoming urgent, operation was decided upon.

Laparotomy was performed on December 12. The abdominal walls were quite 4 in. thick. On opening into the peritoneal cavity, a large colloid tumour was found implicating each ovary. No difficulty was experienced in removing these and in completing the operation. The two tumours weighed 56½ lb. A quick reaction followed, and for the first six days the pulse never fell below 100, the temperature remaining about 100° F. for the first four days. After this she made a good though slow recovery, and left the hospital on January 26, 1895.

To return to the question of the glycosuria, it was noticed that, whereas a specimen of urine examined on the morning of the operation contained 12 grs. of sugar per oz., a specimen

drawn off six hours after contained only 5 grs. This excellent result was, however, only temporary, as on the following day the sugar was again up to 10 grs. per oz., the total quantity passed being 360 grs.

During the first eleven days after the operation no special treatment was adopted, the daily quantity of sugar secreted averaging about 370 grs., and on one day (December 18) being as high as 700 grs., the amount per oz. on that occasion being 25 grs.

On December 23, morphia was resumed, the liq. morph. hydrochlor. being used in 15-minim doses every four hours, the diet being modified to a slight extent. This was followed by an appreciable diminution in the daily secretion of sugar.

On December 26, and subsequently, experiments were made on urine passed immediately before food and that passed some time after. It was found that the latter contained nearly twice as much sugar as the former. From the same date, the urine passed during the day and that passed during the night were kept separate. It was thus observed that from 60 to 80 per cent. of the sugar was passed during the day.

On January 2 the morphia was stopped and the diet more rigidly restricted to nitrogenous articles. This was followed by no very marked changes for the first fortnight. Then the sugar diminished rapidly.

On January 19 only 45 grs. were passed in the twenty-four hours. During the several days previous to her dismissal on January 26, only slight traces of sugar were to be discovered in the day urine, the night secretion being quite free.

She resumed her ordinary diet on going home, and has kept quite well ever since. She forwarded a specimen of urine on March 28, which on examination was found to be absolutely free from any trace of sugar.

Several points of interest present themselves in the study of this case, both with regard to the causation of the glyco-

suria and the effects of treatment. Previous to the operation, dieting and the usual remedies produced little or no diminution in the amount of sugar voided, and even after the removal of the tumour it is very doubtful whether they hastened in any measure the final disappearance of the glycosuria.

It may be fairly assumed, from the course and history of this case, that the tumour and the glycosuria stood in the relationship of cause and effect, and were not merely coincident. The question at once arises, In what way does the cause operate? In the light of recent research there seem to be two possible channels, namely, either by an interference with the glycolytic function of the pancreas, or with the hepatic circulation.

It is not the object of this paper to discuss the much disputed question of pancreatic glycosuria. Suffice it to say, that most physiologists now agree that the pancreas plays a very important part in regulating the amount of carbohydrates contained in the blood. Whether its secretion acts directly on the excess of glucose in the blood, or so stimulates the liver cells as to favour their glycogenic function, is of no importance in the present inquiry. If the pressure be exerted either on the pancreas directly, or on its vessels, sufficient to seriously interfere with the circulation in the gland, and so diminish or suppress the secretions of this glycolzyme, glycolytic ferment, glycosuria will result. The vast majority, however, of large abdominal tumours are not complicated in this way. This may, I think, be explained by elasticity of the abdominal walls, allowing of expansion in proportion to the growth of the tumour, so that the intra-abdominal tension is not increased in any direction. Given, however, a large, rapidly growing, solid, or semisolid tumour, and thick, inelastic abdominal walls, such as Mrs. W. possessed, it is easy to see how not only the general pressure may be raised, but, on account of the arrangement and strength of the recti muscles in front, the pressure antero-posteriorly may come to be

greater than that in any other direction. Thus the structures situated on the posterior abdominal wall, in the line of greatest pressure, might suffer much, while only a slightly increased pressure was being exerted on the diaphragm above or on the lateral abdominal walls.

In the present case, however, there is an argument against the interference with the function of the pancreas having been the sole cause of the glycosuria. It is scarcely conceivable that the removal of pressure from the pancreas would cause the sudden diminution of sugar which occurred immediately after the operation. Considerable time would be necessary for the establishment of the secretion, and for even the partial development of its physiological action. For a further explanation it seems necessary to turn to the hepatic circulation. It has been proved to the satisfaction of all, by Claude Bernard and others, that a hyperæmia of the hepatic system, that is to say, an increased arterial supply to the liver, will cause glycosuria, and the exact method by which this is brought about does not fall to be discussed here. No direct mechanical interference with the liver or portal system could have any effect in producing glycosuria, and it is extremely unlikely that a pelvi-abdominal tumour could interfere directly with the hepatic circulation; but it is not difficult to imagine that the semilunar ganglion, or that portion of the solar plexus lying in relation to the cœliac axis, may have their vasomotor fibres partially paralysed by pressure. The vasomotor supply for the hepatic artery comes from these two sources, and it, along with others, would dilate, and so cause arterial congestion in the liver, which would continue more or less marked so long as the pressure was kept up.

A sudden relief of pressure, both local and general, in the abdomen, such as occurred at the operation, would act, not so much by stimulating these vasomotor nerves, as by causing a sudden dilatation of the large abdominal vessels, and conse-

quent anæmia of the liver. This would explain the sudden, but temporary, fall in the amount of sugar secreted immediately after the operation.

The hepatic vessels evidently took some time to recover their former calibre and tone, the process being coincident with the gradual diminution and final disappearance of the glycosuria.

These are suggestions merely, of ways in which a condition involving processes of great complexity, and issues which are subjects of controversy amongst physiologists, might possibly be explained. The subject lends itself to discussion; the condition described is, I believe, rare; and I hope that for these reasons this account of a case may be found not without interest.

Complicated Case of Double Ovariotomy in a Girl æt. Eighteen.

G. S., æt. 18, was first admitted to Ward 28 in the Hospital, July 1897, complaining of a swelling of the abdomen, which had been noticed for sixteen months. The patient had never menstruated, but stated that at the age of 15 she had some swelling of the abdomen, which, however, gradually disappeared. Before admission the abdomen was tapped three times, on May 1, June 10, and July 15. She had never complained of pain till a few days before she came into hospital. On admission the patient was very anæmic, and her face, neck, and chest were much emaciated, the abdomen was enormously distended, and her lower extremities were very œdematous.

Examination of the chest revealed the fact that the right pleural cavity was full of fluid, and the apex of the heart was found in the left axilla.

The surface of the abdomen showed the presence of numerous distended veins and many recent striæ, while the umbilicus markedly protruded. The note on percussion was absolutely dull in every part, while fluctuation was easily determined. The girth of the abdomen at the level of the umbilicus was 40 in.

A few days after admission the right pleura was tapped, and 144 oz. of blood-stained serum were removed, and a few days later still, 280 oz. of pinkish-coloured fluid were aspirated from the abdomen. Thereafter, on examination, the presence of a large tumour, occupying chiefly the left and lower parts of the abdominal cavity, was made out. It was very hard,

irregular in shape, and presented all the features of a malignant ovarian tumour, and as such it was then diagnosed, and the condition was considered a hopeless one. From July 1897 till April 1898 the patient lay in the ward, extremely exhausted and emaciated, although she never seemed to get specially worse. Exploratory incision, far less any attempt at operation, was not thought of, but, as a matter of temporary relief, her abdomen was tapped regularly once a fortnight, and fluid removed, varying in quantity from 300 to 500 oz. Examination of the fluid showed that it was mainly ascitic.

The right pleural cavity was also tapped during this period on four occasions, each time from 100 to 120 oz. being removed. The œdema of the lower limbs was also frequently relieved by Southey's tubes. Gradually one was forced to the conclusion that, since the patient's general condition had become really no worse than on admission, and since the condition in the abdomen had not changed in any way, the tumour might not, after all, be malignant, and therefore it was decided that the abdomen should be opened, and, if possible, the tumour be removed. Accordingly, on April 5, 1898, I operated, and removed one of the largest dermoid ovarian tumours I have met with. It weighed, even after tapping, about 30 lb. It had developed from the left ovary, and the operation was comparatively simple, the pedicle being well defined, and the adhesions few and easily separated. The right ovary, which was apparently healthy, was left intact. After the operation the patient was extremely collapsed, but with free stimulation she speedily revived, and made an excellent recovery. The œdema entirely disappeared, and the extensive general emaciation became more and more striking, but in the course of a few weeks the patient put on flesh rapidly, and by June 7 was sufficiently well to be sent to the Convalescent House, and a fortnight later she left for home in Shetland.

She was readmitted to Ward 28 on September 30, 1899, when she appeared a tall, stout, well-built, healthy-looking girl. She had menstruated regularly since the last operation. She complained of a swelling of the abdomen, which she had noticed for six weeks before admission. Examination of the abdomen revealed a large hard tumour, occupying the middle line, and growing upwards, especially towards the right side, so that the dulness was almost continuous with that of the liver.

The diagnosis was, that probably this was an ovarian tumour occurring in the ovary which had been left. On November 7 the abdomen was opened by an incision a little to the right of the previous cicatrix, and this, before the operation was completed, had to be extended well above the umbilicus. The tumour which came into view was cystic, and on puncturing it a large quantity of brownish fluid escaped. The wall in some parts was very thick, and consisted largely of soft, fatty-looking, friable, lobulated tissue, which crumbled away when taken hold of either by the fingers or by forceps.

There were several adhesions, and at one part the tumour was intimately adherent to the small intestine, so much so that they could not be safely separated, and a piece of tumour wall about 4 in. by 2 in. was left adherent to the intestine, after having been trimmed with scissors.

The pedicle, which was very broad, was secured by two ligatures, and the peritoneal cavity was thoroughly washed out. A drainage tube was inserted, the wound closed, and the patient put back to bed. She was extremely collapsed, and all the afternoon had great pain, and was inclined to be very restless. She was very cyanosed, and the pulse was small, thready, and very weak. Brandy enemata and other stimulants were given. The tube was removed the next evening, and she gradually improved. The stitches were taken out on the sixth evening. Later, a dry dressing was

put on, and on the 28th, three weeks from the date of operation, the patient was up and looking perfectly well.

The microscopical examination of the tumour showed that it was a simple cystic papilloma.

This case seems to me to present many interesting features, but probably its chief importance lies in, first of all, the difficulty of diagnosis when the patient was first seen. The patient was admitted presenting every possible sign of abdominal cancer, except her age, which of course is not of itself preventive, and it was only after she had lain in the ward and had been treated by palliative measures that the abdomen was opened. It must be extremely rare indeed to remove stained fluid from the pleura which is not associated with malignant disease. As far as I am personally concerned, I have not seen a case before.

This is quite in keeping with one's previous experience, and suggests that in all cases where there is room for the least element of doubt, an exploratory incision should be made. And yet how very much oftener, on so opening the abdomen, is one met with disappointment and with the fact that the condition is hopeless. The case also raises the question of the removal of the other ovary at the time of the first operation. In this particular case I have no regrets, for on the first occasion the other ovary was most carefully examined and seemed perfectly healthy, and therefore, especially as the patient was only æt. 19, it was left intact. Indeed, even though there had been evidence of commencing cystic disease, I think I should have been tempted, if not to leave it entirely alone, at most to remove, if possible, only the part of the organ affected. I admit it is a difficult matter to tell whether an ovary is really diseased or not, because the perfectly functioning organs present such differences of appearance; but in this case, at all events, the ovary seemed to be perfectly healthy, and therefore was left.

Another point is, that where there are extensive adhesions to the bowel, as in this case, and especially where the adhesions are very intimate, it seems to me safer and better to leave portions of the tumour adherent to the bowel, than to peel it off and leave large bleeding surfaces, or to have perforations which require to be dealt with carefully, and prolong the operation.

Mittelschmerz.

I do not propose to enter into a general discussion of dysmenorrhœa. The object of the present communication is to discuss a form of dysmenorrhœa, by courtesy so called, which occurs, not at the period when the external manifestation of menstruation takes place, but at mid-term—a condition to which the Germans have given an appropriate name, "Mittelschmerz," and which the French have, less felicitously, called "Dysménorrhée intermenstruelle." Whatever name may be applied to it—and certainly intermenstrual dysmenorrhœa is not suitable—the condition is a well-marked one, wherein an attack of dysmenorrhœa proper is simulated, without necessarily any external hæmorrhage. It does not at all resemble the premenstrual pain, or the continued pain associated with inflamed or diseased ovaries, but it is a condition which occurs definitely each month, at a definite period and for a definite number of days.

So far as I am aware, the condition was first of all described by Sir William Priestley many years ago, and it has been also discussed by Fasbender and Sorel.

I will now recount the more important points of some cases occurring in my own experience, which may be taken as fairly typical.

Case 1 was that of a young girl, æt. 18, whom I first saw at Professor Simpson's private clinique somewhere about the year 1873. She complained of acute pain, sometimes in one side and sometimes in the other, occurring with the utmost regularity, fourteen or fifteen days after her menstruation.

This had been the case ever since she was 14, and she did not begin to menstruate until she was 16. There was no abnormality, so far as I could discover, in the ovaries, tubes, or uterus. I saw her more or less regularly for thirteen or fourteen years after she first came under my observation.

During all that time she menstruated with regularity, and her intermenstrual sufferings continued. During the years I knew her she occupied various situations in the capacity of a housemaid. She menstruated regularly and without pain, but every month she was obliged, in order to avoid her intermenstrual suffering, to use morphia rather freely. She ultimately married and went to the colonies, and I know nothing of her subsequent history. Her pain began after a severe attack of scarlet fever when she was about 14 years old.

Case 2 was that of a woman who was sent to my ward for profuse hæmorrhage, associated with marked dysmenorrhœa, in addition to a definite and severe pain occurring between the menstrual periods, about the fifteenth day. The pain was severe and localised to the left side, and accompanied occasionally, though not always, by a slight discharge, sometimes of blood, and sometimes of clear fluid. On examination she was found to have a uterus enlarged to 3½ in., and containing a submucous fibroid on the right side.

After continued treatment, including curetting, she was sent home, but returned in a few months with the symptoms all considerably aggravated. It was resolved, therefore, with a view to checking the hæmorrhage, which had become so profuse as to prevent the patient continuing her duties, to remove her appendages. This was done; the right ovary was somewhat cystic and the tube thickened; on the left side the ovary was normal, but there was a well-marked hydrosalpinx. It is worthy of note, as bearing directly upon the case, that the woman was æt. 35, and she had suffered from inter-

menstrual pain only for five years. It will therefore be seen that this case differed entirely from the last one, in which the condition of intermenstrual pain had existed from childhood.

Two things, consequently, are clear about this case—first, that the condition was distinctly an acquired one. Were it due to some condition of the ovary, then the mittelschmerz should have been on the right side, whereas the pain was on the left, where the ovary was normal. Secondly, if it were due to painful ovulation, occurring independently of menstruation, then it would have been expected that the intermenstrual pain would not have been of such recent origin. It is therefore by no means unlikely that this rare condition may be due to the over-distension of the Fallopian tube with fluid, and that the pain of the mittelschmerz is associated with its expulsion.

This question of hydrops tubæ profluens I shall discuss later on.

Case 3.—A woman, æt. 25, was brought to St. Luke's Home some years ago suffering from severe dysmenorrhœa, the dysmenorrhœa occurring for the first three days of the menstrual period. Various remedies were prescribed, but she returned to the Home some months afterwards, being no better. A local examination was then made, when it was found that the uterus was somewhat enlarged and acutely retroflexed. The condition of the appendages was apparently normal.

During her stay in the Home, which was rather protracted, and before any operative interference had been undertaken, my attention was drawn to her having acute suffering in the left side, about fifteen days after menstruation, very similar to the pain she suffered at her menstrual period, but not so severe.

I examined her then, and found the condition in the

pelvis as I have described, with the addition that there was a distinct fulness at the left side, the nature of which, at the time, I did not recognise.

On further inquiry, I found that she had had this mid-term pain, lasting for a few hours, regularly for four of five years.

With a view to curing her dysmenorrhœa, the cervix uteri was dilated, and she was sent off, in the hope that her dysmenorrhœa would be relieved.

Months later she was brought back again by her mistress, who said she was quite unfit for her duties as a servant, and must therefore, unless cured, leave her situation, all the more so as twice in the month she was temporarily *hors de combat.*

I am not perfectly sure what the further treatment was which she underwent for her dysmenorrhœa, but, whatever it was, it was unavailing.

The case was brought to me after I came to be in charge of beds in the Infirmary, and, after carefully considering the matter with the doctor in whose charge the patient had been, I somewhat unwillingly removed the ovaries. I found that there was well-marked hydrosalpinx of the left tube. The fact that this condition of the hydrosalpinx, of the size of a small hen's egg, was not found except on the one occasion, referred to above, led me to the conclusion that it was one of those cases of hydrops tubæ profluens, and this conclusion was entirely supported by the subsequent history of the case; because, although the removal of her ovaries and tubes neither stopped her menstruation nor cured the dysmenorrhœa, the intermenstrual pain did not recur for at least a year afterwards, since which time I have not heard of the case again.

The four cases recorded by Priestley,[1] which appear to be the earliest recorded cases presenting this condition, have the following as their prominent features:—Pain, paroxysmal, in the region of the ovary, occurring during the intermenstrual

[1] *Brit. Med. Journ.*, London, 1872, vol. vii.

period; in some cases continuing up to the commencement of the flow, in others stopping before then. The ordinary flow is usually scanty, but regular, and with no pain.

On bimanual examination.—In two cases tumour felt in region of broad ligament, adherent to uterus, elastic to touch.

In the other two cases only thickening in the region of the broad ligament.

Sorel records a case, presenting symptoms similar to those mentioned above, in which the condition existed for a great number of years; indeed, observation had been made during a period in which 147 menstrual epochs had occurred. The chief conclusion arrived at by this author was, that the occurrence of the intermenstrual pain bore a more definite relation to the commencement of the period which followed it than to the period which went before, as there always elapsed fourteen days between the occurrence of the pain and the commencement of the menstrual period.

One of the most important contributions to the very limited literature of this subject is an article by Heinrich Fasbender, published in 1876. The case which he quotes as having occurred in his own experience presents the following features:—

An unmarried woman of 24, anæmic, with an anxious cast of countenance, had menstruated regularly since her fourteenth year. The flow was always sparing, and for a few days before its appearance there was a severe pain in the lower part of her abdomen, with gastric disorder, cachexia, and alternate sensations of heat and cold. For the past two years there had occurred, at the fourteenth to sixteenth day after menstruation, a disorder similar to that which accompanied the ordinary menstrual period, accompanied by a flow of mucus from the vagina, so conspicuous as to have caused her to mention it without its being suggested to her. Her nervous system had become much affected by the pain and discomfort which she underwent, so much so as to have

produced symptoms of hysteria and a mental condition bordering on melancholia.

Physical examination showed the presence of an acute anteflexion of the uterus, with chronic endometritis and colpitis, with lesions of the os. Nothing abnormal was found in the uterine annexa. On seeing her again at the time of her intermenstrual pain, he came to the conclusion that the mucous discharge was most copious when the feeling of heaviness in the pelvis was most marked, pointing to a congestion in the pelvic organs. Fasbender's view of the etiology of mittelschmerz is that, accepting Pflüger's theory of menstruation, we have in some cases a premature summation of nervous stimuli in the ovary, with the occurrence of ovulation, caused either by a delicately organised and excitable state of the whole nervous system, or of the nerves of the ovary, the latter state produced by a pathological condition of the ovary. This abnormal irritability leading to dehiscence of a follicle, some fourteen days before the proper menstrual period, produces the congestive condition of the pelvic organs found in cases examined at such a time.

In the discussion which followed the reading of Fasbender's paper several additional cases were cited and opinions expressed.

Two gentlemen cited cases where the intermenstrual pain had occurred in women suffering from anteflexion of the uterus; and a third suggested the anteflexion as the cause of the mittelschmerz, the pain being due to contraction of the uterus, trying to expel retained blood, etc. To this it was replied that, in the observed cases, no contractions of the uterus could be discovered; and, further, anteflexion was not present in all cases of mittelschmerz; while, if it were caused by anteflexion, mittelschmerz would be a much commoner symptom than it is.

Mittelschmerz with a slight flow of blood is also described by Benicke as occurring in a case where there was a conical

cervix with pinhole os, anteflexion of the uterus, and retraction of the utero-sacral ligament.

From the above notes, which, so far as I can discover, include a mention of nearly every case of mittelschmerz which has been recorded, the condition, it seems to me, can be well considered as having three different manifestations—

1. A group of cases in which there is no external manifestation at all.

2. Those cases where the pain is associated with an escape of blood.

3. Those in which the intermenstrual pain is associated with a clear discharge.

It would be absurd to dogmatise upon the causes which give rise to this condition, or to lay down any hard-and-fast rules as to the pathological conditions necessary to its production, but it seems to me that the above classification gives a fair insight into the different states that may lead to the production of this somewhat unusual symptom.

1. With regard to those cases where no external manifestation accompanies the occurrence of mittelschmerz, the explanation is probably to be found in the fact that ovulation and menstruation do not in these cases occur simultaneously; that, in addition, owing to thickening of the capsule of the ovary, or some such cause, dehiscence of the follicle occurs with pain.

2. Those associated with escape of blood. In all of these it will be observed that there was present more or less endometritis, anteflexion, and enlargement of the uterus, and, so far as I am able to judge, these were simply cases in which a slight intermenstrual flow, due to endometritis, was accompanied by a well-marked pain during the passage of clots. Such a condition is well recognised and common, and scarcely, I think, should come under the category of mittelschmerz at all. Still, it adequately enough describes a set of cases to which the Germans especially have drawn attention.

Lastly, with regard to those cases in which a leucorrhœal discharge is described as occurring with the mittelschmerz, and where, just before the usual date of the occurrence of the pain, a swollen and fluctuating condition of the tubes was in some cases made out, I think there can be no question that the cause of the intermenstrual pain was to be found in hydrops Fallopii, reaching its full development at mid-term.

I am well aware that much doubt is now thrown upon the possibility of the existence of what is called "intermitting hydrosalpinx," or "hydrops tubæ profluens," the occasional sudden escape of fluid through a temporarily patent uterine end, with disappearance and diminution in size of the tubal dilatation. According to some, it is much more likely that these discharges pass, not through the cervix, but by a vaginal fistula communicating with the cyst. Either explanation is compatible with this view of mine.

In my case, in which a removal of the tubes and ovaries brought about a cessation of the mittelschmerz, it may be urged that the pain had been ovarian, and that the removal of the hydrops did not lead to its cessation, but the removal of the ovary. Here I would remark that colicky pain in the tubes in such a condition occurs, contractions of the sac forcing the fluid through a uterine orifice only partially closed; and also that pain may be due to discharge of uterine contents, the result of reflex contraction of a necessarily congested uterus. Thus it is more than likely that the pain was really tubal.

Vaginal Hysterectomy.

The therapeutics which thirty years ago held their sway over this department no longer occupy the all-important place they once did; and diseases of women have drifted away absolutely and entirely from the domain of the physician into that of the surgeon pure and simple.

No doubt this is to some extent natural. The development of abdominal surgery within the last thirty years has been so startling and phenomenal, that no wonder men have devoted their lives and their time to the perfection of this particular branch. The operation of ovariotomy is itself a striking example, and there can be no doubt whatever that, with the present generation, the rôle of the ovariotomist pure and simple exists no longer. Now, that operation, which is as safe as any other major operation in surgery, has, thanks to the obstetrician first and to the gynæcologist after him, become an operation as much in the province of an ordinary surgeon as a hernia or a gastrostomy. But it must be kept in mind that this advance is due entirely to our department.

It must ever be, however, and will ever continue to be, a difficulty with the surgeon who is not accustomed to either obstetrical or gynæcological work, to make his diagnosis a certainty, and therein will always lie the crux with the surgeon when he takes pelvi-abdominal work in hand. This question of diagnosis brings us at once back to the domain of the obstetrician, with whom the diagnosis of pregnancy, for example, is part of his daily work, whereas the general surgeon has not the opportunity of perfecting himself in the differentiation of such conditions.

Now, this divorcement of diseases of women from obstetrics is not altogether without its disadvantages. The pendulum has swung, and swung very markedly, to surgery. That to surgery gynæcology has owed its greatest victories, there can be no question at all. One has only to think of the improvements in abdominal hysterectomy, and its fullest development in pan-hysterectomy, with, on the other hand, the conservative operation of myomectomy. These all are recent triumphs of the surgeon's art. Further, the last decade has witnessed remarkable improvement in the treatment of diseases of the uterine appendages. For while, no doubt, the removal of ovaries and tubes for inflammatory diseases has been enormously overdone, yet our experience has now crystallised our knowledge with regard to the pathological conditions for which these structures can be conscientiously removed. We cannot be too glad to recognise that the tendency now is becoming more and more conservative, and that the perfected methods of antiseptic surgery enable us to deal with even limited areas which are affected, in ovaries and tubes which are not entirely diseased. The ease and safety with which complete salpingo-oöphorectomy can be performed must ever be a reason why we should safeguard this operation as much as possible; and fortunately we are now in a position to realise that only in grave pathological lesions should these organs be entirely removed. Those of us who have been in the habit of dealing with morbid pelvic conditions must have become impressed with the fact that removal of the ovaries for merely inflammatory conditions is by no means a uniform relief to the symptoms, and often has grave and serious effects upon the patient otherwise.

Of tubal affections none can be more important than tubal pregnancy; and the treatment of extra-uterine gestation has become, within the last fifteen years, one of the recognised triumphs of gynæcological surgery. The means of dealing with a tubal pregnancy before rupture are quite well deter-

mined, and its removal is a matter of comparative safety compared with the risks of rupture. But even after rupture has taken place, it can be, and often is, dealt with quite successfully. The difficulty in dealing with extra-uterine pregnancy will always be one of diagnosis.

But even here, great and pronounced as the surgical advance has been, it is just possible that, in dealing with extra-uterine pregnancies, especially early ones, the resort to the knife has been overdone, and many early ectopic gestations, even after rupture, have been absorbed and have disappeared without the arbitrament of the knife.

In pelvi-abdominal surgery, by the vaginal route, the advances have been no less remarkable. The dealing with uterine cancer by the entire removal of the uterus per vaginam has developed enormously within recent years. The operation can now be done in a few minutes, and that this indicates an enormous advance in technique it is impossible to deny. But the question comes to be: Does the operation, so shortened and so simplified, tend much to the prolongation of life of the patient? It certainly has made the removing of a cancerous uterus a simple and easy procedure, even in moderately advanced cases. But I doubt if it has done much, if anything, to prolong the life of the patient, or to ameliorate her sufferings; and for this reason, that the disease, after hysterectomy, proceeds rapidly to the peritoneum, where it produces for the patient sufferings and a death worse than if no operation had been done at all.

That a vaginal hysterectomy stops hæmorrhage and fœtid discharge, and relieves pain, there can be no question at all. But this is only a temporary improvement. And for this dire disease even a temporary alleviation of these symptoms would be an advantage, were it not that, with the recurrence of the disease, the ultimate pain and suffering are greater than if it had never been touched at all.

Here and now it is not my business to discuss whether

cancer begins generally or locally. The great pathological warfare of twenty years ago, between Paget and Hutchinson, remains still unsettled, but I believe the consensus of opinion is in favour of the view that it is primarily a local disease which, later, attacks surrounding and distant parts, and infects the system generally. If this be so, of course the argument for removing the uterus, when it is the centre of the infection, remains as strong as possible. And naturally, if the gynæcological surgeons were able to see the cancerous uterus at its initial stage, and remove it, no doubt good results ought to be anticipated. But such is, unfortunately, not the case.

After an experience now of twenty years, including twelve years as physician in the Royal Infirmary, I have tabulated every case that has come under my special supervision. It is twelve years ago since I did my first vaginal hysterectomy for cancer. That operation lasted two hours and a half, and, as a proof of the advance in technique, and of the ease with which the operation can now be performed, the last I did was performed in eighteen minutes. I have diligently observed every case of malignant disease of the uterus that has come under my observation, with a view to the performance of that operation, and only fourteen have fulfilled all the conditions requisite to justify hysterectomy with expectation of success. I have carefully operated upon all of these cases. All the operations have been undertaken with the assistance and approval of my colleagues, and here and now I wish to say, speaking the absolute truth, that these fourteen patients on whom hysterectomy was performed—although they all, save one, to use the ordinary hackneyed phrase, made absolutely uneventful recoveries—died, every one of them, within the year, and, in my opinion, with greater suffering than if they had been left alone.

Now this applies, unfortunately, to several cases in which the disease was absolutely confined to the fundus, and where, so far as I could find, there was no involvement of the broad

ligament whatever, these cases being typical examples of the desirable cases on which to operate. And yet, in all, the disease recurred in the peritoneum, and the patient died in great distress within the year.

Now, given that the diagnosis of cancer is made at its most initial stage, with due care and attention, a woman's expectation of life may be from two to two and a half years,—I ask, with the best statistics available, whether she has a better prospect if the cancer be left alone, or if it be interfered with by hysterectomy? Many forms of cancer are painless. Most of them destroy life through hæmorrhage, exhaustion, and uræmic poisoning, etc. The question is, Do women live longer lives and die less painful deaths if the uterus be removed, or if the disease be allowed to run its ordinary course? For my own part, I do not think that surgical interference is the better.

I know well that I shall be confronted with the German statistics. It is not becoming in me to question these statistics; but I do not think that either this country or America, whatever the explanation may be, has given us results at all in comparison with what the Germans claim. For example:—At the end of five years Fritsch had 36 per cent. of cures; Hofmeier, 33 per cent. after four years; Schauta, 47 per cent. after two years. At the Dresden clinique, of eighty patients examined two years after operation, forty-five had no recurrence. Of fifty-eight examined after three years, 58·6 per cent. were well. Of forty-two patients, after four years, in 59 per cent. there was no recurrence. Of thirty after five years, 60 per cent. were well, whilst two survived seven years. Leopold states what seems to me the most startling statement in surgery, that out of seventy-six cases seventy-two were well and without recurrence after one to five and a half years.

If these figures are true—and I have no desire to traverse them—I can only say that cancer in Germany must be one

thing and cancer in Great Britain another, that the respective diagnostic skill of the two countries must vary considerably, or that women must present themselves to the German surgeons at a period when the disease is in its most initial stage, when it is still confined to a small nodule in the cervix, or limited to the mucous membrane of the fundus; for I cannot conceive that results such as I have referred to are obtainable after the disease has advanced, where the lymphatics and glands are involved, or still less when the uterus has become fixed.

The opportunities of the Edinburgh Infirmary and of private practice give us, alas, only too ample scope for seeing and diagnosing cancer, and my own sphere of experience has been a reasonably large one; and I repeat, that in all these years fourteen only have been seen early enough to render a successful issue probable, and these have died within a year of operation. As a further explanation of the discrepancy, may I venture to suggest, without multiplying examples, that within my own personal knowledge cases of marked cervical catarrh with gross erosions have been regarded as cervical cancer, and removed as such, and it is very easy to mistake an advanced senile uterine catarrh of a pronounced type for a fundal cancer. In my own cases I need hardly say that, before operation was undertaken, in each of them the suspected tissue was examined microscopically, and the diagnosis thus absolutely established. It is true some gynæcological surgeons tell us that, as the senile uterus is of no further use, when there is any doubt it is better removed; and, for example, they will tell us further that, after removing the ovaries by the vaginal route, the uterus may as well also be removed for the same reason; but, I ask you, is this surgery? The ablation of an organ because it is of no further use, is no argument; the point in surgery, so far as I see, is only to remove those organs, or those portions of organs, which are absolutely diseased, and which shorten life, or are seriously

interfering with health. The conditions to which I have just referred do neither.

Further, if we take and carefully look over these statistics, we shall find that they are, to say the least of them, somewhat ambiguous. And we shall further find that, even though a woman lives two years after the operation, and has no return, it is doubtful whether she lives longer and dies happier than if the uterus were left *in situ*.

The whole point of the matter is this, that it is quite conceivable that, with a cancer very early diagnosed and operated upon, the prolongation of life is possible, although, unfortunately, such has not been my experience; but, after a cancer has developed beyond its most initial stage, I hold and believe that the removal of the organ does not prolong life, and that the subsequent death is infinitely more terrible.

Now, if the disease be local in its origin and only affects the system secondarily, one naturally asks why the alleged results are so satisfactory in the mamma, and apparently so unsatisfactory in the uterus. The answer seems plain. It is the old question of early recognition. And the possibilities of early recognition in the mamma and in the uterus are totally different. Every woman recognises a small swelling in her breast at once, and seeks for immediate advice; whereas a woman may have uterine discharges, leucorrhœal and hæmorrhagic, and pain and discomfort for months, without taking any notice of it whatever. If it were possible to recognise early cancer in the uterus as well as in the mamma, of course it is possible, as I have just said, that the results would be somewhat better. Furthermore, we must remember that whereas in the breast the lymphatic connections and glands can be dealt with, and are regularly dealt with, whether they appear to be affected or not, it is otherwise in the pelvis. And perhaps Howard Kelly, acting on Freund's suggestion, may be in the right lines in giving up vaginal hysterectomy for cancer, and dealing with the whole uterus and broad liga-

ment from above. But this procedure is, to say the least of it, still *sub judice*.

Since Freund, in the late seventies, first of all introduced abdominal hysterectomy for cancer, and afterwards abandoned it, because of its high mortality—somewhere about 76 per cent.—vaginal hysterectomy, in the hands of Fritsch, Leopold, Segond, Martin, Olshausen, Doyen, etc., has undergone a varying course of evolution, until now the operation is as perfect as it can be, and the immediate mortality, which at first was 15 to 25 per cent., has fallen to practically *nil*, even in my own hands. But I wish to point out that records such as appear from time to time in our journals, of successful cases of vaginal hysterectomy for cancer, mean absolutely nothing at all, because, to give a series of tables of successful hysterectomies, winding up with the stereotyped phrase, "the patient left the hospital well," is no addition to our knowledge of results. The operation has been so improved, that anything less than a successful immediate issue would be scarcely warranted. No one for one moment would dream of detracting from the merit attaching to those eminent surgeons who have so improved and evolved the technique of the operation, and rendered it, so far as its immediate results are concerned, an absolutely safe one; but much though we may admire that, and heartily give them every meed of praise, yet we must look beyond the immediate present to the no distant future of the operation, and from dealing with the names of the eminent, to whom I have just referred, I am bound, as a humble worker in the department, so far as it is of any interest to any one, to descend to myself, and state my own experience.

Some of us have lived long enough to observe and note how various operative interferences have come into vogue, flourished and died.

Far be it from me to decry operation. I have myself opened the abdomen for one reason or another upwards of a thousand times, therefore I cannot be classed among the

non-operating gynæcologists; but, on looking back over a considerable experience, I am unable to recall much benefit that has accrued from surgical interference, as far as the cancerous uterus is concerned.

That the subject of cancer should have occupied the best minds of the greatest men, is not a matter of surprise. When we consider the hopelessness of the disease, and the pain and suffering which are its invariable accompaniments,—this, I say, is not a matter for surprise. Still less do we wonder when we think of its extraordinary prevalence. After mammary cancer, the uterus is by far the most frequent seat of the disease in women. I believe I do not overstate the case when I say that at the present moment there are at least 8000 women—probably a great many more—suffering from uterine cancer in the United Kingdom.

For, rely upon it, there is no more pressing subject; for it seems to me that, in our efforts to cure or ameliorate cancer, we have come against a dead wall. Whether it is possible that we may have got a suggestion in removal of the ovaries for the cure of inoperable mammary cancer, and whether the same operation may offer a possibility for uterine cancer, remains a moot question. It is also possible that the solution may still be found in treatment by some animal extract, or on the antitoxine principle, which has been found so valuable in diphtheria and tetanus.

Nothing, certainly, can be more remarkable than the accidental discovery of what has proved a most marvellous remedy for myxœdema, in the treatment by thyroid extract. And, in our own department, we have a similarly striking example in the accidental discovery and development of the results which follow upon removal of the ovaries in cases of osteomalacia. For our knowledge of this question we are much indebted to Dr. James Ritchie. Whether this condition be due to zymotic influences, to reflex nervous phenomena, to dietetic causes, or to altered chemical changes, the fact

remains, that many cases have been recorded in which a cure has been obtained by oöphorectomy. In our groping for light as to a malady which is in itself absolutely fatal, and which, I fear, according to recent statistics, is increasing, it is our duty to keep an open mind for any theory, and to welcome any suggestion, however extreme, in dealing with this awful disease.

While at the present day every surgical proceeding is accepted and adopted, it is striking to think how medical innovations are received with distrust. Even anæsthesia, that has revolutionised the whole of medicine and surgery, was on its first introduction scorned, and regarded in the light of charlatanism.

It is interesting now to look back after this interval of time, and to reflect how this wonderful discovery was received in England. It is best told in the late Sir Russell Reynolds' own words:—

"The first operation in England performed under an anæsthetic was witnessed in University College Hospital. Liston had consented to try the anæsthetic. I can see him," says Sir Russell Reynolds, "as he said to the students, 'Gentlemen, we are going to try a Yankee dodge for making men insensible.' At length Peter Squire said, 'He is quite ready now, sir.' Liston's knife flashed in the air. I took out my watch to count the time, and the leg was on the floor in twenty-six seconds. Liston turned to the students and said, 'This Yankee dodge, gentlemen, beats mesmerism hollow.'" Such is Sir Russell Reynolds' report.

The great discovery had to make its way against obstinate prejudice and folly, and Liston's grudging utterance should serve as a warning to those of us who make light of new methods, only because they are new.

Looking back over thirty years' experience,—from the escharotic treatment, the Chian turpentine epoch, the various amputations, curettings, and hysterectomies,—I am rather

disposed to think that the surgical method of dealing with uterine cancer has done little either to ameliorate suffering or to prolong life, and that once a uterine cancer is recognised, palliative local measures and a happy euthanasia through morphia are the best solutions of the difficulty.

Such a statement may have the versimilitude of despair, and, so far as I personally am concerned, that is my position. I hope and trust that the day may yet dawn when we shall have measures, whether therapeutic or surgical, of dealing with uterine cancer effectively, but I confess that I do not believe it has dawned yet.

Perhaps these statements are somewhat at variance with the gist of the address I had the honour of making as President of the Section of Obstetrics, to the British Medical Association some years ago. Then I was captivated with the wonderful improvements made in the technique in the operation of vaginal hysterectomy by Paris surgeons, and introduced to us here, especially by Professor Simpson.

Unfortunately, so far as my own personal experience has been concerned, improved technique has not bettered my results. For the last series of cases have all been done with this enormous advantage, but without any improvement in the ultimate result.

I have honestly stated my own experience, and I shall be only too pleased if, whereas my work reads failure, the results of others give a more optimistic view of the case.

The following are my cases in detail :—

In any account of vaginal hysterectomy, with our improved methods of operation, recovery is, as a rule, to be expected. The immediate risks of the operation, when undertaken in circumstances at all favourable, are small. Those cases which succumb shortly after the operation must and can only be badly selected ones, where the fornices are small, where the disease has involved the posterior wall of the bladder (a condition always difficult of diagnosis beforehand), or where hæmor-

rhage or sepsis has resulted. But in any well-selected group of cases such an untoward event is never to be looked for.

In the list of cases which is appended, all the patients immediately recovered except one, who died from sepsis some days after the operation, due to my having failed to realise that the uterus was closely attached to the bladder, the whole tissue being soft and friable. The operation was thus, to a certain extent, incomplete. So, therefore, I may dismiss now any question about vaginal hysterectomy, so far as my present paper is concerned, except the question of the remote results.

I am at present concerned with the question, as to how far this operation prolongs the life of the patient; and, before touching upon the matter, another question readily suggests itself. I suppose no one will deny that a case, to be not only immediately but also to be remotely successful, must necessarily be attacked in its most early stage. Now, a very early carcinoma of the cervix, still more an early tubular carcinoma of the body of the uterus, will, under ordinary circumstances, give an expectation of life for the patient, of eighteen months to three years. With sarcoma the expectation is distinctly longer. Therefore, in ascertaining the value of any operation whatever, the first question to decide is, Whether or not that operation can prolong the patient's expectation of life? and, obviously, the second question is, Whether it prolongs her expectation of life or not, does it relieve her symptoms, and give her an easier death than she would have had if no operation had been undertaken? These are the two questions which, in this paper, I propose to discuss.

During the past ten years, two hundred cases of cancer have presented themselves to me, either in the wards of the hospital or in my consulting-room, and with regard to these I have the following remarks to make:—

1. They include not all the cases of cancer which I have seen, but only those which have been admitted to my ward,

[*Continued on page* 104.

No.	Name.	Age.	Married or Single.	Complaint.	Duration.	Family.	Physical Examination.	Operation.	Remarks.
1	H. S. .	47	..	Pain in abdomen and back; profuse hæmorrhage; weakness.	10 months.	..	Primary carcinoma uteri.	Hysterectomy.	Immediate recovery; died nine months later from recurrence.
2	K. O. .	36	S.	Pain in stomach and bearing down.	2½ years.	..	Early epithelioma of cervix.	,,	Immediate recovery; died eighteen months later from recurrence.
3	H. S. .	48	S.	Bearing-down pain; constant desire to micturate; brownish, foul, watery discharge.	6 months.	One, twenty-two years ago.	Carcinoma cervicis.	,,	Death.
4	M. B. .	49	M.	Profuse hæmorrhagic discharge with severe pain.	21 ,,	Eight, last four years ago.	Early carcinoma cervicis.	,,	Recovery, but died fourteen months later.
5	I. M. .	51	M.	Flooding.	2 ,,	..	Early carcinoma of the cervix.	,,	Recovery, but died sixteen months later.
6	Mrs. L.	32	M.	Foul discharge.	2 years.	Five, last four years ago.	Early epithelioma cervicis.	,,	Recovery, but died one year later.
7	Mrs. S.	44	M.	Hæmorrhagic discharge constant.	4 months.	Thirteen, last one year ago.	Early epithelioma of cervix.	,,	Recovery, but died eight months later.
8	M. F. .	38	M.	Pain, foul discharge.	12 ,,	Ten, last two years ago.	Early cervical cancer.	,,	Recovery, but died seventeen months later.
9	M.A.H.	43	M.	Constant offensive discharge with pain in left iliac region.	6 ,,	Eight, last five years ago.	Cervix thickened and indurated; no deposit in fornices; carcinoma cervicis.	,,	Recovery, but died one year later.
10	I. S. .	58	S.	Periodic pain in lower part of abdomen; hæmorrhagic discharge.	4 ,,	None, unmarried.	Cervix smooth; uterus enlarged, but moveable.	,,	Recovery, but died eleven months later.
11	J. S. .	38	M.	Menorrhagia and metrorrhagia.	5 ,,	Three, last thirteen years ago.	Thickening and erosion of cervix; early epithelioma cervicis.	,,	Recovery, but died in one year.
12	J. H. .	29	M.	Hæmorrhagic discharge.	6 weeks.	Five, last six years ago; one abortion.	Cervix hard and indurated; uterus movable; carcinoma cervicis.	,,	Recovery, but died ten months later.
13	J. W. .	49	M.	Constant hæmorrhagic discharge; pain.	11 ,,	Nine, last twelve years ago; three miscarriages.	Carcinoma cervicis (early).	,,	Recovery, but died sixteen months later.
14	E. W. .	33	M.	Pain in side; frequent flooding.	8 months.	Three, youngest eight years.	Carcinoma cervicis (early).		Recovery, but died eight months later.

or which I have seen in my own consulting-room. I have not included those cases seen in the out-patient department, and of those which I have seen in consultation in private I have kept no record. Hence, therefore, the experience which I am putting before you may seem rather less than might have been expected.

2. The table on p. 103 includes all the cases of cancer of the uterus for which I have performed vaginal hysterectomy, except two, and those two were done in my earlier years, and were, in some respects, incomplete. On that account they must be omitted in estimating the value of the operation. The fourteen now recorded were performed with all the most recent improvements in the operation; and, save one, they were complete in every detail. Of the fourteen, only three were done in the hospital, the others in private, which is itself a suggestive fact, because those seen in private practice are always seen at an earlier stage than those which apply for advice to a hospital. Each one of those fourteen cases was most carefully selected; all the others, if interfered with at all, were only dealt with by the ordinary palliative measures.

3. These cases include all the recognised forms of cancer affecting the cervix and the body of the uterus.

It would be a work of supererogation to describe each case of those operated upon in detail; nor have I any intention of referring to those cases in which merely palliative operative interferences were employed, such as amputation of the cervix, and the employment of the cautery, etc.; but I refer only to those in which I performed vaginal hysterectomy.

First let me take a hospital case.

Case 1.—A widow, mother of four children, a worker in a Dundee mill, presented herself at the hospital, complaining of slight pain in the back, and menorrhagia. Now there was no leucorrhœa, no fœtid discharge, no bleeding, and no

emaciation, and a certain slight degree of erosion and eversion of the cervix was all the sign of disease that could be found. At first it was supposed to be a case of cervical catarrh, and was put under treatment appropriate to such a condition. As there was no improvement after a fortnight, and as the cervix seemed to become suspiciously hard, a piece of tissue was examined by competent authorities at the laboratory of the Royal College of Physicians, and the condition pronounced to be malignant. As the case fulfilled every one of the conditions for hysterectomy—mobility, non-involvement of glands, and freedom of the ligaments, with apparently no infection of the body of the uterus or the bladder — the operation was performed, lasting eighteen minutes, and the patient made a perfect recovery. The further history of that case is as follows :—

The operation was done on July 16. The following Christmas the patient was seen by Dr. Lackie, who said that there were several bleeding nodules at the site of the cicatrix, and that the patient was suffering pain. During my absence in April, he again saw her, and pronounced the whole pelvis to be occupied by a cancerous mass, with hæmorrhage, emaciation, and great pain. She died during that summer.

Now, my comment upon this case is—(1) that I could not wish for a more suitable case, both as to the general and local conditions, to operate upon, and that the operation could not be easier or shorter; (2) that for a short period of a month or two the patient was comparatively well; and (3) that in six months the disease had recurred with intense pain, in nine months there was a fungating cancerous mass in the pelvis, in a year the patient was dead.

Now I am bound to say that, so far as my experience of such a case of cancer is concerned, had the patient been left alone, her expectancy of life would have been from eighteen months to two years, and her sufferings, which were very great, would have been less.

With regard to CASE 2, it is that of a lady from the west country, æt. 47, and in evidently robust health. Her symptoms were chiefly severe pain in the back and loins, with some hæmorrhagic discharge. Her doctor, Dr. Muir, who sent her to see me, believed she was suffering from an early cancer of the uterus. When I saw her the uterus was perfectly mobile, not enlarged, the fornices were free, and no glands were involved, and, save a distinct hard nodular cervix, there was nothing abnormal to be found. I was disposed to agree with Dr. Muir as to the malignancy of the case, but had a specimen examined, and the report confirmed this opinion. The operation was performed quickly and easily, after Doyen's method, and the patient made an absolutely uninterrupted recovery, leaving the Nursing Home a month from the day of operation. Three months afterwards the pain recurred, and soft granular bleeding masses appeared at the site of the wound. From that time onwards the pain was so severe, that the patient practically lived on opium, and died seven months after operation.

My comment on this case is, that this woman had only a very short immunity from pain. In three months it recurred, and except for morphia her life would have been intolerable. The disease had markedly affected the peritoneum, although the mass in the pelvis never became very large. This woman's expectation of life when I first saw her was unquestionably from a year to eighteen months, and as a matter of fact, with all the so-called advantages of the operation, she only lived seven months.

The third type of cases is illustrated by the following:—

CASE 3.—When I first saw her she was supposed to be suffering from an incomplete abortion. She was a lady in the enjoyment of excellent health, except for persistent hæmorrhage, which had lasted for two months before I saw her. I was quite contented to believe that the diagnosis

given me by her medical attendant was correct, and I proceeded to curette the uterus, which was enlarged, with the cervix somewhat gaping, and well-marked ectropion. I submitted the débris, removed by curettage, to Mr. Stiles for microscopic examination, and to my surprise he told me the case was one of tubular carcinoma. Even from such an authority as Mr. Stiles I was unwilling to accept this, and it was only after an interval of a fortnight that I removed another scraping for examination by Mr. Stiles, but his report was just the same as before. I therefore, without further delay, performed vaginal hysterectomy. If ever there was a case in which the operation was easy, this was the one; and where hopes of remote recovery were warranted, there never was a better, because the broad ligaments were absolutely free, and the disease was entirely localised to the fundus and body. Now, within six weeks, she had slight recurrence of the hæmorrhage from the cicatrix, and an enlarged gland in the left groin. She went to her home in the north, and although I never personally saw her again, she died of malignant peritonitis within the year.

My comment on this case is obvious. A woman's expectation of life with intra-uterine cancer is from two to five years. Howard Kelly, himself a keen operator, admits five years as a possible duration for an intra-uterine cancer, when not interfered with. This patient was in excellent health, she suffered absolutely no pain, and had no symptom except the hæmorrhage; and had it not been for the practice that I invariably make of having the scrapings after a curettage examined by the microscope, this patient would have gone home without any reason to suppose she was suffering from cancer of any sort or kind. It will be further observed that she had no pain before the operation, and it was only afterwards that, when the disease spread to the peritoneum, her pain was intense, and she died in terrible suffering from malignant peritonitis.

I need not multiply examples, because in all the other cases the history before and after the operation is somewhat similar. But perhaps I may be allowed to show the converse. A lady came under my observation with what I supposed to be senile uterine catarrh. I do not usually dilate and scrape in this condition, but as the os uteri was somewhat gaping, and the hæmorrhage rather profuse, I further dilated the cervix, and curetted and packed the cavity. The report on the scraping was "well-marked carcinoma." I announced this to the patient's friends; and for various reasons, personal, domestic, and otherwise, any further operative interference was declined. Personally I was not sorry for this, because the uterus was somewhat fixed and the fornices small, and the operation would not have been a very easy one. That was in 1894; to-day, November 1898, though seriously ill, she is still alive, and only recently has she suffered much at all. During these years she has at intervals enjoyed many consecutive weeks of excellent health. Her position in life allowed her to have every luxury, which may possibly have had something to do with the prolongation of her life; but nevertheless the fact remains, that four years ago she had fundal cancer, verified by the microscope, and she is alive still.

My further comment on this case is, that that duration of four and a half years is probably an under-estimate of the time, because it was a certainty that the cancer had originated a considerable time before I first saw her. I must admit that this is a longer duration than is commonly met with, but a three years' duration is by no means uncommon in my experience.

In the present paper I am not dealing with anybody's results but my own, nor am I venturing to criticise any other operator's work. I am only stating my own experience of vaginal hysterectomy for cancer. This has been an unfortunate one; but it seems to me the duty of every operator, whatever his ability or experience may be, to record his

ultimate results, even though the truth so told may tell against himself. Let me add, that all these cases operated on were exceptionally favourable ones, and selected with special care. Bad though my results have been, I tremble to think of what they might have been had I operated on cases indiscriminately. I am hopeful, however, that by some improvement in the management of the wound at the time of operation, so that the diseased surface may not come in contact with the peritoneum, infection may become less likely, and better remote results be secured.

I shall continue to operate upon early selected cases until I succeed, or until some method of dealing with cancer, such as by the serums or the antitoxines, will render operative treatment unnecessary.

Operative Interference with Fibroid Tumours during Pregnancy, Parturition, and the Puerperium.

It is but seldom—notwithstanding their great frequency among child-bearing women—that fibroid tumours give rise to any inconvenience during pregnancy, and still less frequently do they require any surgical interference.

The ordinary history of such tumours in the non-pregnant condition is well known, and, even in exceptional circumstances, when they are a source of danger to the patient, the method of dealing with them by removal of the ovaries, and in some cases by the continuous current, has rendered their entire removal a comparatively infrequent operation. The behaviour of fibroid and similar tumours during pregnancy is interesting. In over 400 cases of abdominal section I have only had to interfere with ovarian tumours four times during pregnancy, and with fibroids the cases which I now record are all that have come under my notice. The growth of these tumours is often rapid during pregnancy, resulting in interference with the circulation and œdema of the lower extremities. They are a frequent cause of abortion and profuse uterine hæmorrhage, and often by their bulk cause interference with the functions of bladder and rectum. They often alter the position of the uterus, and, as a result, abnormal presentations of the fœtus and prolapse of the cord are by no means infrequent. Furthermore, and specially, abnormality in the uterine contractions is a frequent complication of labour, and the expulsion of the fœtus is often unduly prolonged. As in the case about to be recorded, the presence of a myoma which obstructs labour is similar to a contracted pelvis. Rupture

of the uterus in cases of large myomata has been observed, and one case of the kind I have myself recorded. Hæmorrhage during the placental period is often so profuse as to endanger the patient's life, and fibroid tumours of the uterus form one of the most common causes of secondary post-partum hæmorrhage. With regard to the puerperal period, septic infection and abnormal involution are the characteristic features.

Case.	Name.	Medical Attendant.	Nature of Case.	Period of Pregnancy.	Result of Operation.	
		I. DURING PREGNANCY—MYOMECTOMY.				
1	H. D.	Dr. Croom.	Subperitoneal pedi-culated fibroid.	4 months.	Recovery.	Delivered at term.
2	L. C.	,, Hunter.	Subperitoneal fib-roid.	3 ,,	Death.	...
3	M. F.	Waiting-room.	Subperitoneal pedi-culated fibroid with ovarian cystoma.	5 ,,	Recovery.	Delivery at term.
		II. AFTER ABORTION—HYSTERECTOMY.				
1	S. H.	Dr. Trotter.	Large fibro-cystic tumour of uterus.	...	Recovery.	...
2	B. H.	,, Cameron.	,,	...	,,	...
		III. DURING LABOUR—REMOVAL PER VAGINAM.				
1	C. F.	Dr. Sinclair.	Pediculated fibroid obstructing de-livery.	...	Recovery.	...
		IV. DURING PUERPERIUM.				
1	E. R.	Dr. Kirk.	Submucous fibroid.	Removal.	Death.	...
2	H. C.	,, Playfair.	,,	,,	Recovery.	...
3	L. M.	,, Sidey.	,,	,,	,,	...

Susserott collected from all sources a series of 147 cases of labour complicated with fibroid tumour; 60 per cent. of these labours were terminated instrumentally.

Case 1.—A woman, æt. 35, was admitted to my ward. She had been married five years, and was sterile. She specially sought advice because of much pain in her left side, associated with irregular hæmorrhages. She had not missed a period. For a year past her menstruation had been increasing in quantity and frequency. Her hæmorrhages were less a source of distress to her than the pain in the left side, associated with a hardness and swelling in that region. The swelling and pain had been the subject of observation for over three months.

On examination per vaginam, a large semisolid swelling was felt on the left side, filling up the fornix, and bimanually it was found projecting over the brim of the pelvis. It was tense, about the size of a cocoanut, and its superior surface was irregular. A tumour of smaller size, obviously the uterus, was felt to the right side and behind. It was considerably enlarged. The cervix was thick, soft, and slightly patulous. There was a well-marked souffle all over the pelvic brim.

Though the continued hæmorrhage was rather against it, the softness of the uterus pointed to pregnancy, and the right side tumour seemed a dermoid ovarian which had taken on rapid growth.

A more careful examination per rectum, under chloroform, permitted the detection of a firm pedicle, about as thick as two fingers, passing from the left cornu of the uterus. The conclusion arrived at was, that the tumour was a rapidly growing myoma, associated with an early pregnancy. It was clear that the pregnancy—if it were one—could not continue with a tumour of such dimensions and in that situation, and in any case the rapid growth of the tumour and the pain demanded interference. Even if it had been justifiable to

interfere with the ovaries, which in the case of a pregnant uterus was inadmissible, any attempt at their removal would have been more hazardous than the removal of the fibroid itself, owing to their inaccessible position.

The abdomen was accordingly opened and the tumour exposed. It proved a soft uterine myoma. There was no difficulty in dealing with it by double knot, and at the same time sewing up very carefully the rest of the pedicle and dropping it back. There was enlargement of the uterus, corresponding to a two-and-a-half months' pregnancy.

The case gave no further trouble. The hæmorrhages—which were no doubt due to the rapid growth of the myoma, causing congestion of the decidua and hæmorrhage from the lower pole of the uterus, as well as attempts at abortion—ceased, and the patient was delivered at seven months.

Case 2.—The patient, æt. 35, had been married for years, and was sterile. She was sent to me because of great pain in the left side. Her menstruation, which had been previously irregular and profuse, had been suppressed for two months. There was a distinct tumour to be felt over the brim of the pelvis in the left side. It was tender on pressure per vaginam; the tumour could be felt, tender and soft, occupying the entire left fornix. The uterus was enlarged, and thrown to the right side. There were no auscultatory sounds. There seemed to be no communication between the uterus and the tumour. The case was diagnosed as a small ovarian tumour, with some peritonitis over it, and pregnancy. On opening the abdomen, the tumour was found to be a large rapidly growing soft fibroid, attached to the left side of the uterus by a thin pedicle. This was dealt with in the usual way. The operation offered no difficulty. Immediately afterwards, however, the patient succumbed to old-standing aortic disease. No autopsy was permitted.

Case 3 was sent to my ward as a case of pregnancy complicated with an ovarian tumour. There was no difficulty in diagnosing the ovarian tumour on the right side and the uterus on the left. The only point was that the fundus uteri was more than usually prominent. The pregnancy had advanced five months. The ovarian tumour was removed without difficulty. The cause, however, of the prominence of the uterus became evident, because there was found behind the uterus a fibroid myoma, with a pedicle about the thickness of two fingers, the myoma itself being about the size of a cocoanut, very vascular and soft. After removing the ovarian tumour, I also removed the myoma in the usual way, by piercing the pedicle and putting a double knot over it, stitching the end of the stump up, and dropping it back into the abdominal cavity. The patient made an excellent recovery, and was delivered at term.

The following two cases were sent to me during the continuance of the pregnancy, and as both present features of interest, I now desire to record them :—

Case 1.—Mrs. H. had been married for eighteen months, and was pregnant of her first child. The pregnancy was sufficiently obvious. It had advanced to about the seventh month, and occupied the left side of the abdomen. On the right side there was a large semisolid tumour reaching up to the liver, and displacing the uterus very much towards the left side. The tumour was painless, and had grown coincidently almost with the pregnancy. The patient had observed a slight swelling over her pelvis before her marriage, but this was trifling, and it was only after she became pregnant that her abdomen increased with enormous rapidity. The growth of the tumour and the uterus went on almost *pari passu*. From the rapid growth of the tumour, its position, and physical examination, I came to the conclusion it was a polycystic ovarian tumour. The obvious question then arose, whether

to induce premature labour or remove the tumour. I decided upon the latter. Labour, however, set in, and she was delivered of a seven-months child, which did not survive. The labour was normal, but immediately afterwards she had a very considerable peritonitis, and the tumour continued to grow with marked rapidity. Owing to the continuance of the peritonitis, and the rapid growth of the tumour, I determined to operate within six weeks after delivery. I opened the abdomen, and found extensive and recent peritonitis, and instead of having to deal with an ovarian tumour as I had expected, I found a large fibro-cystic tumour; the still enlarged and recently pregnant horn of a bicornuous uterus could now be easily made out. The sound showed a single cervix and a double uterine cavity. The left side cavity, which had contained the fœtus, was still about 4½ in. long; and the right, from which the tumour projected by a pedicle, was a little larger. The two were distinctly separated by a sulcus, and were connected apparently through the cervix uteri only. The tumour was exposed, and first ligatured by the elastic ligature, and afterwards grasped by the Koeberle clamp and the delta wire. The peritoneum was adjusted round the stump, and the patient made a good recovery.

Case 2 was sent to me by Dr. Cameron of Innerleithen, who, in his note with the case, said that the patient had a large tumour, and was pregnant. On examination I found her a young woman of 30, married for one year, with a large solid tumour reaching up to her ensiform cartilage. There was neither uterine souffle nor fœtal heart to be heard anywhere. Per vaginam, the cervix, though large, was firm and hard, and as her menstruation had been regular, I was disposed to think that my friend Dr. Cameron's diagnosis was wrong. I passed the sound into the uterus, and found it of its normal size. I wrote to Dr. Cameron, and told him that I was obliged to disagree with him. I was disposed to think that the patient

suffered from a large semisolid ovarian tumour. Nothing in the case led me to suppose that the tumour was anything else. I had all the preparations made for the operation, and a week after my first examination, and the day before the operation, the patient aborted of a four-months fœtus. I need scarcely say that I was surprised, and at the same time rather crestfallen in my diagnosis. The tumour remained after the abortion pretty much as it was before. Three weeks afterwards, I opened the patient's abdomen, and found that the tumour was a large fibrocystic tumour of the uterus, almost a counterpart of the previous one, with diffuse peritonitis. After securing the stump of the tumour with the elastic ligature and the delta wire and Koeberle clamp, I examined the pelvis, and found on the right side an ovarian tumour about the size of an ordinary cocoanut. This I also removed; and, on examining further into the pelvis, I found that the uterus, as in the preceding case, was bicornuous; that while the left horn had contained a four-months ovum, the right horn, into which I had introduced the sound, was empty and small. The patient made an excellent recovery. She passed, two days after the operation, a complete decidua, apparently from the empty horn. This is specially interesting, as the operation was performed three weeks after the abortion.

These two cases seem to me of importance, first, because of the rarity of a bicornuous uterus. In both cases the left horn was pregnant and the right horn empty. In both cases the tumour was fibrocystic and growing from the empty horn.

Both were large, the peritonitis recent, the adhesions numerous, and the operation long and tedious. The uterus, further, in both cases had not by any means completely involuted.

The following case illustrates well dystocia from impaction, due to a pedunculated myoma :—

I saw the case with the late Dr. Sinclair. He had been

called by a midwife to a woman, a multipara, who had been in labour for ten hours, and who had made no progress, and was in addition bleeding profusely.

Dr. Sinclair found the patient in violent labour, and on examination found a large mass, firm and hard, blocking up the vagina, there being only a space of about half an inch between the tumour and the vaginal wall, through which the fingers could be passed with difficulty. Together we examined the patient. The head could not be reached per vaginam, but could be palpated through the abdomen, apparently of ordinary dimensions. Under deep anæsthesia it was possible to get the fingers beyond the tumour and feel a thick hard pedicle, and round it the rim of the cervix. The head was *not* lying on the tumour, but evidently pressing hard on the neck of the pedicle. It was just possible to touch the head.

Obviously, removal of the obstructing mass was the only course to be pursued. We endeavoured to get the ecraseur round the base as far as possible. In this we only partially succeeded, for the tumour was so tense and so completely filled the vagina that we had to be content to grasp the greater portion, and, as was to be expected after cutting so large a surface, the hæmorrhage was very profuse. To stop the bleeding we put on forceps and pulled down the head. After delivery the hæmorrhage continued severe. We found the pedicle, which was long and thick, attached within the cervix. There was nothing for it but to grasp the bleeding stump with forceps, and to pass a needle through it and throw a double knot over it. This entirely stopped the hæmorrhage. The tumour was, of course, much larger in the vagina than after its removal, and was of the nature of a fibrous polypus of unusually large size. Both mother and child did well.

This is the only time I have met with a similar dystocia during labour. I have had twice to deal with ovarian cystomata as an obstruction. In both cases aspiratory needle, and

subsequent delivery with forceps, were successful both as regards mother and child.

There was very considerable rise of temperature and pulse, and for some fourteen days the patient was distinctly septic, and during that time careful antiseptic intra-uterine douching was carried out. Three weeks afterwards, Dr. Sinclair examined her, and curiously enough he found the Tait knot projecting from the cervix.

The records of fibrous polypi, or pediculated submucous fibroids complicating the puerperium, are comparatively rare. In some cases parturition and the subsequent changes which go on during the puerperium have exercised a most satisfactory result on even large tumours. These cases, however, are comparatively seldom met with. Lohlein[1] relates a most important observation, where a large fibroid tumour which had been diagnosed before pregnancy was diminished greatly during the puerperium; indeed, in a subsequent pregnancy, the uterus did not reach its usual size. Kauffman[2] mentions a case where he saw a huge fibroid disappear after abortion, and did not appear again in a subsequent pregnancy. The influence they exert on labour, and their management during the process, do not fall into the scope of this paper.

I have at present to deal only with submucous fibrous polypi complicating the puerperium. So far as I can find, the records of such cases are comparatively scanty. Dr. Ramsay,[3] Broughty-Ferry, reported to the Edinbugh Medico-Chirurgical Society in 1858, a case in which a submucous pediculated fibroid, weighing 2 lb., gave rise to hæmorrhages in the third stage, and was expelled spontaneously, though gangrenous, on the tenth day post-partum. The patient made an excellent recovery. Sedgewick[4] reports a case of gangrenous submucous myoma of the posterior wall of the uterus, the

[1] *Ztschr. f. Geburtsh. u. Gynäk.*, Stuttgart, 1877, Bd. i. S. 121.
[2] *Monatschr. f. Geburtsh. u. Gynäk.*, Berlin, 1862.
[3] *Edin. Med. Journ.*, July 1858.
[4] *St. Thomas's Hosp. Rep.*, London, 1870, vol. i. p. 349.

gangrene having been caused by the injection of liquor ferri perchloridi, on account of post-partum hæmorrhage immediately after the birth. Susserott,[1] in his inaugural dissertation, refers to cases published by Maunoury and Ashwell, in which similar gangrenous tumours were spontaneously expelled during the puerperium. There are recorded other cases by Fallin, Tarnier,[2] Oldham, Priestley, and Valtorta, in which the tumour was expelled by simple uterine contraction without being either gangrenous or decomposed, with an entirely favourable result to the mother. The majority, it would appear, of these submucous fibroids do not become gangrenous; when they do so, it is obviously from their coming in contact with the external air, or from direct injury during labour, or the application of some irritant, as in Sedgewick's case. A form of gangrene or necrosis may occur in subserous tumours, or interstitial tumours after labour, but this must be carefully differentiated from that occurring in the submucous variety. Gusserow finds that when purulent degeneration and gangrene take place in the submucous variety, it is the result of changes in the circulation due to uterine contraction. Often the subserous tumours become larger and softer after labour, and give undoubted appearances of fluctuation. This apparent enlargement is due in many cases to the involution of the uterus, the tumour appearing larger in proportion than before. In other cases they really do get larger and softer, owing to serous infiltration from the disturbance of the circulation.

Martin[3] and Horwitz[4] both mention cases of submucous fibroid in the puerperium which became gangrenous, and gave rise, through septicæmia, to a fatal result.

Kuchenmeister[5] had a case in which a tumour weighing about a pound was expelled on the forty-fourth day, post-partum, after having given rise to high fever from suppuration.

[1] "Inaug. Diss.," Rostock, 1870.

[2] "Die Neubildungen des Uterus."

[3] *Ztschr. f. Geburtsh. u. Gynäk.*, Stuttgart, 1870, Bd. i. S. 232.

[4] *St. Petersb. med. Ztschr.*, Bd. xiv. S. 294.

[5] Gusserow, *loc. cit.*

Case 1.—Mrs. S. came under my observation years ago as a hospital out-patient. She had an enlarged retroverted uterus. For this a sound was passed and a Hodge pessary introduced, and shortly afterwards she became pregnant, and was delivered at term. Two years ago she came under my care again, at St. Luke's Home, suffering from menorrhagia as well as intermenstrual hæmorrhage. The uterus was found enlarged 2 in. in the first stage of retroversion. A fibrous polypus was suspected, and, after considerable trouble, I managed to dilate the cervix sufficiently with tupelo tents to allow me just to feel the base of the tumour. The uterine contractions which this occasioned, however, were so violent, and the pain and general disturbance so great, that I was obliged to desist. She passed then into the hands of my friend Dr. Kirk of Bathgate.

I heard no more of her until she was sent back to me by him with her uterus enlarged to the umbilicus, and with her menstruation suppressed for five months. In the note sent to me with her by Dr. Kirk, he expressed the opinion that pregnancy alone accounted for the condition. On her arrival in the town, I examined her, and found the uterus enlarged, corresponding to a six-months pregnancy. The cervix was somewhat dilated, and through it I could feel the membranes with difficulty. Ballottement could be practised. There could be no doubt that she was pregnant. The following evening labour pains supervened, and she was delivered of a five-months fœtus and placenta. Accompanying the third stage there was very profuse hæmorrhage, so much so that I was obliged to explore the interior of her uterus, which I did under chloroform, and with the assistance of my friend Dr. Milne Murray.

Attached to the fundus by a thick, though soft pedicle, I found a well-marked fibrous polypus about the size of a small orange. After consultation with Dr. Murray, we determined, owing to the patulous condition of the os and its easy access,

to remove the tumour. Fixing a volsella through its substance, and at the same time steadying the fundus uteri, it was easily removed by avulsion. The hæmorrhage ceased and the uterus firmly contracted. Immediately after its removal the cavity of the uterus was washed out by a hot uterine douche of 1–2000 corrosive. The following day the uterus was again washed out. There was no hæmorrhage, but large pieces of apparently bleached decidua passed, with large, extremely fœtid sloughing masses.

On the third the patient was quite well. On the fourth day the discharge was offensive, and was accompanied by flaky pieces of fœtid decidua. The uterus was again washed out. For two days thereafter the patient continued to do well, but on the second day there was a rise of pulse and temperature, extreme tenderness over the abdomen, and she died, apparently from acute septicæmia, on the following morning. No post-mortem was allowed.

I attribute the death of this patient to septicæmia, due to gangrene either of the stump of the tumour, or else to a second polypus becoming gangrenous through the admission of air. The former is, I think, the most likely explanation, judging by the early appearance of the flaky sloughing mass, and the fact that the discharge was offensive from the first.

Case 2.—Mrs. C. S. was delivered after a normal labour. On the fifth day post-partum, the hæmorrhage being profuse and noticeably offensive in character, my friend Dr. John Playfair—under whose charge the lady was—proceeded to explore the cavum uteri, and found an irregular rough body projecting into it, which he diagnosed to be a uterine polypus. He asked me to see the case with him. With careful antiseptic precautions I dilated the cervix uteri with my fingers, and at the fundus uteri I discovered the mass which Dr. Playfair had described to me, and, finding it pediculated and soft, easily twisted it off with my fingers. The mass was

about the size of a Tangerine orange, and of the usual structure. The discharge for many days was very offensive. The uterus was washed out daily with warm corrosive, and the lady made an excellent recovery.

The two cases which I have just recorded present characteristic examples of a rare complication of the puerperium. Judging by the history of the cases recorded, many of these polypi were extruded spontaneously. The presence of such growths during the puerperium is not without grave danger. Sometimes they soften, break down, and decompose, and are the cause of peritonitis, and become the seat of gangrenous degeneration. This is chiefly the case in the submucous fibroid projecting into the cavity of the puerperal uterus, similar to those which I have just recorded.

Similar cases are related by Senderling,[1] Yeld,[2] Kiwisch,[3] Wynn Williams,[4] and Duncan.[5] Wynn Williams relates a case where a large submucous fibroid, which obstructed labour, was enucleated and removed in his efforts to break up the child. Weber[6] relates a case in which turning had been had recourse to, and where a tumour as large as a man's fist was removed with the placenta.

Grouping together the cases which have hitherto been described, and adding my own two cases, it is convenient to arrange them thus:—

1. Non-gangrenous, in which a healthy tumour was expelled without any artificial aid . . .	5
2. Gangrenous	6
3. Gangrenous, or non-gangrenous, removed artificially with hand or instrument	10
These constitute, so far as I know, the cases recorded, making a total of	21

As the practical deduction from these we may formulate

[1] Gusserow, *loc. cit.* [2] *Loc. cit.* [3] *Prag. Vrtljschr.*, 1871.
[4] *Trans. Obst. Soc. London*, vol. xvii. p. 172. [5] Gusserow, *loc. cit.*
[6] *Monatschr. f. Geburtsh. u. Gynäk.*, Berlin, Bd. xxv. S. 187.

the rule, that when the tumour is easily accessible, and can be removed without a severe operation in the first few days of the puerperium, such artificial removal ought to be had recourse to, in order to prevent the possibility of gangrene and septic absorption. Care must be taken that the whole tumour be removed, in case of the base sloughing and giving rise to septicæmia, as in my first case. If there be any doubt as to the possibility of its entire removal, it had better be left alone and allow nature to expel it spontaneously. If, however, the removal involves a severe operation, it would obviously be prudent not to interfere. Of course, in those cases where the tumour gives rise to septicæmia late in the puerperium, its immediate removal is matter of necessity. In all cases of removal of these growths in the puerperium, too much stress cannot be laid on the extreme importance of washing out the cavity of the uterus with corrosive daily, until every trace of fœtor has disappeared. In both my cases pieces of slough and very fœtid discharge continued for many days after the removal; and, in spite of careful washing out, one ultimately succumbed.

Observations on the Bladder during the Early Puerperium.

I have elsewhere discussed some clinical features of the bladder during pregnancy, and specially to the pressure exerted on it by parturition. On the present occasion I desire to draw attention to some conditions of the bladder during the normal puerperium. During the second stage of labour the bladder is either voluntarily or involuntarily relieved of its contents, so that at the conclusion of the third stage the organ is usually empty. Immediately succeeding the third stage, and during the early puerperium, the bladder exerts an important influence on the uterus. This influence is mainly observed as affecting the position of the uterus. It is convenient here to look at the relative positions of bladder and uterus. The bladder has sunk down into the pelvis from the abdomen, and after labour is to be found, usually empty, lying below the brim of the true pelvis, but on a higher level than during pregnancy. For while the bladder, when empty or slightly distended, is spread out below the anterior uterine segment, so that, on introducing a catheter, its distal end and the meatus are on the same level, and in some cases the fundus is lower than the meatus, after labour this relation no longer exists; for the inlet of the pelvis becoming free, and pressure being removed from the bladder, the organ is allowed to expand upwards, so that a catheter goes no longer directly back, but its point is directed upwards, and is consequently elevated above the level of the meatus.

The uterus, as to position immediately after labour, varies. It is pressed forwards by the action of the abdominal muscles

acting on its posterior surface. But it may be said roughly that its fundus, some hours after delivery, is to be found at or quite close to the level of the umbilicus. Immediately after labour, I have said, it varies, being sometimes so deep in the pelvis as to be scarcely felt, and at all times its level immediately after delivery is lower than after the lapse of a few hours. The organ is inclined forwards, so that the anterior surface of its fundus is in close relation to the anterior abdominal wall, through which it can always be readily palpated. The organ is too large to fall below the promontory, and in the ordinary position the pressure of the intestine is directed on the posterior wall. It is usually found occupying a central position, although deviations from the mesial line are very frequent. I do not now refer to distinct displacements, but simply deflections of the uterus to one or other side. Out of sixty cases observed at the Maternity Hospital, fourteen deviate—four left, ten right; forty-six median. Börner noted sixty-four cases—fifty-three median, eleven deviations.

Such is the relative position of uterus and bladder when the latter viscus is empty. While the bladder is filling and after it is distended, various changes take place in its relation to the uterus. Unlike either early pregnancy, where its expansion is interfered with by the anteverted uterus, or late pregnancy, where it is limited by the anterior uterine segment, or parturition, where it is compressed between the abdominal wall and uterine body, the post-partum bladder meets with no obstacle to its distension upwards. Its recognition supra-pubically is simple enough. Per vaginam, when the bladder is distended, through the anterior vaginal wall is felt a firm elastic swelling, which completely fills the anterior vaginal arch and presses it down. The cervix is high up and well back, and it is impossible to feel any part of the anterior uterine wall in front of the cervix, unless, indeed, very considerable pressure is made on the uterus from above.

The most obvious effect which distension of the bladder exerts on the uterus is familiar to every practical accoucheur. If the hand is passed over the abdomen twelve or fifteen hours after labour, and the fundus uteri is felt high and far back from the abdominal wall and less distinctly palpated, the explanation is to be looked for in a distended bladder.

First, then, displacement upwards. The term displacement does not, however, convey accurately what occurs. No doubt there is a certain amount of ascension of the uterus. This is small. The heightening of the fundus uteri is brought about through the distending bladder straightening the uterus and making it upright. As the bladder increases in size, the uterus is pushed further back from the abdominal walls. Some of the intestines in this way slip down between the uterus and abdominal parietes, and then palpation is rendered more difficult. It is not so much a mere dragging up of the uterus, as an increase in its real height by the straightening of the organ. In Autefage and Depaul's experiments with the hysterometer—an instrument constructed like a pair of compasses, one branch being introduced into the vagina to the cervix, and the other externally at the fundus uteri—reference is made to this point. By means of this instrument, devised by Depaul and carried into practice by Autefage, it was attempted to estimate the rate of involution of the uterus. Autefage mentions that the actual length of the uterus was increased while the bladder was distended, and that the organ returned to its normal size when the bladder was emptied.

There seems to me to be a fallacy here, for with a full bladder the distance between the two buttons of the hysterometer will be increased, owing to the bulging of the vesical tumour rendering the whole organ more erect; and, further, owing to the displacement of the cervix further back in the vagina. In order to ascertain the fact of increase in the cavity of the uterus, the measurements would require to be taken with the uterine sound.

I have just said that the normal puerperal uterus is central. This, however, is a point upon which there is apparently some difference of opinion. For while some, as Schröder, and with him the majority of observers, hold that the usual position of the uterus is right lateral deviation, others, such as Börner, maintain that in the majority of cases the uterus is central. It is important, in studying the effects of bladder distension, to look at this question shortly.

1. Considering the great preponderance of right lateral deviation of the pregnant uterus, such an inclination during the puerperium is just to be expected. For instance, in the table given by Joulin from Dubois and Pajot, among one hundred women, twenty no deviation, four to left, seventy-six to right. This right lateral deviation is not only to be expected, but, as has been shown by the authors above mentioned, and by many other observations, is really the case. Yet several considerations go to throw some doubt on points, for the more accurate observations of Börner show that, when certain conditions are imposed, the central lie of the uterus is found to be the most common—out of sixty cases, fifty-five mesial, four right, one left; or, in the sixty cases taken during my own term, where the same conditions were observed, in forty-six no deviation, ten right, four left. Now these conditions are—(1) an empty bladder; (2) an empty rectum; (3) the supine position of patient.

When these conditions are observed, it will be found that the mesial position is the most frequent, and, being the most frequent, therefore the normal one. My own observations bear this out, and I have found that when lateral deviation was masked with either a loaded rectum or a somewhat distended bladder, the mesial position was resumed when these organs were emptied. Further, and this is a point which is not sufficiently insisted on, the position of the patient has a great deal to do with these deviations. A very slight deviation of the body to one or other side is sufficient to give

the organ a set in that direction, and Pfannkuch has shown that, even in cases where the uterus had the right lateral deviation well marked during pregnancy, a few hours lying on the left side is sufficient to change the whole relation of parts. This is a fact of which there is abundant clinical evidence. I have frequently, in noting the position of the uterus post-partum, fallen into the error of recording the lie as lateral—this being due to the patient lying on one or other side immediately before, for I have observed that the organ does not resume its central position until the patient has assumed the dorsal decubitus for some time. Now, a very inconsiderable lateral inclination of the pelvis is sufficient to cause this. It is therefore absolutely essential, in settling the question of the most common lie of the uterus, to ensure that the pelvis be horizontally placed on the bed. This lateral displacement of the uterus by the accidents of position is of importance, when we come to look at the influence of the distended bladder on the post-partum uterus, which is almost uniformly to cause a lateral deviation of the organ. A central uterus becomes laterally displaced, and one which is originally laterally displaced becomes more so. This condition is almost uniform. It is very rare to find the uterus central with a full bladder. The displacement is to a certain point in proportion to the repletion of the bladder; but a comparatively small quantity of urine is sufficient to throw the uterus from the mesial line. Now, this deviation may either be right or left.

Kehrer made an experiment on a cadaver by artificially filling the bladder, and found a lateral inclination of the puerperal uterus with the fundus to the right.

Clinically observed, the right deviation is the more frequent. This, however, although it has the support of the majority of observers, and although it is the deviation which is most easily explained, does not seem to be so frequent as alleged; for, during my last term of office at the Maternity

Hospital, I was careful to note every case in the early puerperium in which a distinct vesical tumour was observed, and without a single exception the vesical tumour was to the right and the uterus to the left. To be exact, out of thirty-eight puerpera observed, there were nine cases of distinct vesical tumour, all of which were right. Now, there are various causes at work in causing these lateral deflections of the uterus. That it is the bladder which displaces the uterus, of course there is no doubt, for I have just shown that with an empty bladder the uterus is central. In the first place, I believe in many cases they are accidental. As I have already hinted, the right lateral deviation of the uterus admits of ready explanation, in the previously existing deviation during pregnancy, and probably a loaded condition of the rectum may be a factor in right uterine deviation.

But what explanation is to be offered of left deviation? This lateral displacement of the uterus by the distending bladder is matter for study. The mechanism I take to be as follows:—As the bladder fills, the fundus uteri is raised by being thrown from the abdominal wall. It then falls to the right side, not, as I believe, owing to the bladder pressing it to that side, but (1) from its natural lie in that direction obtained during pregnancy; (2) owing, to some extent, to the influence of the rectum; (3) it may be from the accident of position.

The bladder post-partum naturally tends to expand towards the right side rather than to left; and if the influence of the bladder were the only factor at work in displacing the uterus, this organ would deviate more to the left than the right. There seems to me to be two reasons for this:

1. The female bladder is marked by lateral asymmetry. The following observations were made by Barkow:—Out of thirty-five bladders of adult women, in ten the asymmetry was minor; in twenty-one the asymmetry was major; out of the thirty-five only four were completely symmetrical. The asymmetry is much more marked on the right than on

the left. Barkow found, right eighteen; left eight. This asymmetry, though characteristic of the female bladder generally, is so constantly present in the bladders of parous women, that it may be regarded as the normal condition.

There is a fallacy, however, in assuming that a bladder will distend when removed from the body, or even in the body after the viscera have been removed, in the same way as it would in the closed abdominal cavity. For instance, in a section of a female pelvis of a girl, æt. 18, by Legendre, he shows the bladder distended, not as one would expect in a young girl. Braune, referring to this, mentions that it probably arose from the bladder being distended after the viscus was removed.

2. The right lateral expansion of the bladder immediately after labour is favoured by the condition of matters ante-partum. Thus the bladder is flattened under the anterior and lower segment of uterus, and if careful sounding of the bladder is made it will be found, as I have shown elsewhere, that while little space is left on left side, the bladder is free on the right, owing, no doubt, to the preponderance of L.O.A. position. It seems to me that if the uterus were a perfectly free body, not biassed by any deviation to one side or another, the effect of the filling of the bladder would be first to raise it, and then to deflect it to the left.

I have made four experiments in women in whom, during pregnancy, there was *no* lateral deviation to be noted, and in whom the position of the pelvis was as nearly horizontal, and in each the uterus, with an empty bladder, was central. In each case the uterus, with full bladder, was *left* and *bladder* tumour right. In each, uterus during pregnancy central. On morning of third day bladder and rectum empty, patient supine, uterus central.

Case 1.—Distinct vesical tumour; direction upwards and to *right;* uterus pushed to left, ½ in. above umbilicus;

20 oz. of urine drawn off; vesical tumour disappeared; uterus sank 2 in. below umbilicus and became *mesial.*

Case 2.—Ovoid vesical tumour, 1 in. above umbilicus; main portion to *right;* uterus to *left;* 30 oz. of urine drawn off; uterus *mesial.*

Case 3.—Distinct bladder tumour extending to *right* side, 1½ in. above the level of umbilicus; uterus to *left* and back; 28 oz. of urine drawn off; uterus *mesial.*

Case 4.—Distinct vesical tumour, 1½ in. above umbilicus; lies to *right* of mesial line; uterus to left; 32 oz. of urine drawn off; uterus *central.*

Obs. 2, Case 4.—Vesical tumour extending 1 in. above umbilicus; main portion to *right;* uterus to *left;* 25 oz. urine drawn off; uterus *central.*

It seems to me, then, that normally the uterus in the early puerperium, under the conditions mentioned—namely, an empty bladder and rectum and the horizontal position—is central; that when the bladder is full the uterus is deflected either to the right or left side. If to the right side, the deflection is due—(1) to a previous existing right lateral deviation during pregnancy; (2) to the presence of a loaded rectum; (3) to the accident of position. If to the left side, it is mainly due—(1) to the filling of the bladder, which, for the reasons mentioned, expands to the right; or (2) to the left lateral decubitus of the patient.

It is to be further observed that these displacements are more common in early puerperium than in late—

1. Because more urine is secreted in early than late puerperium, and therefore the bladder gets more rapidly distended. Gassner has shown that increased diuresis is the normal condition during the puerperium, and both this author and Winckel distinctly show that the increase is most marked in the first days after delivery.

2. Because retention of urine is more common in the early days of the puerperium.

3. The uterus becomes less mobile as the puerperium advances.

It is matter of clinical observation, that in many cases the puerperal uterus rotates round its central axis, so that, in fact, the transverse axis of the uterus no longer corresponds to the transverse diameter of the pelvis. One side of the uterus is thrown forwards, with the result that the transverse axis of the uterus corresponds to the oblique diameter of the pelvis. This occurs apart from any repletion of the bladder, and is recognised during pregnancy when the anterior surface of the uterus looks to the right, so that the transverse axis of the fundus is the right oblique diameter of the pelvis.

Out of sixty-four cases noted by Börner, in fifty rotation was totally absent—both sides of the uterus being on the same plane, the transverse axis of the uterus corresponding to the transverse axis of the pelvis. In twelve there was distinct rotation to the right side, and in two rotation to the left. This rotation of the uterus is specially well marked in cases where the bladder is distended, and it occurs with distension of the bladder in cases where it is absent, where the viscus is empty. If the rotation, apart from the filling viscus, be to the right, then when it is full it is more marked in that direction, and *vice versâ*. It is worthy of note that the filling of the bladder never causes rotation in an opposite direction. Pfannkuch remarks that "sometimes when the bladder is very full one can observe a rotation of the uterus, in the sense that the lateral edge is turned round towards the front." In the cases I have recorded, this rotation has been distinctly remarked, to the extent that out of forty cases which have been noted, in ten, apart altogether from bladder relations, the rotation to the right was marked; and in those cases where the bladder was full, the rotation has been noted twice.

We now come to look at the quantity of urine required to produce these three definite alterations in the post-partum uterus, namely—(1) displacement upwards and backwards; (2) displacement laterally; (3) rotation. I have found that from 20 to 30 oz. of urine are sufficient to bring about the upward and lateral displacements of the uterus. From 8 to 15, I have found, make but very little appreciable difference. Pfannkuch says that 100 c.c. of urine—*i.e.* 3·5 oz. —raise the uterus, on an average, about 1 cm., that is, $\frac{1}{3}$ in.

Autefage says that with a bladder full, of from 400 to 600 grms. of urine, nothing is more common, the day after accouchement, than to observe an augmentation of the real height of the uterus, which is not less than from 4 to 9 cms., $1\frac{2}{3}$ to 3 in. Once he found 3 to 9 cms., usually 5 cms., $1\frac{2}{3}$ in. Now, on comparing these figures with each other, the results will be found to be very different, and the explanation will be found in the fact that the observations were made in different periods of the puerperium. I have already shown that this is important, because the displacing influence of the bladder on the uterus proportionally diminishes as the puerperium advances, and I need not again here refer to the reason for this. In the present communication I refer to the early puerperium, and here I mean to state that an amount of urine varying from 20 to 30 oz. is necessary to bring about the position changes in the uterus to which I have referred; that, further, the relative amount of position change is *more* marked with 25 oz. than with the largest quantities; or, in other words, that the displacement of the uterus does not, after a certain point has been reached, bear a direct proportion to the repletion of the bladder. For example, the displacement changes—upwards, laterally, and transversely—while distinctly marked with 25 oz., will not be *proportionately* increased with 50 oz.

Chylous Ascites, with an Illustrative Case.

Obstruction of the thoracic duct, especially if it be gradual, may give rise to no symptoms whatever during life, since anastomotic channels are established through which the lymph and chyle enter the circulation. However, on the other hand, congestion of the lymphatic system may give rise to definite signs which can be clinically recognised, and this is especially so when the lacteals of the abdominal cavity are within the area affected. A few cases have been recorded in which chylous fluid was found in the pleural cavity, but in all these this was only secondary to a similar effusion into the peritoneal cavity. Only some sixty-three cases of chylous ascites are recorded. It is therefore an extremely rare condition.

Mrs. P., æt. 39, was sent to Ward 28 by Dr. Prangnell of Grahamstown, on September 29. She complained of swelling of the abdomen, and gradually advancing weakness and emaciation. Up to within three months of admission she had enjoyed good health, had had six children, the youngest being $3\frac{1}{2}$ years old, and menstruation had been normal and regular. For two months she had noticed the gradual enlargement of the abdomen, and had been losing weight.

The patient was generally somewhat emaciated, and the examination of the abdomen revealed considerable distension, evidently due to ascites. The superficial veins were much distended, the skin was somewhat deeply pigmented, and on deep palpation several irregular hard masses could be detected in the umbilical and epigastric regions. A diagnosis of cancer of the omentum and mesentery, with resulting ascites, was

arrived at. For some time, with careful dieting, the patient's general condition distinctly improved, but occasionally for a day or two she had a relapse, showing itself in sickness, nausea, and vomiting. However, on the whole, after being three weeks in hospital, she was distinctly better, although the distension of the abdomen was greater, and caused her much more inconvenience.

On November 2, the abdominal cavity was aspirated, and 380 oz. of fluid were removed. The fluid presented a remarkable appearance. At first sight it was exactly like pus, but when placed in a specimen glass seemed much more mobile. It had a pale yellow colour with a suggestion of opalescence, and at first was quite homogeneous, showing no deposit, but after standing for about twenty-four hours a slight creamy layer was found on the surface. It had a sweetish, milky odour. Dr. Milroy kindly examined the fluid for me, and reported as follows:—"The fluid which was sent to me consisted partly of finely emulsified fat, but more largely of a granular débris consisting mainly of fat. About 2 per cent. of fat was present. The pigment present was lutein."

The granular débris was found, on microscopical examination, to consist of basophile leucocytes in a state of fatty degeneration.

After withdrawal of this fluid, examination of the abdomen revealed a movable tumour in the region of the gall bladder, and an indefinite irregular solid mass was detected in the region of the greater curvature of the stomach. The aspiration of the abdomen relieved the patient of her symptoms for some time, but she still suffered from occasional vomiting and inability to take solid food. The vomited matter was examined frequently, but contained no blood. From November 16, that is, about a fortnight after the tapping, remarkable and specially pronounced emaciation set in, while the abdominal cavity became more and more distended with fluid. The discomfort induced by rapid accumulation was so great,

that although the patient was evidently sinking rapidly, she was tapped again, when about 350 oz. were removed. The fluid presented exactly the same characters as before. The patient, however, did not seem to improve in the least, but gradually got worse, and died five days later, on November 26.

A post-mortem examination was made by Dr. Welsh, of which the report was as follows:—

"The body showed marked emaciation, and the skin was jaundiced.

"*Thorax.*—Pericardium and heart were practically healthy, but the heart was small and showed some brown atrophy. Each pleural sac contained about 6 oz. of bile-stained fluid. The subpleural lymphatics were studded with minute cancerous nodules; these were not found in the substance of the lung. There were signs of chronic bronchitis and emphysema.

"*Abdomen.*—A few ounces of turbid, bile-stained fluid were removed from the abdominal cavity. The small intestine showed some commencing peritonitis. The mesenteric glands were generally enlarged from malignant infiltration. The stomach was much shrunken, and filled with deeply bile-stained mucus. A large cancerous neoplasm was growing from the inner surface of the anterior wall, extending from 1 in. from the pylorus, for 4 in. along the lesser curvature. In appearance the tumour was a soft fungating mass, raised about 1 in. above the surface of the healthy mucous membrane, and presented some ulceration in the centre. The tumour consisted largely of soft gelatinous tissue, but was evidently malignant in nature, and had undergone extensive colloid degeneration. The gall bladder was distended with bile, and the glands and tissues along the larger bile ducts and in the porta of the liver were extensively infiltrated with cancer. The liver itself contained one small cancer nodule. The spleen was healthy, but the kidneys were somewhat cirrhotic and fatty. The small intestine was throughout its whole length greatly thickened and contracted. It showed an immense

number of small cancer nodules surrounding the lacteals, close to the mesenteric attachment. The lacteals were very extensively occluded. The thoracic duct and the receptaculum chyli were carefully dissected out and were found healthy. There was, however, a mass of infiltrated glands lying close beside and pressing on the receptaculum."

Remarks.—The cause of chylous extravasation is either an obstruction to the flow of chyle, or to distinct rupture of the thoracic duct, or of the receptaculum chyli. A few cases of rupture have been recorded, as for example by Quincke, in which chylous hydrothorax resulted, and Wilhelm reports a case in which the accident occurred during an attack of whooping-cough. Whitla has also recorded a case of rupture.

Rokitansky recorded a case of peritoneal and pleural effusion, in which the fluid was chylous in nature. It was associated with mitral regurgitation and cardiac dilatation. In my case the chylous effusion seemed to be due to an obstruction to the flow of chyle at the junction of the intestinal mesenteric lacteals. The thoracic duct itself was normal, and the pressure of the cancerous glands around the receptaculum was probably not sufficient to occlude it.

Thus, in some cases, the lesion was in the thoracic duct itself, whereas in others it has been due to congestion of the larger lymphatic capillaries, or of the smaller lacteals within the mesentery itself. In most of the cases the termination has been fatal, due partly to the original disease, and partly to the consequent starvation.

Some authorities have endeavoured to differentiate between a true chylous ascites and an ascites adiposus, or chyliformis. Microsopically the fluids are similar in appearance, but on chemical and microscopic examination the differences are detected. Senator adopts Quincke's classification, and distinguishes the two as follows:—

In chylous ascites, the microscope reveals very finely granular fat cells, and an absence of large fat globules.

In adipose ascites, chemical examination shows the presence of sugar; it shows similar but much larger fat cells, lymph cells, and in some cases cancer cells.

This variety occurs chiefly in tuberculous or malignant peritonitis, and is a result of a fatty degeneration of the serous endothelium, and of lymph and pus cells.

Although this view is very generally accepted, a few authorities maintain that the difference cannot be held as absolute, for they assert that, since sugar is absorbed chiefly into the portal circulation direct, and only a minute quantity, if any, by the lacteals, the presence or absence of sugar cannot be considered of any importance in differentiating between the two conditions. Further, they seem disinclined to believe that fatty degeneration of endothelial, tuberculous or cancerous cells could occur to such an extent as to give ascitic fluid such definite characteristics.

In a recent paper read at the Société Médicale des Hôpitaux, Fernand Widal and Prosper Merklin discussed lactescent ascites of lymphatic origin. They pointed out that many authorities regarded milky fluid in the abdominal cavity as chylous in nature. Others, however, consider that the fat might be due to fatty degeneration of extravasated cells. Lion first showed that milky ascitic fluid might be other than chyle. In a case of cancer of the ovary, he found that the liquid contained a substance analogous to casein, but no fat. Aschard and Apert respectively published cases in which the fluid, when examined under the microscope, showed no fatty globules, but innumerable minute refractile granules. Widal and Merklin hold that the distinction between chylous and non-chylous ascites presents great difficulties; and, further, that in the chylous variety the quantity varies very much in different cases and even at different times in the same case. They also point out that the kind of leucocytes found in the effusion show that chylous ascites may be lymphatic in origin, and they record an illustrative case. Microscopic examina-

tion of the fluid removed showed no fatty particles, but abundance of leucocytes, 90,000 to 100,000 per cubic millimetre.

Only cells of different sizes, all with a single nucleus, were discovered. At the autopsy no peritonitis was found, and even though there was no apparent lesion of the abdominal lymphatics, the milky liquid was proved lymphatic in origin. The patient had cirrhosis of the liver and tubercle of the lungs.

Senile Uterine Catarrh.

The condition which I propose shortly to discuss is one which is much more frequently met with in private than in hospital practice. Indeed, I can scarcely say that I have met with a typical case in hospital. This is easily explained, as the symptoms, though troublesome, are not severe, and the poorer classes do not seek relief except under circumstances which are more or less urgent.

The subject of endometritis occurring in old women, or rather in women who have for some years passed the menopause, is but meagrely if at all described in any of the text-books—not even in the more recent ones. Various monographs have, however, been written on the subject, and the condition described under various titles. Thus, some have called it the "fœtid endometritis of old women," others "post-climacteric endometritis." Matthews Duncan described it under the name of the "leucorrhœa of old women." But I am inclined to think that the term which best describes the group of symptoms is "senile uterine catarrh."

With the ordinary uterine catarrh of fertile women every one is familiar, due to the condition of subacute endometritis, and one of the most frequent causes of sterility. The importance, however, of the condition occurring after the climacteric cannot be questioned, and I am sure that a due appreciation of it would save many an unfortunate woman from vaginal hysterectomy, which, with improved methods and increased safety, is too apt to be had recourse to without adequate reason.

It is well known that the great difficulty in the manage-

ment of such cases is the differential diagnosis from malignant disease; but it seems to me that this is exaggerated, and that with due care and no unnecessary haste, an accurate diagnosis can be made in the majority of cases.

Sexton, in an admirable paper on "Post-climacteric Endometritis," advocates the use of this term, because most appear soon after the menopause. With this I entirely agree. However, while most do come under observation soon after menstruation has ceased, in my experience a large number seek advice many years after the climacteric, and these are the most marked cases, although the most difficult to diagnose.

Before going further, and without multiplying cases, let me give three typical examples:—

Case 1.—A patient, æt. 70, complained of a fœtid muco-purulent discharge, accompanied by constant pain in the back, with occasional and irregular attacks of colicky pain in the pelvis, but there was no hæmorrhage whatever. She was pale, sallow, and emaciated. The uterus was about 2½ in. long, retroverted and mobile. The os was somewhat gaping. Her main trouble was the fœtid discharge, and it was for that she specially asked advice. The condition had continued for eighteen months. The diagnosis naturally lay between a commencing malignant disease of the body of the uterus and simple catarrh. She had a probe passed from time to time, dressed with pure carbolic, hot douching, and arsenic; and under this treatment she, after three months, was quite cured, and lived for ten years longer. No microscopic examination was made.

Case 2.—A patient, æt. 65, complained of profuse leucorrhœal discharge, sometimes streaked with blood, and occasionally accompanied by a small clot. She had well-marked backache, and occasionally griping pains in the

pelvis. The uterus was considerably enlarged—about 3½ in., hard and globular. In this case the diagnosis was again difficult. The cervix was dilated, the cavity curetted and packed. The débris, under the microscope, showed no signs of either squamous or adenoid carcinoma. The patient had no further trouble, and now, after six years, is perfectly well.

I mention the lapse of time simply because it proves there was no tendency to malignancy in the condition.

Case 3.—The third and last type of cases is that of a patient who, three years after the menopause, had a sudden and profuse hæmorrhage; it was associated with no pain, the os was gaping and soft, the uterus enlarged to about 3½ in. The hæmorrhage continued at intervals of two or three days for three weeks. The woman was extremely emaciated, and appeared in very feeble health. The difficulty here, I confess, was considerable. With a view, therefore, to settle the question, I still further dilated the cervix, and finding no specially marked prominence in the walls, I scraped the mucous membrane, applied an escharotic, and afterwards drained by means of iodoform gauze, and the patient had no recurrence of her symptoms after a lapse of five years. This patient had every symptom of cancer, but there being no evidence of it on microscopic examination, she was treated for the simple condition, and got well.

As I have already said, I could multiply cases to illustrate these types, but I take it that these three illustrate what I consider the three forms of senile uterine catarrh:—(1) those associated with fœtid discharge and no hæmorrhage; (2) those associated with leucorrhœa and slight hæmorrhage; and (3) those in which hæmorrhage is the main, if not the only, symptom.

Of course every one is aware that post-climacteric hæmorrhages are due in the main to—(1) the commencement of cancer, or (2) to the recrudescence of a fibroid, or (3)

occasionally in gouty women; but of course in the gouty condition it is only a form of uterine catarrh, with gouty endometritis as its basis.

The symptoms are extremely like those of malignant disease. The patient suffers from vaginal irritation, and shows marked signs of general cachexia, the skin becoming sallow, and general emaciation sets in. This is really due to a slow sepsis, which is further shown in occasional rigors and night sweats. The most striking symptom, and that for which the patient generally seeks advice, is the vaginal discharge, which is watery and semipurulent, though frequently it contains a considerable amount of blood. The odour of this discharge cannot be said to be characteristic; it is, as a rule, though not always, most offensive, and in some cases I have seen has been even more so than in marked cases of cancer. It may cease from time to time, and when it reappears it is generally with a gush of sanious pus. Along with these symptoms there is frequently a certain amount of abdominal pain, pain in the back, and "progressive invalidism."

Per vaginam, one finds the uterus slightly enlarged, or more often normal in size—as a rule, not normally atrophied. The introduction of the sound causes great pain, and if a scraping be removed, this shows inflammatory changes—infiltration of leucocytes, reduplication of cells, and granular degeneration. The mucous membrane of the uterus has become hypertrophied and succulent, and is easily detached. In cases of malignant disease of the body of the uterus, all the above-mentioned symptoms are aggravated, but on vaginal examination the uterus is always markedly enlarged, and much more fixed than in senile catarrh.

Real "floodings" are much more common in cancer than in the simple condition. With appropriate remedies, senile uterine catarrh will be found to rapidly improve in the course of a week or two, whereas any treatment other than operative is of no avail in malignant disease; and I have only very

seldom found that, in doubtful cases, the delay at all interfered with the ease with which vaginal hysterectomy was later, if necessary, performed.

Now, with regard to the differential diagnosis between primary corporeal cancer and senile uterine catarrh, the following points are worthy of consideration:—

First and foremost, in most cases of primary fundal cancer, sometimes periodic and often severe pain is an early and prominent symptom; whereas, in senile uterine catarrh, the pain is irregular and colicky, or, if not, it is slight and constant.

Secondly, in cancer, fœtid discharge, at least in the earlier stages, is unusual, because the os is closed, and the surface of the cancer is protected from external influences; whereas in catarrh, especially in the first two forms I have mentioned, fœtid discharge is a prominent and early symptom.

Thirdly, local examination in cancer finds the uterus distinctly enlarged, sensitive, and early becomes heavy and fixed; whereas, in the simpler condition, the uterus either is normal or only slightly enlarged, and remains freely movable throughout.

And, lastly, dilatation and local exploration reveal the presence of a neoplasm in the one case and the absence of all irregularities in the other. It is needless to insist on the absolute necessity in every case, where possible, of careful microscopic examination.

As regards the causes of this senile condition of the uterine mucous membrane, it is difficult to speak with certainty.

1. As a rule, when women have not suffered during their menstrual life from any disorder of the pelvic organs, one may affirm that after the menopause they will be free from uterine disease, since the organs undergo physiological atrophy. But if the patient has been the subject of a fibroid tumour, or has suffered from displacement of the uterus, or from any form of

inflammation, the uterus may continue large after the menopause, and may be the subject of post-climacteric inflammation, though this is always less marked than when menstrual congestion regularly recurs to aggravate the condition. Yet undoubtedly there are many cases in which senile catarrh occurs in which there is no history of ante-climacteric disturbance, and in which the uterus is normally poised, and gives no evidence of surrounding inflammation.

2. Tilt pointed out that very often the cervix shrinks, whereas the body of the uterus is inflamed, and the fluid becomes pent up, giving the colicky uterine pains.

Matthews Duncan had several times to puncture the cervix, so as to allow the escape of inflammatory fluid.

The cases Tilt knew best were those of senile inflammation of the cervix and of the vagina—not so much of the body; and for these post-climacteric inflammations he strongly recommended caustics.

I should like strongly to insist that this condition of senile uterine catarrh is not prodromatic of malignant disease; the two are quite distinct, and I have never seen a case of the simple condition later become one of cancer.

As regards the treatment adopted, when the condition is non-malignant or doubtful, I have had the best results from rest, hot douching, and the internal administration of arsenic, strophanthus, and Chian turpentine. To give the last-named drug may seem contradictory, as it was long supposed to have beneficial effects in cases of cancer. This I do not believe, but it is quite certain that it has a good effect on inflammatory conditions; and, it seems to me, has almost an equally good effect in clearing up purely uterine inflammation, as in cervical inflammatory hypertrophy.

Nothing gives better results than either the application of escharotics by means of dressed sounds, or, still better, the curettage of the mucous membrane, with subsequent packing and draining.

The main point I wish to insist upon in this paper is the fact that these cases are so often mistaken for malignant conditions; and I have repeatedly had patients, supposed to be suffering from malignant disease, sent to me for hysterectomy, who were sufferers from the simpler condition, which responded to simple treatment.

Psychoses following Pelvi-Abdominal Operations.

There is no novelty whatever in discussing the question of mental disturbances succeeding operations of all kinds. There is scarcely any form of operation which, in persons so predisposed, may not lead to a total upset in the nervous system, and bring on physical changes more or less marked. Such aberrations occur after operations in general surgery, even after such a minor accident as a simple fracture. After the administration of anæsthetics, delirious mania has followed, and in some cases weak-mindedness has lasted for a very variable period. Abdominal and pelvic surgery is no exception, of which the cases to which I am about to refer are sufficient indication. The normal functions of the ovaries and uterus are themselves not unassociated with mental aberrations; alterations in the temper, for instance, or actual hallucinations, disordered appetites of all kinds, are accompaniments both of menstruation and pregnancy. The same is the case with the menopause. That of course is a natural process, and yet is only too frequently associated with all sorts of forms of nervous and mental disturbance. Perhaps of the three conditions—menstruation, pregnancy, and the menopause—the menopause is more frequently associated with curious mental phenomena than any other period of a woman's life. Such aberrations are associated with the normal utero-ovarian conditions.

Every one is acquainted with the frequency of insanity occurring after ordinary labour, of which the asylum records bear ample testimony; but it must be admitted that puerperal insanity generally occurs in those in which the patient's

record has not been a clean one, where there has been insanity or mental weakness, either in the case of the patient herself previously, or in her parents, or in the collateral branches of the family. Of course I am not concerned with the question as to the advisability or propriety of operating upon mentally diseased women, or women with neurotic inheritance. The prognosis in such cases is serious. The tendency to rouse up morbid mental tendencies in such people by operations is, of course, very serious, and therefore in such women operations of convenience, which are not necessary for the prolongation of life, ought to be undertaken very guardedly indeed. Before going further, let me give an illustration of a case of mental disturbance associated with menstruation in an otherwise healthy woman, with a good history, unassociated with any operative interference whatever :—

Case 1.—The patient was a young unmarried girl, æt. 26, and the complaint was, that she had for long exhibited symptoms of violent dislike to her relatives, especially her brothers and sisters, during the five days that her catamenia lasted. She was morose during the whole period, declined to speak to any member of the family, and was violently insulting when spoken to; but the day after her catamenia ceased she was bright, cheerful, and well, and willing to enjoy all the pleasures of life. This had lasted for ten years. She has been on more than one occasion examined carefully, under chloroform, and no morbid condition whatever could be found in the uterus and annexa. She had no dysmenorrhœa. Her sisters are all healthy and well, and there is, so far as could be ascertained, no history of any insanity in the family. This case seems to be one in which there must be some peculiar idiosyncrasy in the patient, which is associated with nothing apparently abnormal in the pelvis, with no displacement, neoplasm, or lesion in either the uterus or its appendages. But the interesting point of the case is, that she married two years

ago, and shortly after marriage she became pregnant, and was delivered at full time; but during the whole period of her pregnancy she had exhibited symptoms similar to those she showed during menstruation, but shortly after delivery she became perfectly well, and has remained well since, though menstruating regularly.

It is unnecessary here to refer to mental conditions during normal pregnancy; they are very well known and recognised, and one would pass from these, which might well be called "normal neuroses," to those which are associated with pelvic or abdominal operations.

The following case is interesting, inasmuch as one cannot imagine any class of case that is so disappointing to an operator as this, in which the whole advantage and benefit of the operation is destroyed and misunderstood, on account of this mental distress:—

Case 2.—A young woman, a widow, æt. 32, was admitted into a nursing-home—under my charge—suffering from villous endometritis, with profuse hæmorrhage, not only at her menstrual periods, but intermenstrually as well. On examination, the uterus was found much enlarged and easily hæmorrhagic. The obvious treatment was to perform curettage. This was accordingly done, and the patient made an excellent recovery. Some weeks afterwards she took an inordinate dislike to her own child, threatened to murder it, and she is now an inmate of an asylum.

Here again is a distinctly disappointing result. In this case the diagnosis was obvious, and the cure absolutely complete, and yet the case ended more disastrously than if the patient had died of acute sepsis. Such a case impresses one with the importance of regarding, in their estimate of the danger of an operation, the fact that it may be followed by mental changes as serious as the one just referred to.

The following is another case of mental trouble consequent upon a minor gynæcological operation :—

Case 3.—The patient in this instance, a young lady, æt. 25, was brought to me *reduced to a state of extreme* anæmia, suffering from constant and profuse uterine hæmorrhage, dependent upon the presence of a uterine polypus. This is not the place to discuss the nature of the operation necessary, but it will be allowed that the removal of a tumour such as this, about the size of a hen's egg, involves no very great shock to the system. Such operations are performed every day, and are, so far as either immediate or remote results are concerned, entirely satisfactory. Of course the hæmorrhage ceases at once, and the only possible risk is septic absorption, and this can be easily prevented. This lady made an extremely good recovery, and left the Home perfectly well. There has been no return of the hæmorrhage since. Unfortunately, two months after the operation, she harboured the delusion that she had been delivered of a child, and that she had become, as a result, an outcast, and she is now the inmate of an asylum.

This is a result which no one can discount, and cases such as this, where the patient was reduced to a state of profound anæmia, and where the physical cure was an absolutely complete one, are, it must be admitted, a disappointment. So far as one could discover, this girl had no family history of insanity whatever, either in her immediate family or among her relatives, and this is the point one would emphasise. It may be readily understood how the extraction of a tooth or the administration of chloroform would upset the nervous system of a person pronouncedly so predisposed, but this is a case where there was no tendency to insanity in the family whatever. I repeat, that this fact seems to be a very serious addition to one's views as to the prognosis of any case. As has just been said, all are prepared to discount accidents in insane families, but one has no right to discount—one is not expected to discount—such accidents as these in women

who have a perfectly clean mental history. It might be possible to account for this case by the fact that the girl was reduced to profound anæmia. She was exsanguine in the extreme, and therefore it is possible that an operation under such circumstances might have produced a comparatively great shock; but then the symptoms did not come on for at least two months after the operation was performed, and by that time the patient had become physically stronger in every way. At the same time, when one regards the curious mental and physical phenomena that are from time to time seen in conditions—perfectly normal conditions—such as menstruation, pregnancy, lactation, and menopause, it is not a matter for very great surprise that when, in addition, operative interference is had recourse to, the effect on the nervous system should be pronounced, as in the case just recorded. It might be supposed that the insanity occurring two months after the operation was neither in consequence of it nor related to it, but the nature of her delusion is a sufficient answer to this objection.

The influence which the ovaries and uterus exert over the mind has long been discussed in the abstract, and on that account one is all the more anxious to record concrete examples illustrative of these conditions, in order that others may be prepared for them as they occur. It is not for me to inquire into why this takes place, nor to go into any erudite examination of the relation between mind and matter, it is enough to point out that such accidents are possible, and at the same time, unfortunately, utterly and absolutely unpreventible.

Before leaving the subject of minor gynæcology, one other case might be quoted:—

Case 4.—The patient, a young woman of an exceedingly healthy family, suffered from intense spasmodic dysmenorrhœa, which had resisted all the ordinary drugs, and which

was so severe as to withdraw the girl from active duties every month. On one occasion her suffering was so severe that she had to have chloroform administered. After due consultation with her friends, the cervix was dilated, and for the two succeeding months she was quite free from her dysmenorrhœa; but at the third month it returned, and she became violently maniacal, and her mental equilibrium has been very much upset ever since, so much so that her marriage has had to be abandoned.

It is unnecessary to multiply cases of mental changes following minor operations, but one could mention others, though fortunately less pronounced and attended with happier results than those just cited. Though *I have not myself* seen any cases of insanity after perineal repair, yet Kelly records six cases of insanity after perineal operations, and one of these died in acute mania.

When one comes to pass from minor to major operations, of course the field is wider, and in the following example it will be found that mental and fatal conditions are by no means unassociated with the major operations in gynæcology. The case is as follows:—

Case 5.—The patient was a married woman, apparently in robust health, with a simple ovarian tumour. There were no adhesions and no difficulty whatever in the operation, which lasted ten minutes. It went off without a hitch of any description, and the prognosis was therefore perfectly favourable. To show how careful one ought to be, I might mention that, after the operation was over, the husband asked if there was any necessity for him to remain in Edinburgh. The answer was in the negative; he was told that his wife was perfectly well, and there was no likelihood of any hitch occurring, and he left for a distant part of the country. The following day the patient became acutely maniacal, had to be held down in bed, and died of exhaustion in four days.

Of course it will probably be said that this was the mania or delirium of sepsis, but, as a matter of fact, the autopsy showed not a trace of sepsis anywhere. The patient had no family history of insanity, and was apparently in excellent health. Here, again, one does not wish to enter upon any abstruse investigation as to how this calamity occurred, but the fact remains that the patient died in acute mania four days after the simplest possible operation. Reference might here be made to the excellent paper by Kelly on this subject, in which he records eight cases out of something over 2000 abdominal sections. The record from which these cases are taken shows five cases of insanity in over a thousand sections. Of Kelly's eight cases five recovered completely, two remained insane, and one committed suicide. My record obviously is not so satisfactory.

The case just referred to is one of acute mania, following a simple operation. Take another case:—

Case 6.—The patient had a rather troublesome ovariotomy performed. There were numerous adhesions; but the case, though somewhat tedious, was nothing unusual. She made an excellent recovery, and remained absolutely well for five days. On the morning of the seventh day, when the stitches were removed, the wound had completely healed except for one small suppurating stitch-hole. The same evening she became excited. The next day she was still more so, and a day later she became acutely maniacal, and remained so for a week, when she had to be removed from the home. She died shortly afterwards.

Case 7.—Perhaps one of the most painful cases was that of a patient upon whom I performed hysterectomy for a large rapidly growing fibroid. It is unnecessary to mention the operative details; suffice it to say that the stump was treated intraperitoneally, and dropped back into the abdomen. The

tumour was a large one, involving a wound nearly from the ensiform cartilage to the pubis. Afterwards she was apparently well, without any notable rise of pulse or temperature. On the night of the seventh day, after the stitches had been removed, while the nurse had left the patient just for a minute, the patient jumped out of bed, tore off the dressing, and before she could be brought back to bed the strapping had given way. This allowed the wound to reopen at its lower margin, and a small portion of the gut escaped. I saw her very shortly afterwards, and found her in a state of violent excitement. It was with difficulty that she was anæsthetised. I was fortunately able to deal with the temporary hernia, and she recovered from the operation, but only to become an inmate of an asylum, where she still is.

These cases all illustrate mental disturbances occurring immediately after an operation.

Case 8.—The next one is a case of melancholia, which supervened six months after the performance of a simple ovariotomy. The case was a perfectly easy one, without any complications. The patient made an excellent recovery, but six months afterwards began to show symptoms of dislike to her friends, along with evidences of suspicion and melancholy, and she is now, and has been for some time, confined in an asylum.

The interesting feature of all these cases is, that all those mental disturbances occurred after operations which were uncomplicated and simple, and in cases where the operation *per se* was entirely successful; and, further, that all occurred in women who, so far as could be traced, had no hereditary tendency whatever in that direction. There is little reason to doubt that septic infection has a great deal to do in the production of insanity after operations.

Of course, in looking for causes that lead to these mental disturbances after operation, the field is very wide.

Undoubtedly the first factor is the hereditary one; the second possibility is sepsis; and from these two, which are probably the main causes of post-operative insanity, one can look to a large group occurring, under loss of blood, defective action of the kidneys, and so forth.

Again, one must remember that in removing the ovaries for disease (or from other cause), one induces the climacteric, and of course, in so doing, one places the woman in all the possible risks of climacteric trouble. It seems probable that the essential prerequisite for the development of post-operative insanity must be, in all cases, a neurotic organisation, predisposed, from either hereditary taint or acquired nervous weakness (and instability), to take on diseased (or perverted) action, in consequence of any active disturbing influence.

Naturally, all are unwilling to admit that sepsis is the cause of death in operations, for now we know that a septic death means careless surgery, and therefore some are apt to attribute deaths and misfortunes to other causes than the real one. For example, death is said to be due to shock, defective kidney action, hæmorrhage, exhaustion from suffering, the depressing effect of anæsthetics, vomiting—to anything rather than to actual sepsis. Still, in the cases here referred to, with the exception of the hysterectomy, the possibilities of sepsis were out of the question altogether, at least of any sepsis that showed itself by any other way than by the insanity.

Alienists tell us that there does not exist a psychosis which may be called post-operative insanity. With the exception of certain operations on the head, thyroidectomy, etc., there are no operative procedures which can be said to be *solely* productive of mental troubles, and the main rôle in the production of post-operative disturbances is played by a predisposition acquired or hereditary.

I think the remarkable thing, however, is that it has not been shown that insanity is more common after operations on the genital organs than after operations on any other organs.

When one recognises the frequency with which mental troubles are apparently associated with the *normal* occurrence of changes—such as puberty, menstruation, pregnancy, and the menopause—it may be considered almost remarkable that women escape from these disorders as easily as they do.

One does not wish here and now to enter upon the great subject of operations undertaken in insane women, with a view to effecting a cure of the mental disease, by operative treatment of the genital organs. That is a field in which there is a good deal to be said, but it seems to me that under no circumstances ought any insane woman to be operated upon, unless for some distinct condition which is compromising life. The cases in which the ovaries have been removed, and other operations performed, with a view to influencing insane or hysterical conditions, are many, and I fear the results are exceedingly discouraging. One's own experience of hystero-epilepsy is comparatively limited. I have operated on only one case where the symptoms were extremely marked, and after the removal of the ovaries the catamenia ceased, and the hystero-epileptic symptoms disappeared; but after some years the patient was lost sight of, and therefore I cannot tell whether or not the cure was absolutely complete. It is quite certain that after any degenerative processes have occurred in the brain cells, it is absolutely useless to look for any mental cure by any form of operation on the genital organs.

The relation of gynæcology to psychiatry has been much discussed in late years, and I think the general consensus of opinion, gathered from alienists and neurologists alike, is that, while it has a place amongst the insane, just as among the sane, for the relief of physical distress, yet as a great curative method in the treatment of insanity it plays a comparatively small and unimportant part.

Two Cases of Mistaken Sex in Adult Life.

Neugebauer, in a recent paper,[1] recounts fifty cases in which a marriage took place between two persons who afterwards were found to be of the same sex. The article is meant to show the importance of making early discovery of such cases, in order to save the miserable consequences, unhappiness, divorce suits, even suicides, which may follow if they are not recognised and are allowed to proceed in error; and to demonstrate the responsibility which is incurred by a doctor when giving a definite opinion in cases of doubtful sex. That it is by no means easy in all cases, especially before puberty, to determine the sex, is certain; but many of such cases are never brought to the doctor at all. In the great majority of cases, a male is mistaken for a female, which naturally leads to greater difficulty in the matter of examination. Of the fifty cases recorded in the paper to which I have alluded, forty-six were cases in which a man was married by mistake for a woman; only three were cases in which a woman was married as a man. In the remaining case it was said that one of the patients was hermaphrodite.

Foreign medical literature abounds in copious records of cases of this sort, but, so far as I know, few cases are met with, or at least are recorded, in this country, and a record of two cases of mistaken sex occurring in members of the same family, and which is perfectly authentic, cannot be without interest and value.

Two supposed girls, æt. respectively 19 and 21, were brought to me by their mother with simply the history

[1] *Rev. de gynéc. et de chir. abd.*, Paris.

that they were both quite well, but that they had never menstruated. One was at once struck with the appearance of the patients. The features were distinctly of the masculine type; the elder had a budding moustache, and their figures lacked the rounded contour of the female form. They were dressed in fashionable female costume, and when they spoke the voice was loud and harsh. The years which they had reached fully justified a suspicion of some abnormality, and therefore I suggested an examination, under chloroform, which was agreed to.

On examination, both presented the same peculiarities. The hair of the head was unduly short for girls; the mammæ and nipples were small and undeveloped, so that the chest wall was flat and entirely masculine. In the case of the elder, the skin over the sternum was slightly hirsute. On examining the abdomen, one noticed that the pubis was well covered with hair, and that this extended upwards towards the umbilicus; but it was on examining the external genitals that the most remarkable features were found. Each had a representative of the penis, about 1 in. long, and at the base of this, on the lower surface, the meatus urinarius was discovered. The penis was covered by skin, and on retraction of this a small glans was observed, but there was no evidence of a urethra in the organ. Behind this, which appeared to be simply a hypertrophied clitoris, there were two apparently somewhat large labia majora; but, on separating these, no vaginal orifice could be found, and on a more thorough examination it was made out that each labium contained what was evidently a small testicle. The labia were therefore simply an incomplete scrotum, it having a marked cleft between the two sides, and the raphe being completely hidden unless the "labia" were separated.

An examination was made per rectum; no trace of a uterus or appendages could be detected, but the prostate gland, fully developed, was easily felt.

The pătients were indeed cases of hypospadias, with malformation of the penis and the scrotum, and the fact was brought home to me that I was dealing with two men, and not with two women, as was supposed when, an hour before, they came under my care.

One is inclined to regard all such cases as these in the light merely of curiosities, and it is as curiosities that most of them are recorded. To the teratologist, now that teratology is being recognised as a science by itself, they are undoubtedly of great interest and importance; but one also learns by experience that in the field of practical medicine they raise difficulties and produce complications of no small magnitude.

Neugebauer speaks of the grave responsibility which rests with one who fails to recognise the seriousness of mistakes made in determining the sex of a child at birth. He alludes to two melancholy cases of suicide which arose from such mistakes.

One of the cases which he cites is that of a woman of 50, who had been married at the age of 21, and divorced from her husband ten years later. The husband's plea was not only that he could not consummate his marriage, but that his wife made him a source of ridicule to his acquaintances because of her conduct towards other women. It was discovered at last that this supposed woman was in reality a man, the subject of hypospadias; and thereupon she claimed from her brother a share of the patrimony. Against this claim the brother entered a counter-plea against the newly discovered brother, of seduction of his wife. Surely a sufficiently complicated and involved question!

Dailliez records a remarkable case, in which proceedings on the part of a husband for procuring a divorce were carried on during twenty-two years, before it was finally decided that the supposed wife was not a female at all. Three medical experts first examined the supposed woman, and declared her positively to be a female, while two other doctors asserted

that she was a male. A new plea was instituted some years later by the husband, and another examination was ordered by the Court. This time a woman was entrusted with the examination, and she declared that the subject was neither a woman nor a man. The matter was then referred to the ecclesiastical tribunal at Rome, and a consultation between a lawyer and a theologian resulted in the decision that the marriage had better be annulled. Even this judgment was appealed from, and it was only in 1888, twenty-two years after the question had been first opened, that it was finally decided that the woman really was a man, with peno-scrotal hypospadias.

A midwife was accused, and found guilty, of having coitus with a young woman, 19 years old, who became pregnant thereafter. Her plea was that she had adopted that procedure in order to right a displacement of the uterus, of which her patient was the subject. On examination, she was found to be a male pseudo-hermaphrodite.

The recorded cases in which females have been mistaken for males are much fewer in number but sufficiently appalling in their consequences. The history of Anne Grandjean, fully recorded by Arnaud, and quoted by Neugebauer, is very sad. She was born in 1732, and was brought up as a girl, till, at the age of 14, on the advice of a father confessor, she was recognised as a boy, and called Jean Baptiste. At the age of 32 she married a woman. The marriage was sterile. The wife was distressed at the imputations which the sterility of the marriage cast upon herself. Some one who had known her husband in childhood told her he was a hermaphrodite, and, on the advice of another confessor, she caused inquiry to be instituted, with the result that Jean Baptiste was condemned to the most painful and degrading punishments that could be devised for a human being.

Although it is difficult to imagine how, in a properly cared for child, such a mistake could arise, with the organs so

obvious as they were in this case, yet in my particular cases, as they as children were brought up abroad, in charge of coloured nurses, the cause of the error in sex is more easily accounted for.

In my own cases, recorded above, there were, as may be imagined, extremely difficult complications to be adjusted. It was discovered, upon inquiry, that the relations of my patients towards their girl friends had been peculiar. They much preferred the society of girls to that of men, and one confessed to feelings of sexual excitement when sleeping with female cousins.

Legal complications were not easily arranged. Many formalities had to be gone through; questions with regard to their father's will had to be adjusted, and new names had to be given to the young men, who donned men's attire, left this country, and are now pursuing useful avocations in the Far East.

Elephantiasis Arabum.

Though elephantiasis arabum is a well-recognised pathological condition, yet its occurrence in this country is rare, and the recorded cases are correspondingly few; and much more so is this the case where the seat of the affection is in the female genitals, so that a report of the following case is of interest. True elephantiasis affecting the vulva is rarer than at first appears on examining the literature of the subject, since many cases have been recorded as such, which on examination prove to be not really elephantiasis, but simply conditions of exaggerated lipoma or fibroma, or even some tertiary syphilide which bore a close resemblance in external appearance; and in some others, while the pathological description seems to correspond to the recognised appearance of elephantiasis, there is associated with the growth of the tumour a history of previous or concomitant venereal disease.

Elephantiasis arabum vulvæ is a disease described as occurring not infrequently both in India and Barbados; but that it is not confined to any particular locality is sufficiently attested by the records of occasional cases in French, German, and other European literature.

The case now recorded was that of a married woman, æt. 32, who had borne three children, the youngest of whom is 6 years old. Apart from physiological amenorrhœa, her menstruation had always been regular. At the age of 13 she suffered from tuberculous destruction of the glands of the neck, the evidence of which is manifested by the presence of very numerous cicatrices in that region. With the

exception of this ailment, she had enjoyed good health up till about five years ago, when the glands in the groin of the right side suppurated and broke down, healing slowly and leaving the usual scars. Twelve months thereafter she first noticed the commencement of the swelling in the right labium, and this has continued to increase. About two years ago the left labium commenced to hypertrophy, and this was also preceded by the destruction of several of the glands on the corresponding side. This enlargement of the left labium has not, however, progressed to any extent. The tumour of the right side is well represented

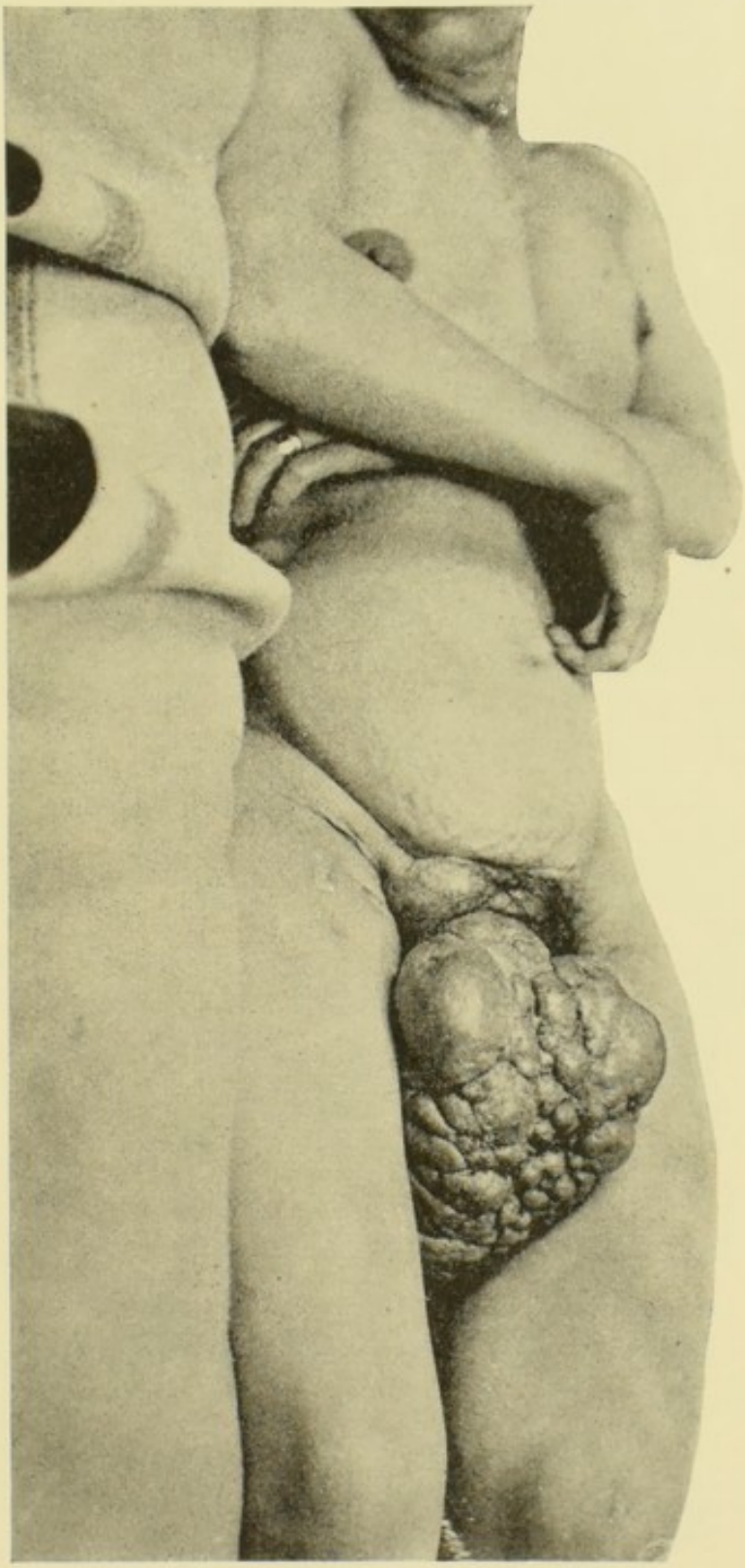

FIG. 12.

in the accompanying figure (Fig. 12), which was taken when the patient was completely anæsthetised. Towards the mons veneris, and over its most dependent part, the tumour is hard and nodular or *papillomatous;* but at the side where it is in contact with the thighs it is soft and smooth, or *glabrous*, to adopt the usual nomenclature.

To indicate its dimensions more exactly than can be shown in any diagram, the measurements were found to be—antero-posterior diameter, 12 in.; lateral, 6 in.; and vertical, 6 in. The base of the attachment, although being a long one, is somewhat narrower than the dependent part of the tumour, so that it is fairly movable, and might be described as faintly pedunculated. At times the patient suffered great pain in the affected part, and on other occasions it became inflamed and erysipelatous, she herself describing this as "the rose."[1]

After elevating the tumour so as to cause as complete depletion as possible, the mass was removed by a single sweep of a large amputating knife, and thereafter the individual vessels were dealt with *seriatim*, the hæmorrhage being inconsiderable. As the disease, however, had spread up over the mons veneris, a large quantity of redundant tissue had to be removed by dissection, which added very considerably to the extent of the wound and the difficulty of the operation.

The edges were then drawn together and sutured, and as there was a copious discharge from the gelatinous-like tissue, a drainage tube was introduced at the most dependent part of the wound. This was removed at the end of two days, and the patient has made a good recovery.

As to its pathology, the great bulk of the tumour appeared to consist of a gelatinous mass diffused over the

[1] It is of interest to note in this connection that in some of those islands where elephantiasis is not uncommon, the disease itself receives the name of "the rose" from the aborigines.

area of swelling, and enveloped in a layer of skin and epidermis, which had not, to all appearance, undergone much change. This tissue, on examination, was found to consist of a hyperplasia of the cellular elements of the connective tissue and lymph spaces between, enormously dilated, from which a watery fluid flowed on slightest expression, and had originally consisted of the deeper layer of the dermis and the subcutaneous connective tissue. No great thickening of the epidermis was noticeable on microscopic examination, but the papillæ were larger than normal and occurred at much wider intervals, whilst in some parts of the substance of the epidermis there were present dilated lymph spaces. Nerve bulbs were awanting in the parts examined.

Those portions previously described as being hard and papillomatous consisted for the most part of dense fibrous tissue covered by a hypertrophied epidermal coating.

Cornil and Ranvier consider elephantiasis of the vulva histologically, under three principal forms:—

1. Where the entire derma is hypertrophied and assumes embryonic characters, in the midst of which are greatly dilated lymph spaces.

2. That which succeeds repeated œdema and affects wide areas, when there is general stagnation of the lymph system. In this variety, especially, there occurs often a fibrous alteration in the ganglia.

3. Enormous increase in the derma, with proliferation of all its elements, and dilatation with lymph of the intervening spaces.

Whether associated with the *Filaria sanguinis*, or having its origin from any other cause, in all varieties the constant lesion is a dilatation of the lymph channels, and without doubt this occurred in the case now reported, and probably had its initial causation in the destruction of the lymphatic glands and the consequent obstruction of the lymph stream accompanied by stagnation and accumulation of lymph.

A Criticism of Some of the Lesser Gynæcological Manipulations.

Gynæcology has perhaps, more than any other branch of medicine, suffered from the *nimia diligentia* of its exponents. Both in minor and major gynæcology examples of this are to be found, and in selecting some of the minor manipulations for criticism, it is not to be supposed that I do not quite appreciate how far so-called major gynæcology has been overdone. Abdominal surgery, both in the removal of the appendages for varying conditions, not less than hysterectomy and allied operations, in the light of increased knowledge and experience, require careful reconsideration. Many times the abdomen has been opened when it had much better been left closed. That there are many and obvious errors in abdominal surgery, notwithstanding its exceptionally brilliant results, no one admits more readily than I do, yet the range of abdominal surgery—I mean, of course, in relation to gynæcology—must always be comparatively limited, both as to patients and operators. But minor gynæcology appeals to every practitioner, and to an enormously larger clientèle. Again, minor gynæcology, and all its various manipulations and operations, has so long been under the immediate observation of us all, that it seems to me reasonable on my part to make some practical observations on the more common and, in many cases, routine operations of our art, the more so as I believe these interferences are practised without sufficient care, and are in many cases the cause of permanent injury to patients.

Three factors seem at work in modifying our opinions very considerably with regard to many of the minor gynæco-

logical operations and appliances which have been in constant use. These three factors are—(1) the improvement in and education of practitioners in the simple manual examination of the pelvic organs; (2) an improved and revised pathology of the infra-vaginal portion of the cervix; and (3) and perhaps specially, the increased knowledge which abdominal section has thrown upon the contents of the pelvis.

It must always seem an ungenerous task on the part of any writer to discard the means by which he has arrived at a rational and accurate knowledge of his subject, and yet it is nevertheless true that many of the procedures, manipulations, and operations which have been so persistently and regularly described in text-books, are, with increasing experience and increasing knowledge, deserving of a less prominent place than they have hitherto occupied.

The three factors to which I have already alluded have seemed to me to play a most important part in this matter, and in what remains of this paper I shall endeavour to point out wherein those three factors have modified the operations which I now propose to discuss *seriatim*. The fact has been forced on me, that a large number of cases where abdominal operations have become imperative, have been distinctly traceable to interference, more or less marked, with the uterus. Now, for instance, take the *speculum*. In my own practice I have not employed a speculum for *diagnostic* purposes for quite a dozen years. I can see no good that it can accomplish, but a very considerable amount of harm may follow its use. All conditions of the cervix that I know of can be diagnosed perfectly well with the fingers.[1] Now and then a badly situated vesico-vaginal fistula may require the aid of the speculum to see its point of exit; but this is rare and exceptional. The great bulk of gynæcological cases can be

[1] The *appearance* of the cervix will not facilitate the diagnosis between simple and malignant condition. Often a speculum of some description is required to remove a piece for microscopic examination.

diagnosed with absolute accuracy without the use of any speculum whatever. So far as my personal experience is concerned, I find that the speculum is used as a matter of routine, very often with a view to cover the inexperience of the practitioner. The speculum, I venture to believe, diagnostically, is a much over-rated appliance. In its place, careful bimanual examination ought to be steadily taught and persistently enforced. The speculum, used for diagnostic work only, gives but a superficial knowledge of the parts, and in many cases obscures the organs which require to be most carefully observed, and endless cases are mismanaged through reliance being placed on the speculum and nothing else. It would be better were it discarded altogether from the teaching of practical gynæcology, and the student taught to avoid it and rely on his fingers alone. The information gained from it is only slight and practically useless. All really reliable information must be got from a careful digital examination of the cervix, the appendages, and the fornices. A mere speculum examination is worthless, and cannot be too strongly condemned, and to act upon it with regard to operation would be altogether wrong. With all due deference, I venture to say that the speculum is used for diagnostic purposes by imperfectly trained men, who press it into an importance which it does not by any means deserve. Visual examination of a patient is always to be avoided, if possible, and the exaggeration of a mere local manifestation into a serious disease is a matter which deserves the reprobation of the profession.

Of course I wish it to be distinctly understood that I refer here and now entirely to the use of the speculum for *diagnostic* purposes. Its value in all forms of operations, of course, is well recognised.

The uterine *sound*, which owes its birth and development to the school to which we belong, is an instrument which, both diagnostically and therapeutically, has played and does

play a very important part in gynæcology. Its diagnostic use, however, is now of less importance than formerly. Before the perfection of the combined method of examination, the employment of the sound was not only useful but indispensable, and from it most of the important advances in minor gynæcology have been made. Those of us who now mainly rely on the combined method of examination are indebted to the sound for valuable aid and much instruction, but, to my mind, its use must now be more limited than the text-books would lead us to believe. In most cases it is unnecessary, and in a large number of cases it is dangerous; unnecessary, because the careful training which every one now undergoes in the conjoined examination of the uterus renders the mechanical use of the sound a work of supererogation, for equally accurate results can be obtained without it; and dangerous, for the varieties of manual examination—vaginal, rectal, abdominal—which are now so carefully taught and practised, if carried out gently, carefully, and patiently, give much more accurate results than the sound, and without any risks whatever. I am perfectly free to admit that I have seen rough bimanual examination accompanied by the most disastrous results, and become the origin of pelvic mischief; but what I say is this, that however carefully the sound is used, there is always an element of danger in it, whereas a carefully conducted manual examination means no risk at all, and, as a rule, entirely satisfactory results. The *routine* examination by the sound should be deprecated, I believe, by teachers and not employed by practitioners. And if accidents with the use of the sound are occasional in the hands of the experienced gynæcologists, what, may I ask, are the number of casualties to be credited to its regular use in the hands of the tyro? Its occasional use, no one will deny, is of the greatest value, as in fibroids, and in fixing the lie of the uterus with regard to tumours, and so forth.

In gynæcology, as in everything else, older methods must

give way for advancement in knowledge and in technique. To the sound as a replacer of dislocated uteri, as a means of making applications to the cervix and cavity of the uterus, and such like, no exception can be taken; but to its regular use as a means of gynæcological diagnosis, I must enter a caveat. I should pass far beyond my present intention were I to quote cases illustrative of the risks of the sound. Hæmatocele of the ovary, persistent ovaritis, double salpingo-ovaritis, and such like, are within my own personal experience, and several of these have been the subject ultimately of abdominal operations. The old contra-indications for the use of the sound—*i.e.* cancer, menstruation, and acute inflammation—stand as they ever did, but increasing knowledge has extended our information with regard to inflammatory and allied conditions of the appendages, which to a former generation were unrecognised and unregarded. Personally, so far as my own clinical teaching in the hospital is concerned, I have endeavoured to minimise the use of the sound, and tried, at all costs, to inculcate light and careful examination of the pelvic organs by the hands. Its use in these days should be exceptional, not usual.

The *intra-uterine stem pessary* seems to me to fall under entire reprobation. It may be from my own want of skill or care, or both; but in my hands it has done infinitely more harm than ever it has done good. It does occasionally occur that pregnancy has followed its use, that displacement or dysmenorrhœa has been occasionally cured, and in the hands of one alive to its risks it may sometimes be used with safety; but I only wish now to express my opinion over a very considerable experience—that its use, whether in dysmenorrhœa or displacement is, as a rule, to be deprecated, and in the hands of the inexperienced to be entirely barred. My personal knowledge supplies me with the records of women who have been permanently maimed, and to very few indeed who have benefited by their use. Dysmenorrhœa and

amenorrhœa, and such like, for which such instruments were devised and employed, are in the main not due to uterine conditions at all, but to other pathological conditions, either partly or altogether beyond the uterus itself.

This brings us naturally to the discussion of the question of *dilatation of the cervix.* This operation, whether accomplished rapidly by the Sims, Ellinger, or Hegar dilator, or graduated bougies, is one which, if carefully carried out, seems to me to give the best results in dysmenorrhœa ; so long, be it clearly understood, as the dysmenorrhœa is purely and entirely uterine in its nature and origin, so long as the appendages are perfectly free and normal, and so long as there is no antemenstrual pain. In such cases the dilatation, of whatever nature, will give satisfactory results. But where there is the least reason to suppose that appendage trouble, however slight, exists, or that there is any antemenstrual pain, then, not only will the dilatation give no good result at all, but the operator will unquestionably run the risk of setting up very serious mischief. Perhaps the majority of cases of dysmenorrhœa are due to some morbid condition in the ovaries or tubes, or both. At the same time I am not slow to recognise that there are a number of cases that are purely uterine, and where these can be judiciously and accurately diagnosed, as I believe they can, then in them dilatation, carried out with care and with the necessary antiseptic precautions, gives, so far as my experience is concerned, excellent results. Indeed, I know of no other way by which uterine dysmenorrhœa can, as a rule, be successfully treated, and therefore I recognise that this operation of dilatation is a useful and important one ; but at the same time I am quite alive to the fact that it is both injudiciously and carelessly used, and without a due regard to the precautions to which I have just referred. In such cases nothing but disaster accompanies its use—disasters such as perimetritis, ovaritis, etc.; and it was quite recently that I was called upon to remove a large blood

tumour of the ovary, about the size of a large orange, which had resulted from the injudicious use of the dilator. I do not stay here to multiply examples, because such would be of no use, as all the disasters are, to my mind, entirely due to want of appreciation of the proper cause of the dysmenorrhœa, and the proper differentiation of that which depends upon ovarian and tubal conditions and that which is entirely uterine in its origin. There is no question that, among the minor gynæcological troubles, dysmenorrhœa occupies a first place. There is difficulty in its diagnosis and difficulty in its cure. Many cases which at first look simple, and seem due to some uterine condition, are nevertheless found complicated, on careful examination, with appendage trouble; and many in which the appendages are diseased, and where the cause seems to lie in them alone, the dysmenorrhœa is complicated by a uterine condition as well. For example, what is only recognised as a stenosed cervix, I have seen over and over again treated by the introduction of mechanical agents into the uterus, where a little careful inquiry into the history and symptoms of the case would have led the operator to look for and find some degree of appendage trouble. Furthermore, every one who knows anything of gynæcology at all knows that the personal equation, if I may say so, is more marked in the uterus and appendages than in any other organ in the body; and therefore, even although we find no appendage trouble appreciable by the touch, it is desirable, before artificial dilatation be had recourse to, that the sound should be passed once or twice in order to ascertain to what extent the uterus and its annexa resent interference.

Within the limits referred to, rapid dilatation of the cervix uteri, under an anæsthetic, gives most satisfactory results in simple uterine dysmenorrhœa. It is simpler, safer, and more enduring than tents, and between this operation and the use of intra-uterine stems there is no comparison, so far as safety is concerned. While distinctly recognising that in a number

of cases where, from pre-existing disease, serious injury has been done to the patient, yet I do most distinctly mean to state that, in a case of dysmenorrhœa, where the bimanual examination reveals no appendage trouble, where the repeated passing of the sound causes no after-effects, and where, therefore, the dysmenorrhœa is found to be in the uterus alone, dilatation, with careful antiseptic precautions, gives better results than any other procedure with which I am acquainted. The question is, "Is it permanent?" This must be answered with some degree of qualification. In a few cases, specially those which seem to be of a purely spasmodic nature, and where the pain of the dysmenorrhœa is associated with the first few hours of menstruation, it is distinctly permanently curable; but where the dysmenorrhœa extends into the first two days, or occurs at irregular intervals during the period, such dilatation often requires repetition.

The same may be said of *sterility;* and here, in the treatment of this condition, and after having tried most of the recognised methods of dealing with this difficulty, I have by no means met with the success which many operators would lead us to expect. I can point to a case here and there where, after dilatation of the cervix, pregnancy has occurred; but I can point to a much larger number of cases where all the treatment, whether by dilatation or by other means, has failed to remedy this distress. My own teaching with regard to sterility is, that unless one can find some definite and distinct removable lesion, all interference with the patient ought to be avoided. Nothing has surprised me so much in reading the papers and communications with regard to sterility, as to find the success which numbers of writers claim. My own experience in the treatment of sterility has been that my successes are rare and my failures frequent.

Curetting the uterus is perhaps the most popular, as it certainly, in proper cases, is one of the most satisfactory of the minor gynæcological operations. After abortion, and in many

of the varieties of endometritis, there is no proceeding more valuable. Yet in my own practice and in the practice of others I have seen very serious mischief result from its use. In no manipulation does the condition of appendages require to be more carefully examined before operation than in curetting. Where the ovaries or tubes are involved, the use of the curette must be delayed until they are relieved, and if that is impracticable, some other less irritating method must be adopted. Let me state the following case as an example :—

Four years ago I saw a patient with a medical friend. She suffered from hæmorrhagic endometritis succeeding abortion. The question of curetting was of course discussed. But as both ovaries were tender, and some slight utero-sacral cellulitis present, I gave a very strong opinion against curetting—urged, at all events, that no uterine operation should be undertaken till the appendage condition had been seen to. My friend thought otherwise, and curetted. Violent pelvic inflammation was set up. Months after, I opened a large pelvic abscess. The patient subsequently died, having been bedridden for a year. Of course it will be urged that we can never be absolutely certain of the condition of the annexa ; probably not, but all I maintain is, that we recognise where the element of danger lies, and by patient examination reduce the risk to a minimum. The three following rules are worth attention :—

1. That the diagnosis of all pelvic and most pelvi-abdominal conditions should be made slowly and gently with the unaided hands, and upon the examination thus made the practitioner should train himself to rely.

2. That no mechanical aids to sight or touch should be employed, except under exceptional circumstances.

3. That as a large proportion of the risks and accidents attendant on *minor* gynæcological operations are due to a want of appreciation, on the part of the physician, of the

condition of the uterine appendages, no operation, however trivial, should be undertaken until their state and relations have been ascertained with as much accuracy as possible.

4. All examinations, to be thorough and exhaustive, should be conducted under an anæsthetic.

On the Etiology of Vaginal Hæmatoma occurring during Labour.

Sanguineous tumours, thrombi and hæmatoma, of the vulva and vagina, whether occurring before, during, or after labour, are comparatively rare accidents. Under such a heading are included all collections of blood forming in the submucous or connective tissue, and they may be found in the cervix, any part of the vagina, labia, or perimetric connective tissue. The condition receives more or less attention in every text-book, and the varieties, with their progress, terminations, and treatment, have been exhaustively discussed, in lengthened memoirs, by Deneux, Laborie, Cazeaux, Hervieux, Hugenberger, and Barnes, and have received shorter notice from many others. Into the question of the nature and management of these hæmorrhages in general it is no part of my present purpose to enter. I wish, therefore, to eliminate, first, the blood extravasations which are limited to the cervix, and which in a minor form are familiar to most of us. In an aggravated and serious form they are at times associated with elongation and hypertrophy. This much I wish to point out, that they are the results of direct pressure and crushing. Second, those which form in the labia vulvæ, and which are the result of unusual pressure applied to already distended and varicose vessels.

My remarks apply entirely to that form of hæmatoma which is vaginal, usually confined to the posterior wall, and is developed during and after labour. Three such cases have come under my observation, and I now give a brief record of each.

CASE 1 occurred in the hands of one of my dispensary pupils—Mrs. M., a multipara, in labour with her sixth child. When I saw her the membranes had ruptured for twelve hours, and the head had made no progress, though the pains had been strong. On examination, I found the head at the brim, and movable; os fully dilated. The cause of delay was obvious. The woman's lax abdominal walls had allowed the uterus to become anteverted, so much so that the fundus uteri was on a level lower than the cervix, and consequently the uterine action was quite unavailing so long as the direction of the force was thus misdirected. I ordered the patient to have a tight abdominal bandage applied, and to have a full dose of ergot. Two hours afterwards the child was born. Next day I was asked by my pupil to see the woman, who complained of great bearing-down pains, and something protruding at her vulva. On examination, I found the perineum bulging, and a dark swelling protruding from the vagina. I found the whole vagina filled by a large pyriform mass, base downwards, stretching from the posterior fornix down to the perineum.

She suffered much pain during the night, with strong expulsive efforts; and when she was seen in the morning, a rupture had taken place at the lower end of the vagina, through which had escaped free venous blood and clots. There continued considerable oozing from the aperture for a fortnight, during which time careful antiseptic washing was employed; and at the end of three weeks the tumour had entirely disappeared.

CASE 2 occurred in the extern department of the Maternity Hospital. The patient was a multipara, in labour with her fourth child. As the patient had been in labour for ten hours, as the membranes had been ruptured for six, and as no progress was made, I was called to see the case and deliver with forceps. I found the pains very violent and strong; the head

presenting, but not engaged in the brim. The uterus was markedly anteverted, the patient being a big, heavy woman, with a very pendulous belly. The uterine body was thrown well forwards, and somewhat flexed. The delay was evidently caused by the misdirection of the uterine force. I placed the woman on her back, and had a binder applied.

On introducing my hand some fifteen or twenty minutes later into the vagina, I felt a distinct bulging in the fundus vaginæ in the posterior fornix. The nature of this I did not at the time recognise. As the head was movable at the brim, and did not engage even after the position of the uterus was rectified, I performed podalic version. I found a little difficulty in extracting the head from the vagina. With the last pains the placenta and membranes were expelled *en masse*. As violent expulsive efforts continued, and as she complained of great pain, and although there was no hæmorrhage beyond normal, she looked somewhat collapsed, I made a vaginal examination, and found a large tumour bulging the posterior vaginal wall. It extended in a conical shape, the base being at the vulva and the apex at the cervix. Next morning, when I saw the patient, I found she had passed a restless night. There was pelvic pain, bearing-down expulsive efforts, and retention of urine. On examination, the vagina was so occluded that I could not reach the cervix. The conical nature of the tumour, its intimate connection with the mucous membrane, its firmness and tenderness, as well as the fact that it reached quite down to and bulged the perineum, combined with a rectal exploration, decided me in coming to the conclusion that it was a hæmatoma of the vagina. Rest, quiet, and opium were enjoined. The next day she was free from pain. There was no rupture of any part of the tumour. In four or five weeks the patient was well, and no trace of the tumour remained.

Case 3.—Through the kindness of Dr. Alex. Sinclair,

I saw with him a patient whom he had delivered two or three days previously with forceps. She was a multipara with her fifth child. Dr. Sinclair had used forceps because the head was delayed high up, owing to some degree of anteversion of the uterus. The patient had borne her previous children normally. Dr. Sinclair told me that, when applying his forceps, he felt a swelling in the posterior fornix, and on that account experienced some difficulty in applying the instrument.

The swelling on the third day was so large as to fill up the whole vagina, and so closed the canal as to make it impossible to reach the cervix. The perineum was bulging, and at the junction of the perineal skin with the vaginal mucous membrane there was a rupture which had occurred the previous day, when Dr. Sinclair was examining the tumour. The aperture was sufficiently large to admit two fingers, and in doing so the finger came in contact with a meshwork of cellular tissue and clots. The nature of the tumour was clearly that of a hæmatoma. I need not stop to describe its further course, beyond saying that the cavity was washed out daily with an antiseptic lotion, the patient had no bad symptoms, and in a few weeks was quite well.

The rarity of such cases may be gathered from the following statistics, namely, Hugenberger, St. Petersburg Hospital, met eleven in 14,000 labours; Deneux saw three in forty years; Paul Dubois, one in 14,000 labours. In Vienna Hospital eighteen occurred in 33,241 deliveries.

The records show that these extravasations are associated with very considerable danger. Deneux, out of his sixty collected cases, had a mortality of eleven. Probably it is owing to this fact, Deneux being the earliest writer on the subject, that the opinion has gained firm ground that this condition is an extremely dangerous one. Now, this is scarcely the fact, for out of fifty cases collected by Winckel, death occurred only six times; and the three cases which I have just mentioned all

recovered perfectly, and one had a normal labour subsequently. No doubt a good deal depends on their extent and situation, but so long as they are confined either to the vulva or vagina, remain of moderate dimensions, and do not begin in or extend to the perimetric tissue, they seem to be less serious than was at one time supposed. My present object is to point out what I believe to be the etiology of this form of vaginal hæmatoma, or, at all events, *one* of the causes. In whatever respects the cases I have recorded may differ, they had the following points in common—(1) The women were multiparæ; (2) the labour was delayed; (3) the cause of delay was misdirection of the uterine power from anteversio uteri or pendulous belly; (4) at the occurrence of the hæmatoma the head was still at the brim.

First, then, there is the common feature of pendulous belly. This, of course, when not associated with narrow brim, as it sometimes is in primiparæ, means anteversion of the gravid uterus, from relaxation of the abdominal walls.

This is a question of degree so slight that the contraction of the uterus may be sufficient to remedy the displacements, or to such a marked degree that the fundus uteri comes to lie on a level lower than the cervix.

Nay more, cases have even been related where, owing to a split in the recti muscles, the gravid uterus has prolapsed through the aperture and reached almost to the knees, covered only by skin and fascia. In even moderate cases there is a certain amount of flexion as well, the under part of anterior wall of the uterus being bent over the anterior wall of the pelvis, the symphysis pubis acting as a fixed point. In this way tension is made to a very marked degree on the vaginal walls. This tension is produced by two factors—(1) the tilting forward of the uterus over the symphysis—this, of course, being in direct proportion to the amount of anteversion; (2) by the uterine pains. They will, by drawing on the posterior vaginal wall, increase the tension already caused by

the altered position of the uterus. It will be apparent, and it is a fact borne out by clinical observation, that the symphysis pubis acting as a fixed point, the greatest tension and stretching will be on the posterior vaginal wall. In an interesting and suggestive paper, read to the Edinburgh Obstetrical Society some years ago by Dr. Hart, on rupture of the vagina, he drew attention to two facts bearing on the present subject—(1) that vaginal rupture is generally high up on the posterior vaginal wall; and (2) when it does occur, it is generally transverse. The posterior vaginal wall, especially at its upper part, is, during pregnancy, very thin. This thinning is increased in a normal labour by the uterine action dragging up the cervix and vaginal walls; but in the cases I have just referred to there is the very great additional stretching induced by the abnormal position of the uterus, and the long-continued ineffectual contraction of the uterine walls. The venous supply to the vaginal wall consists of a large plexus of veins, some submucous and some just outside the muscular coat, emptying themselves into the internal iliac. These veins, in common with the other veins in the pelvis, are valveless. In pregnancy, these veins, to a greater or less extent, become varicose, owing, no doubt, to the heavy uterus preventing the entrance of the venous blood to the vena cava. So uniformly is this varicosity present, that, under the name of Jacquemier's test, it has come to be recognised among the corroborative signs of pregnancy. Often the venous tissues become so distended with varicose enlargement that they become quite perceptible to the finger in the vagina, and can be felt projecting as well-marked cyst-like swellings. Further, it must be borne in mind that, in proportion to the amount of varicosity, so will the wall of the vessel be thin. Hervieux, Laborie, and others are not inclined to believe that varix enters much into the production of these vascular swellings. Perret has collected a series of sanguineous tumours of the vagina, cervix, and vulva, and points out that they occur more

frequently, by five times, in primiparæ than multiparæ, and that they become proportionately rarer according to the number of the pregnancy.

Now, in this record Perret mixed up all the varieties. One can easily understand how, under the enormous distending pressure on the cervix and vagina, caused by the advancing head, the mucous membrane, carried down by the head, glides over the deeper tissues with a sort of tearing movement. The connecting submucous vessels are torn, blood is extravasated, and small ecchymoses or thrombi are formed. This will, to a greater or less extent, occur in every labour. But we must not be diverted from the point at issue. The cases I have recorded were all multiparæ, and hæmorrhage took place while the head was still at the brim, and while no pressure was being made in the vagina. The mechanism of the production seems to me to be this.—The thin varicose veins on the posterior vaginal wall all undergo stretching along with that structure, by the uterine efforts; but, in the cases referred to, the tension is enormously increased by the anteverted position of the uterus; and, further, this tension is long maintained by the ineffectual attempts of the uterus to right itself. What occurs is this—During the labour one or more of these vessels give way under the strain, and rupture, but, owing to the tension, no hæmorrhage takes place. When, however, the case is recognised, and the uterine obliquity overcome, either by position or pressure, or both, the undue tension of the posterior vagina relaxed, the compression of the vessels removed, the hæmorrhage slowly and gradually takes place into the connective tissue. In this way it comes about that the rupture of the vessels takes place during the labour, but that the hæmorrhage actually occurs only after the displacement of the gravid uterus has been rectified. Into the prognosis, course, symptoms, and risks of these varieties of tumours it would be altogether absurd in me to enter; they are well described in every text-book. My object is simply to draw attention to a

hitherto undescribed cause of their production, and if I may draw a practical lesson, I would add this as one of the risks of labour complicated with a pendulous belly, and an additional reason for recognising and rectifying this form of dystocia early.

The Causation of some Primitive Face Cases.

It is seldom in private practice that the physician has an opportunity of observing the pregnant woman for some weeks before delivery, and noting the changes which take place during the period immediately preceding parturition. Even in the Maternity Hospital such observations are not very easily carried out, because the majority of women present themselves at our lying-in institution either actually in labour or when the process is just imminent. Yet changes in the presentation of the fœtus are by no means uncommon—changes, for example, from the transverse to the cranial. In the position, however, especially from one cranial position to another, changes are not only not uncommon, but frequent. Now that external palpation has become more thorough, and is practised as routine by every obstetrician, along with the aid afforded by auscultation, these changes can be made out with great accuracy. In the case which I am desirous of bringing under observation, the changes from one presentation to another, namely, from cranial to face, and *vice versâ*, were frequent. It is, however, specially with the view of illustrating one probable causation of a certain class of face cases that I offer the following remarks:—

Face cases may be either primitive or secondary. Although this classification is not adopted by many authors, yet the arrangement is a convenient one, for it differentiates two sets of face cases occurring under two very different sets of circumstances. It is necessary, therefore, clearly to define each variety.

The ordinary or secondary set of face cases, which are de-

scribed fully in every treatise on midwifery, and with which every obstetrician is familiar, may be defined as those where the face is found presenting during labour, and is brought about as a result of it. The causation of such face cases has been fully inquired into. Daventer, Baudelocque, Duncan, though differing considerably in detail, refer the cause to some fault in the powers of parturition, namely, uterine obliquity. Hecker finds the cause in the body passing, namely, in a lengthening of the posterior arm of the cranial lever in dolico-cephalic children; while, according to others, the bony passages are at fault, and the occiput hitching on the brim of a narrow pelvis is the cause. With this set of face cases the present communication is in no way concerned.

The other set of face cases are those which are termed primitive or primary, namely, those cases in which the face presents during pregnancy, before the commencement of labour, when, therefore, the head is above the brim, free from contact with the bony pelvis, and the membranes unruptured. Such cases, however remarkable they may seem, and however difficult of explanation, are yet distinctly recognised by many, indeed by most authors. Madame Lachapelle records two cases, where post-mortem examinations of women near full term showed the fœtus presenting by the face. The authors of the *Dictionnaire de médecine* collected eighty-five cases, forty-nine of which were clearly made out and announced as such before rupture of the membranes. Further, of these eighty-five cases, there were only three in which the uterus was in a state of well-marked obliquity, and only one where the amnionic fluid was in excess. From this evidence, as well as from other causes, which, however, he does not mention, Cazeaux comes to the conclusion that the majority are primitive, and due to causes altogether beyond our knowledge. Tyler Smith makes no special reference to this class of face cases, but refers the causation of all face cases to causes intrinsic or extrinsic to the fœtus. Hodge objects to the division of face

cases into primitive and secondary as an unnecessary classification. He admits that full presentations of the face are often primitive, and attributes them to spontaneous movements of the child, the face getting so fixed by uterine contraction. Sir James Simpson accounts for face cases and malpresentation generally—(1) by death of fœtus; (2) premature labour; (3) the application of unusual excito-motor stimuli to the fœtus and uterus; (4) causes mechanically displacing fœtus during pregnancy or commencement of labour—*e.g.* (*a*) excess of liquor amnii; (*b*) sudden rupture of membranes. Schröder says: "In primiparæ in whom, during pregnancy, already distinct uterine contractions have taken place, they may be produced during that period—primary face cases." It would seem that Schröder overlooks the fact that, in primiparæ at term, the head is lower than in multiparæ, and that the causes at work in producing secondary cases will come into play here as well. Playfair accounts for primitive cases as the result of the well-known labour pains which continue marked before labour sets in. Spiegelberg refers incidentally to primitive, and records the fact that he has seen a primitive face case caused by bulging of the thorax in hydrothorax. Matthews Duncan, in a paper read in Edinburgh in April 1870, on the production of presentations of the face, confines his attention entirely to the secondary or ordinary face cases. Referring to primary cases, he says: "As has been already hinted at, all cases of face presentation do not demand this kind of explanation. Instances are recorded, for example, where the extreme extension of the head existing in an ordinary face case during labour has been observed before labour commenced." To this extraordinary kind of face presentation, and others allied to it, Dr. Duncan makes no reference whatever, confining himself entirely to the mechanism of the production of face presentation under ordinary circumstances.

The following is a good example of a primary face case,

and at the same time affords an explanation of the cause of its occurrence :—

Case 1.—Margaret Walker, æt. 30, a multiparous woman, pregnant of her third child, was admitted to the Maternity Hospital on September 26, 1879.

On examination externally.—There is considerable right uterine obliquity. The globe of the head can be felt above the brim. With the fingers and thumb grasping the abdominal wall just above the pubes, the head can be felt high up above bony ring freely movable. Back of child is directed towards the right. Small fœtal parts can be felt towards left side, near fundus. Greatest intensity of fœtal heart on right side.

Internal examination.—Cervix shortened; os externum gaping; os internum easily admits forefinger; membranes unruptured; anterior fontanelle distinctly felt. Position, right occipito-posterior well extended.

September 27.—The full face felt, nose, orbits, chin, left mento-anterior.

September 28.—Full face felt as before; no uterine contractions are distinguishable. At the patient's urgent request, she was allowed to go home for a day or two. She returned on October 12. External examination as on September 26. Internal examination. Presentation, cranial position, a well-extended right occipito-posterior. The anterior fontanelle is easily felt, but the apex of occipital bone can only be recognised with difficulty to the right, posteriorly and high up.

October 13.—The presentation is a full face, high up, freely movable, not in contact with bony pelvis. Slight hardening of the uterus, under the hand externally, can occasionally be felt, but this does not in any way affect position.

October 14.—During visit, position right occipito-posterior.

Vesper.—Full face presented, without any uterine contraction being felt by patient or recognised by hand.

October 15 *and* 16.—Face as before.

October 16, 10 P.M.—Still a face.

October 17, 2 A.M.—Strong uterine contraction set in. On examination, the face was found presenting; after a short interval the position was altered to a right occipito-posterior.

At 3 A.M. the posterior fontanelle came within easy range of the examining finger. The head threatened to remain persistent right occipito-posterior, but when well down on the floor of the pelvis the forward rotation of the head took place. There was a very moderate quantity of liquor amnii.

Duration of labour.—First stage, six hours; second stage, one hour, fifty-seven minutes; third stage, thirteen minutes.

Now, this was without doubt a primitive face case, and the question comes to be, How is a presentation such as this of the full face at the brim during pregnancy to be accounted for? I confess that I can hardly conceive of any presentation more difficult to explain. The natural attitude of the child, it is important to remark, is essentially one of flexion—every limb, every finger, the trunk in fact, every movable member, is flexed. In a primitive face case such as the one we are now considering, we have the normal flexion replaced by extension to an extreme degree. Further, we have to consider the fact that the fœtus was alive, moving freely in a fluid medium, uninfluenced either by labour or contact with the pelvis.

The uterine contractions which go on through the later weeks of pregnancy, and which Schröder, Hodge, Playfair, and others allege are the cause of this class of face, does not account for this particular case. For, as I have shown in the above record, the effect of the first real uterine contraction was to convert the already existing face into a right occipito-posterior. Further, I showed, when making an examination some days before labour, and when the uterus could be felt hardening under the hand, the position remained unaltered. If the patient had been, as Schröder suggests, a primipara, in whom

the lower uterine segment is deep in the pelvis, and the head more or less affected by the hard pelvis, in all probability the uterine contractions preceding actual labour would have influenced the head; but this patient was a multipara.

The right uterine obliquity, by causing the back and occiput to gravitate to the right and posteriorly, had some influence in causing the right occipito-posterior position, but it is difficult to see how any ordinary amount of obliquity would cause a full face to present at the brim, irrespective of labour, and while the head remained free of the pelvis. I do not here call in question the effect of obliquity in producing a face case, after labour has actually set in, but I fail to see how it is applicable in the present case. It is needless to discuss the effects of the liquor amnii, because neither hydramnios nor premature rupture of the membranes were factors in the case, as neither condition existed. For the same reason such causes as premature labour, death of fœtus, and the like, are inapplicable; and, indeed, Sir James Simpson and Dr. Fleetwood Churchill do not specially particularise them as applicable to primitive face cases, though they no doubt include such cases. Undoubtedly, when such conditions are present, the production of the presentation in question is more readily understood.

The explanation of *this* case, at least, is to be found in the fœtus itself. Both Sir James Simpson and Dr. Hodge refer in general terms to the movements of the fœtus, Simpson speaking of the application of unusual excito-motory stimuli, and Hodge of the spontaneous movements of the fœtus. In this case the fœtus was a well-developed female. There was no marked caput succedaneum. The measurements of the head were sufficiently near the average to require no particular notice. There was no enlargement of the thyroid gland, spina bifida, nor any sore or mark of any kind on the child. The striking point about the child was the extreme extension of the head. The muscles of the back of the neck were

strongly contracted, the occiput drawn backwards, and the chin well extended from the chest. Indeed, the face, when the child was held in the ordinary position, looked almost directly upwards. On inverting the child, the head maintained the same degree of extension, the face looking directly downwards. During sleep and periods of entire quiescence, the extension, though less pronounced, was still well marked. Throughout the patient's stay in hospital, a period of ten days, the child continued to carry its head in the same extended position. On the eleventh and twelfth days post-partum, the extension was somewhat less decided, but a month after labour, when the child was last seen, the position of the head was one of marked extension.

The accompanying diagram—or rather portrait, for it is from life—shows the appearance of the child about twelve days

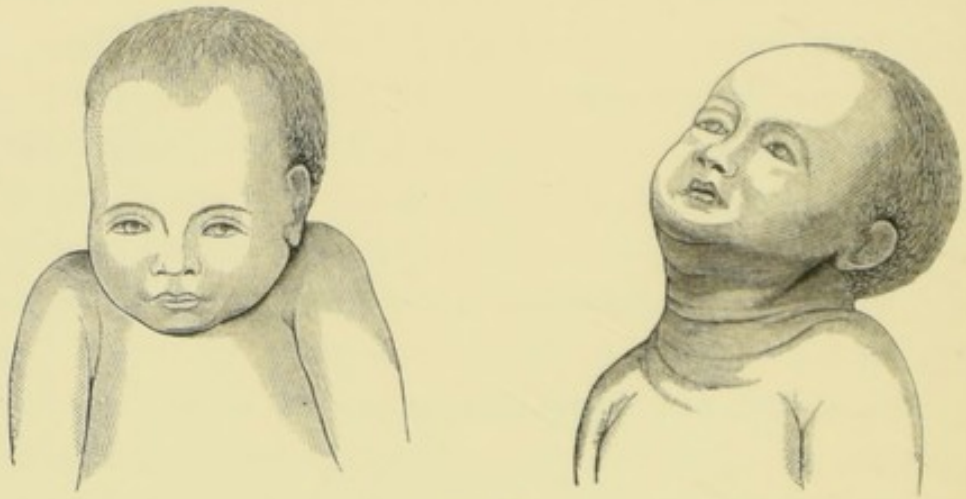

Fig. 13.

after birth. The other illustration is that of a child, also twelve days after labour, born after a natural labour, in a left occipito-anterior position. Both children were held in the same position, and the difference in the position of the respective heads is sufficiently obvious. Any one who has paid any attention to the attitude of the new-born child must be aware that when held on the knee, for example, with one hand supporting the back, the position of the head is one of flexion. In the child

in question, as the illustration shows, it was one of extension. This was clearly not the consequence of labour, because the result of labour was to convert the face into a right occipito-posterior, and so bring about flexion. Neither was the extension the result of any influence after labour; nor was it, as I have endeavoured to show, the result of any contractions or deflection of the uterus before labour; therefore, the production of this primary face case depended on some cause intrinsic to the fœtus itself. That cause was a tonic contraction of the muscles of the back of the neck, with an atonic condition of the depressor muscles of the chin. The frequent change from face to occipito-posterior, and *vice versâ*, were owing entirely to fœtal movements, the head being more flexed during periods of quiescence, and extended when the fœtus was in motion It is more than probable that the bulk of primary face cases depend on some abnormality such as the one just described.

On a Complication of Occipito-Posterior Positions of the Vertex.

Though much has been written on the subject, occipito-posterior positions of the vertex offer a wide field for study. The frequency of this deviation from the normal standard is sufficiently marked to warrant us in endeavouring to trace out every complication which may accompany the position. Without entering fully into statistics, I should like to draw attention to the fact that, out of 414 births which have taken place in the new Maternity Hospital since May 1879 up till the present time (1881), fifty-nine occipito-posterior have occurred, *i.e.* 14 per cent., or 1 in 7. In the present article I wish to limit myself entirely to an inquiry into one of the complications met with in this form of cranial position. It may be broadly stated that the complications of occipito-posterior position resolve themselves into two sets—(1) those met with in the first stage of labour; (2) those met with in the second.

During the first stage of labour, occipito-posterior positions are unquestionably a common cause of delay. This delay is no doubt frequently enough incorrectly referred to simple rigidity of the cervix. In some cases there may be rigidity as a complication; but where the parts preserve their normal tone and elasticity, and where the head and pelvis are of normal size, delay in dilatation of the cervix, from the position of the head alone, is by no means an uncommon occurrence. The explanation of this delay is not difficult to discover. If a digital examination be made early in the first stage of labour, the finger will recognise, not the

posterior fontanelle, but the anterior extremity of the sagittal suture. In other words, from the obliquity of the uterus and the resistance of the tissues in the neck, the occiput is carried against the pelvic wall of the uterus and the sacral promontory, and a certain degree of extension is the result.

Now, it seems that this degree of extension, this difficulty in completing flexion and of driving the flexed head into the pelvis and bringing it to impinge on the os uteri—constitutes the main difficulty in occipito-posterior positions all through labour. For the same reason the cervix suffers to a greater extent in occipito-posterior than occipito-anterior positions, the dilatation required in the one case being greater than in the other.

Meigs says: "When the vertex is to the front it enters the os uteri favourably, and passes through the orifice with a circumference of $10\frac{1}{2}$ in., or a circle of $3\frac{1}{2}$ in. diameter; but when in a posterior direction, the latter acquires a circumference of $12\frac{1}{2}$ or 13 in.

A further complication is met with in the second stage, when the resistance of the pelvic floor is encountered and rotation takes place. With any of the three possibilities of rotation there is delay. (1) *If forward*, there is double the distance to travel to that demanded in a first or second position; (2) *if backward*, the uterine force drives the head against the floor of the pelvis. The result is, instead of the head being pushed up from the floor of the pelvis and escaping under the pubic arch, it rolls back into the hollow of the sacrum under the sacral promontory. Here again the essential thing to do is to obtain flexion. It is no part of my present object to discuss the important practical question which here arises, whether we can hope for a change spontaneously or by art. The main point is to secure flexion. But a *third* possibility may occur, again, as a result of want of flexion, that is, when the pelvic resistance behind prevents descent and flexion, and when the head becomes jammed

more or less transversely. It is to the result of the third possibility that the present communication has reference. Beyond the complications to which reference has been made, the increased laceration of the perineum in these cases where the head is delivered persistently posterior, whether spontaneously or by artificial aid, must not fail to be mentioned.

The following cases are illustrative of the third variety of occipito-posterior, namely, those in which neither the anterior nor posterior rotations take place spontaneously, but where the head remains jammed between the lateral pelvic walls, and where, as a result, there is more or less extensive injury to the soft parts in the pelvis, this injury being uniform in its location and nature.

The first time the condition was brought under my notice was on beginning duty at the Maternity Hospital in August 1879.

It has been my habit ever since my appointment to the Maternity Hospital, to examine each patient, per vaginam, on the tenth day post-partum. I am aware that objections have been raised to such a procedure. This is not a fitting opportunity to discuss these. I will only say that I have derived much valuable information from such examination. In many cases I believe I have been able to give useful advice to the patient, and certainly in no case am I aware of having caused the patient temporary suffering or permanent injury. Carried out with ordinary antiseptic care, with gentleness, and with a due regard to the patient's feelings, I am unable to appreciate the objections that have been raised. On the contrary, I would strongly advocate a similar careful examination of each patient some weeks before delivery. Many complications might be foreseen, and accidents avoided.

The first post-partum examination I made on assuming duty in the hospital in August was on a patient who had been left over from the previous quarter. The report by Drs Murray and Adam is as follows:—

August 6.—Perineum torn down to within half an inch of anus. On the right side of the pelvic wall, in the region of the right ischial spine, there is a distinct opening. Its edges are smooth and incurved. It admits readily two fingers, is about 1 in. in length, and its direction, as ascertained by a probe, is downwards and backwards. Through the opening the ischial spine can be felt.

Left side normal. Cervix forms but a slight projection; its edges are ragged and tender. It is bilaterally fissured, more deeply on the right side.

Uterus normally situated. The examination causes no pain, except when the edges of the sinus are touched, when the patient cries out.

Previous history.—Patient, a multipara in her fifth confinement, each a forceps case, was delivered on July 28. The presentation was vertex, and the position right occipito-posterior.

The first stage was completed in five hours; second stage, three hours. Owing to the delay, forceps were applied, and the fœtus delivered with backward rotation of the occiput. On the patient's dismissal from hospital, three weeks after delivery, the sinus was still open, and admitted a probe at least $\frac{3}{4}$ of an inch.

Case 2.—In private practice, a primipara, æt. 21. Labour began at midnight. At 8 A.M. I found the os well dilated. Head, R.O.P. At 9 the membranes ruptured. At 9.30 the head had cleared the os, was descending R.O.P., with extension marked. The pelvis was deep. At 1 P.M., as no progress was made, a careful examination was made by Dr. George Mackay and myself. We found head extended, the occiput lying just over the right iliac spine, in front of the oblique diameter.

Forceps were applied, and delivery easily effected. There was no attempt to rectify the position, but simple

traction was made, resulting in the forehead coming under the arch of the pubes, and the occiput sweeping over the sacrum and perineum. There was a considerable tear of the perineum. The patient, it is to be observed, was in the second stage from 10 till 1, a period of three hours. The perineum was stitched.

The patient required to have her urine drawn of for three days. She completed her puerperium without any pelvic pain, but with a slight rise of temperature. On the tenth day the stitches were taken out, and a per vaginam examination made. Perineum completely healed. On the right vaginal wall there is a deep sinus. The edges are smooth and bevelled. The wound easily admits the tip of the fore-finger, and is not tender. On introducing a probe it is found to pass in 1 in., direction downwards and backwards. Through the wound the ischial spine can be distinctly recognised. Muco-purulent discharge is profuse. At the end of six weeks—The wound is felt almost closed. There is still a deep furrow. I had occasion to make an examination of the patient a year afterwards, and found the cicatrix well marked.

Case 3.—An extern hospital case, seen with Dr. Maculloch, resident physician, Royal Maternity. The patient, a young Irishwoman, a primipara, had been in labour for fifteen hours, ten in the first stage, and five in the second. The pains were strong, and the head right occipito-posterior, but tending to transverse. I applied forceps, and delivered easily, not, however, without a considerable tear of the perineum. There was backward rotation of the occiput. The pelvis was a deep one. The perineum tear was immediately stitched.

The puerperium was uncomplicated. On 10th I removed the stitches, and found the following condition :—Perineum healed. On the right pelvic wall there is a distinct laceration over the sacro-sciatic ligament and the ischial spine, admitting easily two fingers. The edges are smooth, but

tender; a probe enters readily 2½ in. upwards. There is a considerable muco-purulent discharge; cervix deeply torn on the right side. Uterus normal. With the further history of the case I am unacquainted.

Case 4.—Private practice. A lady, who had previously been delivered of her first child by a friend in the country, was recommended to me by him for attendance during her second confinement. Her first delivery was aided by forceps, owing to the backward position of occiput. I have no other particulars concerning it. Her second labour occurred on December 10, 1879, when I saw her at 10 A.M., she having been in labour since 10 the previous night. I found the head had passed beyond the cervix and was right occipito-posterior, the posterior part of head lying over the right ischial spine. The outlet seemed small, and the pelvis deep. At 12 noon, as no progress was made, I applied forceps and delivered a persistent occipito-posterior head. The perineum, which had been considerably torn in her first labour, was not further injured.

On the third day she had difficulty in passing water, and on the fourth I had to draw it off with a catheter. This I had to do for several days. As I was anxious to know the cause of the retention, I made a vaginal examination, and found—An old tear of the perineum. On the right pelvic wall there is a deep laceration easily admitting two fingers; its direction is down and back; very tender; left side normal. Cervix deeply torn on the right side. The edge of the cervical tear is flush with the roof of the vagina. There was no constitutional disturbance worthy of note. The vagina was well washed out twice daily with an antiseptic lotion. At the end of six weeks the wound was rapidly closing, but it was three months before it absolutely healed.

Her next confinement took place in December 1880. When I reached the patient the head was well down in the

pelvis, close to the vulva. The patient, who had always been averse to the attendance of a doctor, only allowed the nurse to send for me after she had been in labour ten hours, when she was worn out and desirous of having chloroform administered. I administered chloroform; and as the head was small and well down on the perineum, I allowed nature to complete the case. The head was born with the occiput backwards half an hour after my arrival.

On the third day post-partum she again complained of retention of urine. Before using the catheter, I insisted on a vaginal examination, which was submitted to with reluctance. I found the perineum without any fresh tear. On the right pelvic wall I found a distinct solution of continuity, sufficient to admit easily the tip of my forefinger. Its location was just over the site of the previous injury. The cervix was bilaterally fissured, the right side being the deeper; otherwise the parts were normal. Before leaving the patient at the month's end, I was allowed an examination, when I found the sinus healing, but not closed.

The records of these cases show a marked similarity. In each there is a special cranial position, and a special pelvic lesion along with it.

Judging from the foregoing cases,—given a right occipito-posterior position of the vertex, delayed in its rotation at a particular point in the pelvis, a more or less deep injury to the soft parts, resulting in a sinus, is likely to occur. Injuries and lacerations of vagina are common enough in labour with a contracted pelvis. Schröder has drawn attention to this.

Angus Macdonald,[1] in an instructive paper on occipito-posterior positions, makes a short reference to laceration of the soft parts. He writes as follows:—"Of those which terminated face to pubes, four of the mothers were primiparæ, and two multiparæ." In those six cases which ended as

[1] *Trans. Edin. Obst. Soc.*, vol. iii. p. 361.

"face to pubes," in *one* case only, and that, too, a multipara, did there occur anything other than the most trifling laceration of the soft parts. In this case the laceration, which was not at all severe, affected the back wall of vagina without affecting the perineal tissues. It soon healed up, and gave no inconvenience.

Both Schröder [1] and Macdonald refer to these lacerations, but give them no definite location in the pelvic cavity. They both further refer them to the use of the forceps.

Let us now proceed to examine the vaginal lesion, as met with in the cases recorded, as well as its causation :—

1. *Its position*, on the right side of the pelvis, on a level with and including the right ischial spine. On passing the finger into the opening the spine can readily be felt.

2. *Its extent and direction.*—In the recorded cases the sinus was from 1 to 3 in. in length, and its direction in three downwards and backwards, and in one upwards.

3. *Its causation.*—The head descends slowly, slightly extended in the left oblique diameter, until it reaches the floor of the pelvis. Here the elastic, resilient posterior wall of the pelvis, aided by the forward and downward inclination of the ischium, attempt to throw the head forwards. If the pelvis be normal, and the head of average size, this is actually what takes place in the vast majority of occipito-posterior positions. If, however, the ischial planes are nearly parallel, that is, if the normal slope is diminished, and if the ischial spines be prominent, as in the masculine or deep pelvis, then the advantage and cause of cavity rotation are lost. The head descends in the oblique diameter, the usual forward rotation is attempted, but the head becomes jammed over the ischial spine. The head, somewhat extended, becomes fixed, and the pressure so caused results in a slough which involves the right ischial spine. This mechanism somewhat resembles that met with in a rickety pelvis. If rickety, mechanism

[1] "Manual of Midwifery," p. 305.

consists in transverse descent and extension of the head, then, to a certain modified extent, that is what we meet with here; the depth and extent of the slough and sinus bearing a distinct reference to the length of time the head has remained fixed. It is clear, however, that but a short delay of the head in this particular position will cause a vaginal sinus of very considerable dimensions. This is well brought out in Case 2, where, in a primipara in whom the second stage was scarcely three hours, a sinus of 2 in. in length resulted. Now, these sinuses in this particular position are deeper and more marked than one would expect from the narrowness of the pelvis and the length of the pressure. This admits of explanation, in the fact that the sharp prominence of the ischial spines afford a point upon which the great bulk of the expulsive force can be readily expended. It can hardly be matter for doubt that the majority, if not all, the cases of persistent occipito-posterior occur in more or less deformed pelves. The mere fact of their repeated recurrence in the same patient is of itself a strong proof of this. The invariable occurrence of the lesion over the right ischium is a point to be noted. In looking for an explanation of this, several points are to be noted—

1. Right occipito-posterior positions are more common than left.

2. The occiput bearing on the right ischial spine excites a greater pressure than the sinciput bearing on the left.

(1) Because the occiput is *at first* more prominent than the sinciput. I say at first, because—thanks to the valuable observation of Dr. Hart[1]—the compression which the head undergoes in this position is such that the head is pressed on in its antero-posterior diameter, and thus the asymmetrical wedge shape of the head is obliterated, so that at the point of contact with the pelvis neither end of the head has an advantage over the other, both being equally steep.

[1] *Trans. Edin. Obst. Soc.*, vol. v. p. 131.

(2) Because the pressure of the posterior pelvic wall will act more on the occiput than the sinciput, thus tending to drive the occiput forward.

3. Because the occipital arm is the shorter of the cephalic lever, and the pressure bears more directly on the force resisting it than on the force resisting the longer arm. Although, in this school, the lever theory, as accounting for flexion of the fœtal head, has been ably combated by Professor Simpson,[1] yet the lesion we have described would seem to negative the condition assumed by Lahs[2] in his conception of the mutual relations of the girdle of contact and the fœtal head.

Results.—It must be admitted that in none of the cases I have recorded were the results to the patient serious, so far as the ultimate issue was concerned. It is none the less true that such lesions may easily become of grave import.

1. In two cases the patient suffered from retention of urine, requiring the use of the catheter. This was no doubt due to the vaginal wound, in the same way that retention is observed resulting from perineal tears.

2. The constitutional disturbance was small, and pelvic pain not in any way marked—so much so that, on that account, such injuries are very apt to be overlooked. This is what might be expected in a localised parametritis.

3. Such lesions greatly increase the risks of septicæmia.

4. They may be the starting-point of serious and long-continued parametritis.

Two further points require notice—

1. Did the forceps cause the injury? I think not. The history of Case 4, at all events, conclusively proves that such an injury may occur without any instrumental interference; on the contrary, I believe—

2. That the prevention of the injury is to be looked for

[1] *Trans. Edin. Obst. Soc.*, vol. v. p. 75.
[2] "Die Theorie der Geburt," Bonn, 1877.

in the early application of the forceps. If my explanation of the occurrence of this lesion is correct, then it is clearly bad practice to delay applying forceps to a partially rotated occipito-posterior head.

Why are these sinuses not recognised? (*a*) Although, after a forceps case, every careful practitioner will examine the vagina, yet he will probably fail to detect the lesion, as the opening, if there is one at all, will be very small, the injury being the result of pressure, and the slough not separating for some days. (*b*) Because such injuries cause but little pelvic disturbance, and the attention of the accoucheur is not attracted to the pelvis, and, no vaginal examination being made, the injury remains unobserved.

To sum up—

1. A partially rotated occipito-posterior position is the least common of the various forms of occipito-posterior position.

2. Such an occipito-posterior position is usually associated with a degree of minor disproportion of the pelvis.

3. A very frequent if not invariable result is the formation of a more or less deep vaginal sinus.

4. The situation of this sinus is over the right ischial spine.

5. The extent and depth of the sinus depends on the length of time that the pressure has been exerted; though a very short period of pressure is sufficient to cause a sinus.

6. These sinuses do not cause very much constitutional disturbance, and their existence is often overlooked, because no vaginal examination is made.

7. The prevention of such injuries is to be found in an early use of the forceps.

On the Causation of the Sacculated Pregnant Uterus.

A sacculated pregnant uterus, occurring in the later months of gestation, is by no means a frequent occurrence, and the difficulties associated with the diagnosis are so great that I have thought it well to describe four cases which I have met with lately.

The condition has been described under various names, *e.g.* retroversion of gravid uterus at term, sacciform uterus, and sacculated uterus. Merriman[1] says "that he has had opportunities of being acquainted with two cases of that peculiar and unusual position of the uterus, in which the os uteri is projected so high above the symphysis pubis as to be beyond the reach of the finger, and the body of the uterus so completely fills up the back part of the pelvis that the sacrum cannot be touched."

In one case the situation of the patient at the first seemed inexplicable, and she continued several days in labour; but the gradual efforts of nature at length completed her delivery by restoring the womb to nearly its natural situation. She recovered, but the child was dead-born.

A second case recorded by Merriman was as follows:— "Pains and discharge of liquor amnii. Per vaginam, whole of back part of pelvis filled up by a globular tumour and no os uteri felt. Per rectum, tumour made out to be uterine. Patient continued with pains, and on the following day the tumour descended and patient had convulsions. On 18th and 19th no change. On 20th, on passing finger above pubes, evidence of a show, but os could not be felt. On 21st,

[1] "A Synopsis of the Various Kinds of Difficult Parturition."

tumour ascended above brim of pelvis and putrid head of fœtus descended, and os became evident. Labour ended by craniotomy." Merriman further adds: "These cases, I conceive, establish the fact that a retroversion of the uterus may exist at the full term, and, if I mistake not, go far to prove that many cases of supposed extra-uterine gestation were in reality cases of retroverted gravid uterus." He further cites a case where a fœtus was removed through the posterior vaginal wall, supposed to be a case of extra-uterine pregnancy, which, however, merely turned out to be a case of retroverted uterus. From Merriman's time till now cases of this abnormality have been recorded by Oldham, Reid, Dührssen, Sperber, and others.

The following four cases have come under my own personal observation :—

Case 1.—A multipara, æt. 35, was sent to me, supposed to be suffering from a large ovarian tumour. On examination I found a large semisolid irregular mass filling up the abdomen, and reaching half-way between the umbilicus and ensiform cartilage. On the left side, below the umbilicus, the mass appeared softer, but with this exception, the whole tumour seemed one mass, and had all the characteristics of a semisolid ovarian. There were no auscultatory sounds of any kind, and the woman gave a history of suppressed menstruation for over a year. Per vaginam, the pelvis was filled up by an elastic bulging mass with a somewhat irregular surface. No trace of a cervix uteri could be found, even after the most careful examination under anæsthesia. Under these circumstances, I think I was more than justified in coming to the conclusion that the patient was suffering from a large semisolid sessile ovarian tumour. Indeed, the absence of the os —the presumption being that the uterus was tilted upwards and forwards, as is so often the case in sessile tumours—the absence of auscultatory sounds, the menstrual history, and

the physical examination of the tumour, rendered no other diagnosis possible. I accordingly operated, and on opening the abdomen found, as I expected, a large semisolid ovarian tumour. On attempting to remove it, however, I found a second tumour on the left side, reaching up to near the umbilicus, unconnected with the ovarian mass. Its real nature I at first did not recognise. The ovarian tumour was pediculated and removed without any great difficulty. The fact of its being pediculated showed that it had no relation to the pelvic mass below. The point, however, of main interest is this, that, projecting from the lower edge of the ovarian tumour, there was a hard, solid projection, firmly impacted against the soft mass to which I have just referred, and slightly adherent to it. This projection pressed over the brim of the pelvis, deeply indenting and dividing into an upper and a lower half what turned out to be the pregnant uterus.

After recognising the condition of matters, I removed the ovarian tumour. Two days afterwards the patient showed signs of labour. I examined her per vaginam, and could just manage to reach the os and feel the projecting head. Owing to the abdominal wound and recent operation, I dilated as rapidly as I could, and delivered with forceps a fœtus between 6 and 7 months old. In this case the lower segment of the uterus contained the head, and the upper the trunk and extremities.

The cause producing this sacculated condition was obviously the growth of the ovarian projection *pari passu* with the development of pregnancy.

Case 2 illustrates the production of this abnormally, from a different cause. In 1886 I saw a patient suffering from a large pelvic abscess, which was pointing through the vaginal roof. She had missed two periods, supposed to be due to exhaustion and anæmia consequent on the abscess. The abscess cavity was drained, and patient quite recovered.

I heard nothing of her again for seven months, when I was asked by her medical attendant to see her, as she was in labour, and he could find no os. We found a tumour, evidently the pregnant uterus, reaching as far up as the umbilicus, and a round, firm, solid mass occupying the vagina. Under an anæsthetic I could just feel the posterior lip of the cervix. It was quite hard and fixed. I waited some little time, but the cervix, which was hard and indurated, showed no symptoms of dilating, and her previous abscess in the pelvis and subsequent adhesions did not warrant one in using any great effort to pull the cervix into position. There was, therefore, no alternative but to open the abdomen and extract the fœtus. This offered no difficulty except one, namely, that I had some trouble in pulling the head, which was large and somewhat hydrocephalic, out of the cavity of the pelvis. The child was dead, and the mother recovered from the operation; but later on, about the second week, she developed peritonitis, probably septic in origin, and died of pneumonia.

Dr. Reid of Glasgow communicated a somewhat similar case to the Edinburgh Obstetrical Society, which he designated as "labour obstructed from an unusual cause." In his case the placenta occupied the lower uterine segment, and the cause of the displacement he attributed to adhesions consequent upon an old pelvic inflammation.

Case 3.—A third case was sent to me by Dr. M'Kercher, which serves to illustrate still further the method by which this anomaly is produced.

A multipara, æt. 54, supposed to be suffering from an ovarian tumour, was sent here for operation. I found a tumour somewhat irregular in shape, occupying the abdomen and reaching as far up as the umbilicus. The vagina was likewise filled by a large rounded tumour. No cervix uteri could be anywhere detected, and as there was no auscultatory sound to be heard except a very faint souffle, as

the patient had had irregular hæmorrhages, and as the tumour had grown rapidly, I arrived at the conclusion that she was suffering from a sessile ovarian. I accordingly opened her abdomen, and to my surprise found a pregnant uterus. Before closing the wound I was interested to know the cause of what was obviously a sacculated uterus. The only abnormality I could discover was a fibroid tumour in the anterior uterine wall, which, by impinging on the brim of the pelvis, had prevented the lower uterine segment rising. I very gently freed this, and closed the abdomen. Four days afterwards the woman was delivered with the greatest ease, the cervix coming into its proper axis. After the birth of the child the uterus again became retroverted, and there was some difficulty in removing the placenta.

Dührssen records a case of gravid retroflexion, at the sixth month, which was associated with a soft fibroid in the anterior wall. It was partially replaced, and a subsequent laparotomy was performed, as he mistook the fibroid for an ovarian tumour. After removal of the fibroid, the woman aborted and recovered.

Sperber relates a case of partial retroflexion at the seventh month, there being no fœtal parts in the pelvic portion. All the symptoms of incarceration were present at the seventh month, along with well-marked uterine pains, when curiously enough the uterus righted itself, and the pregnancy went on to full term.

Case 4.—The counterpart of the case I have just narrated, which simulated a sacculated uterus, was under my care in Ward 28, in December 1893. She was sent in by Dr. Smith of Grahamstown. On examination we found a large pelvi-abdominal tumour, reaching as far up as the umbilicus and filling up the vagina completely. No cervix could be detected. The tumour filled the whole false as well as true pelvis. On the left side it was hard and nodular, but on the

right side, however, it was quite soft, and both a uterine souffle and a fœtal heart could be detected in that region, the vaginal part being firm and solid. It was therefore obvious that one had to deal with a pregnancy and a group of uterine fibroids. A large fibroid mass occupied the cavity of the pelvis, completely obliterating the os. On Christmas Eve the patient went into labour, and, as labour went on, the tip of the finger could just reach the os above the pubes. Delivery *per vias naturales* was obviously impossible. Cæsarean section was performed. Unfortunately, the patient died some days later, partly from hæmorrhage and partly from septicæmia. The fœtus also was dead.

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