Two cases of uterus septus unicollis, both associated with fibromyoma, and one also with haematosalpinx / by Alban Doran and Cuthbert Lockyer.

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13.

Two Cases of Uterus Septus Unicollis, both associated with Fibromyoma, and one also with Hæmatosalpinx.

See also Dr Lockyer's article in the last volume of the

BY

Alban Doran, F.R.C.S.,
Surgeon to the Samaritan Free Hospital for Women, London;
AND
Cuthbert Lockyer, M.D., F.R.C.S.,
Senior Physician to Out-Patients, Samaritan Free Hospital for Women, London.

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65 Long Acre London W.C.
1905

Quénu et Lebourd "Des opérations conservatrices dans le traitement des utérus didelphes et à corps indépendants." Rev de Chir. Vol XXXIII, Jan–Jun 1906

Schiller. Monatsschr. f. Geb. u Gyn. Vol XXIX (1909) p. 511

entwickelt.

4. Uterus bicornis bicollis und vagina duplex; die linke Vagina endete blind auf der Höhe der Portio des rechten Uterus und war mit Eiter gefüllt; diese Vagina occlusa sinistra kommunizierte durch ein Loch in dem Septum mit dem mittleren Drittel der Cervix des rechten Uterus.

Eine Sondierung durch den einzig verfügbaren rechten äusseren Muttermund war nie gelungen. Hieraus erklären sich die operativen Massnahmen (Entfernung der gesamten Genitalien per laparotomiam), welche durch einfache Eröffnung der blinden Scheide zu erledigen gewesen wären, wenn es eben möglich gewesen wäre, den Befund ante operationem genügend aufzuklären. Pat. ist glatt genesen. Näheres in einer ausführlicheren Beschreibung mit Zeichnung.

Kelly & Cullen "Myomata of the Uterus" 1909 p 154. Cases of malformation

Brothers Abram "Unicornate & Bicornate Uterus" Amer. Journ. Obstet. Jan 1910

Blair Bell W. "Rudimentary Uterus Didelphys ... Uterine Body in an Inguinal Hernia Sac" B.S.M. July 1909

Weibel Zur Ätiologie der gleichzeitigen Missbildungen des weiblichen Harn- und Geschlechts-apparates. Monatsschr. f. Geb. u Gyn. Feb 1910 p. 197

Bland-Sutton Fibroid in Cornu of a bicornute uterus. Proc. R. Soc. Med. Obst. Sec. 1908-9 & spec in RCS

Piquand et Bitte Utérus double bi-cervical. Bull. et mém de la Soc. Anatom. de Paris. avril 1910 p 337

Büdel Fall von Uterus duplex separatus cum vagina duplex. Monatsschr. f. Geb u Gyn Vol 32, p 202 (Aug 1910)

Fabre & Trillat Étude anatomique d'un utérus cordiforme. Bull. de la Soc d'Obst & Gyn de Paris March 1913. p 37

(Thickest in mid line very thin at cornua. Well retained [illegible] & transverse mesenteries. The depression forms a spur & interferes with [illegible])

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BY

ALBAN DORAN, F.R.C.S.,
Surgeon to the Samaritan Free Hospital for Women, London;

AND

CUTHBERT LOCKYER, M.D., F.R.C.S.,
Senior Physician to Out-Patients, Samaritan Free Hospital for Women, London.

THE literature of uterine malformations is very voluminous, and that of hæmatosalpinx has also reached highly respectable proportions, exclusive of innumerable writings on the hæmorrhages into the Fallopian tube, which are among the essential conditions of interrupted tubal pregnancy. Nevertheless more light is needed to demonstrate much that is of importance in respect to these two conditions. Tumour complicating malformed uterus is of high clinical, surgical and pathological interest. We therefore submit two cases in our own experience to the consideration of gynæcologists, adding a review of the experience of others.

I. *Mr. Doran's Case of Uterus Septus Unicollis, with Fibroid in the Septum, and Hematosalpinx.*

In March, 1901, a woman, aged 42, was placed under Mr. Alban Doran's care by Mr. Schutz-Sharman, of Norwood, on account of a solid abdominal tumour which bore all the characters of a uterine fibroid, but was associated with attacks of hypogastric pain, not usual in fibroid disease. The patient, a very plethoric subject, had been married for over fourteen years and had never been pregnant.

For three years free hæmorrhage with sickness and loss of appetite set in at every menstrual period; previously the catamenia had been regular and moderate. Just before the period altered in character an attack of cholelithiasis occurred. Mr. Doran defined a solid elastic tumour occupying the hypogastrium and extending to within two inches of the umbilicus. It was singularly tender on touch, and the patient complained that it often ached and kept her awake. The vagina presented no abnormality. The cervix was small and short, lying almost in the middle line; the tumour continuous with it bulged into the anterior fornix. Douglas's pouch and the right fornix were free, but there was a tender mass in the left fornix which clearly represented diseased appendages. The cervix and the tender mass moved with the abdominal tumour.

The case was kept under observation. Several sharp attacks of pain occurred in July and August, 1901, gastric flatulence was complained of, the urine was loaded with urates and occasionally albuminous. Yet the patient gained flesh, and under appropriate remedies her health improved. Early in the autumn of 1903 she came once more under Mr. Doran's care. The tumour had grown bigger and more painful; free hæmorrhage now set in at every period, often lasting for a week; distressing pelvic pain began several days before the flow appeared and continued until it subsided; then followed an interval of relief. The sickness and loss of appetite had grown worse. Dr. D'Esterre, of Norwood, found that there was much tenderness in the pelvic region and hypogastrium.

Mr. Doran, examining the tumour on October 27th, 1903, noted that it felt very hard and reached as high as the umbilicus. The cervix was short, in the left fornix was a very distinct tender mass, in the right a less easily defined but equally tender body. The temperature was normal, the urine pale greenish-yellow, clear, acid, s.g. 1,012, and quite free from albumen. A severe attack of vomiting set in on the night of November 7th, when the period was present.

Mr. Doran operated on November 10th, 1903, assisted by Mr. Butler-Smythe, Dr. Llewelyn Powell giving the anæsthetic. The pelvis was elevated throughout the operation. The tumour was almost spherical without any trace of lobulation. It had to be drawn up very carefully as the appendages were clearly diseased. The right tube was much thickened; the sigmoid flexure adhered by inflammatory bands, but not by any peritoneal fold, to the back of the fibroid. On separating the adherent intestine, the left tube, much dilated, and the adjacent ovary were exposed. They adhered to the

back of the tumour, but were easily detached. The ovarian and round ligament arteries were secured, then an anterior flap was made from the peritoneum. A smaller flap was cut from the posterior wall of the uterus, and the uterine arteries, not easily reached, were ligatured, and the uterus amputated above the cervix. The relations of the round and ovarian ligaments and Fallopian tubes to the uterus were seen to be normal, so that no abnormality was suspected. After the malformation of the uterus had been detected, the patient was examined and found to be free from any trace of polydactyly, hare lip or cleft palate. Malformations have been detected far from the genito-urinary tract in subjects with uterus bicornis.

The patient recovered quickly and was in good health ten months after the operation. The parts removed, which weighed a pound and a half, were sent to Dr. Cuthbert Lockyer for examination.

The specimen as removed by operation consisted of the uterus, together with the Fallopian tubes and ovaries of both sides. The uterus was nearly spherical in shape. The left tube formed a dark-blue sausage-shaped swelling which arched over the corresponding ovary. The distinctly enlarged left ovary was embraced on all sides, except below, by the distended Fallopian tube. The right tube and ovary were so densely matted together that only the proximal half-inch of the tube was clearly distinguishable. The uterus had been amputated at a level of $\frac{3}{8}$ths of an inch below the os internum. The lower third of its anterior surface was denuded of peritoneum, as was also the lower fourth of the posterior surface. On either side the uterus was bare of peritoneum below the attachments of the ovarian ligaments; these bare lateral surfaces were one inch wide and corresponded to the severed attachments of the broad ligaments. The peritoneum covering the upper two-thirds of the uterus was quite smooth; that on the posterior surface, especially at a point midway between the cornua, was roughened by adhesions, and a nodule of fat, like an appendix epiploica, was seen attached to the uterus at this spot. A probe passed into the single cervical canal could be made to run in two directions, right and left, but met with an obstruction in the middle line. On passing two probes they crossed one another just outside the cervical canal at an angle of 90°. The anterior uterine wall was laid open along each probe; two distinct cavities lined by mucous membrane were exposed by these incisions (Fig I.).

These cavities communicated below at a point slightly above the level of the internal os. Above, they diverged towards the entry of the Fallopian tubes. The septum between the diverging cavities corresponded to a large triangular segment of the uterus. This

triangle had its base above, whilst the apex lay immediately above the os uteri internum and pointed towards the axis of the cervical canal. The thickness of the septum was accounted for by the presence of an interstitial fibroid. This growth projected upwards above the proper level of the fundus. Its apex reached a height of two inches above the level of the attachments of the Fallopian tubes. In width the tumour and fundus uteri measured three inches across from cornu to cornu behind, whilst the corresponding measurement was five inches in front.

The right-sided cavity measured $1\frac{3}{4}$ in. from above downwards. Its internal wall (the side of the septum) was 2 in., its external wall $1\frac{1}{2}$ in. thick. The left cavity was $1\frac{1}{2}$ in. long; it was bounded, like its fellow, by thick walls, the inner wall measuring $1\frac{1}{2}$ in., the outer $1\frac{1}{4}$ in.

The left tube was sickle-shaped and much enlarged. Along its upper circumference it measured 7 in. Its maximum diameter measured $1\frac{1}{2}$ in. On section (after hardening in Kaiserling-Pick's solution) its walls were seen to be much thinned and its cavity was filled with smooth non-laminated blood-clot. The section showed a strong septum in the tube at the junction of the outer two-thirds with the inner one-third of its length (Fig. I.). The left ovary was embraced by the arching tube, to which it was closely adherent on all sides except below. This organ was enlarged, measuring 2 in. by 1 in. On section it presented three small cysts with blood-stained walls and jelly-like contents. Several corpora albicantia were seen on the cut surface. Both tube and ovary showed tags of fibrous adhesions in contact with their external surfaces.

The right tube and ovary formed an ill-defined mass enveloped in adhesions and matted to the lateral wall of the uterus. On section through this tissue the tube wall was found to be greatly thickened, and the ovary contained much broken-down yellow detritus. There were several islands of yellow (lutein) tissue around this degenerated area. Section of the wall of the abscess cavity showed that it was lined by lutein cells. Upon the latter there was an investment of columnar epithelium. The lining membrane was thrown into deep folds.

Sections taken through the hæmatosalpinx showed the plicæ of the tube to be enormously distended with blood (Fig II.). When seen in transverse section the plicæ appeared as large rings and squares with an outline of columnar epithelium and a core of red blood-discs and leucocytes. In a transverse section through the

narrowest part of the tube there were but few plicæ to be seen. For the most part the lumen was lined by low columnar epithelium. (Fig. III.). In parts this was wanting, being replaced by granulation tissue.

At the base of those plicæ which happened to be cut in longitudinal section there was seen great extravasation of blood in the submucous tissues. This submucous extravasation was continuous with that seen within the plicæ. The hæmorrhage in the submucosa ran along under the flattened-out single layer of epithelium for a considerable distance (Fig. IV.). The epithelium was thus raised from the tube wall, and where it had been destroyed altogether the blood-clot had given place to granulation tissue. (Fig. V.). No submucous hæmorrhage was seen save in the neighbourhood of the attachment of a plica, clearly demonstrating that the extravasation had taken place from the vessels which entered the bases of the plicæ. The amount of distension undergone by the plicæ before rupture of their epithelial covering was very remarkable. This hæmostatic distension of plicæ may also be seen in extra-uterine gestation before the lumen of the tube is filled with blood-clot, but it only occurs at the placental site and never uniformly along the whole length of the tube.

In the present instance sections had been taken from different levels, but they all showed the same mode of extravasation. Finger-like plicæ became spheres by injection with blood. Where a plica happened not to be injected it was laid low, and running concentrically with the lining epithelium it fused with the latter. Within the deeper layers of the fibro-muscular tissue of the tube there were a few oval spaces, lined for the most part by columnar epithelium, but in two instances these spaces showed an epithelium of spherical type. They might be occluded follicles arising from the tubal mucosa, close to which they lay. The wall of the hæmatosalpinx external to the thinned-out mucous membrane, showed stretching and pressure atrophy of the fibro-muscular layers. The latter lay teased apart into laminæ. The vessels were very thick, and presented marked hyaline degeneration. The peritoneal coat was thickened by partly organised lymph.

This case presented an unusual combination of five most interesting pathological features:—(1) A septate uterus bearing a fibro-myoma of the interstitial type, which had developed in the septum between the two cava uteri; (2) double salpingo-oöphoritis associated with (3) a lutein abscess in the right ovary, and (4)

hæmatosalpinx with secondary atresia on the left side, and (5) lutein cysts in the left ovary.

There can be no doubt that bilateral salpingo-oöphoritis had existed for some considerable time. The question naturally arises, how are we to account for the hæmatosalpinx? Was it the result of secondary tubal occlusion due to salpingitis, or was it due to a congenital atresia of the interstitial portion of the tube? If we consult Mr. Doran's clinical notes we find that when he first examined the patient there was a history of sickness, pain and anorexia for about three years, whilst distinct proofs of pelvic inflammation were discovered. The periods, which before 1898 had been regular and moderate, had become characterised by free hæmorrhage from that time until the date of the operation five years later.

The last epoch, which was of "five or six days'" duration, ended three days prior to the hysterectomy; the patient was then under the operator's observation and we see that he noted severe vomiting. The pain too at these times had become progressively severe. Whether or not the pain was occasioned by the gradual distension of the left tube with blood it is difficult to say, but the presence of such extensive inflammation would of itself amply account for all the symptoms independently of the existence of a hæmatosalpinx. One point stands out very clearly from the menstrual history, namely, that the tubal atresia was acquired and not congenital. The right tube, which was associated with the larger of the two uterine cavities, was completely occluded by chronic fibroid thickening. The left tube, although intimately matted to the ovary and adjacent structures, remained patent and became filled with blood under enormous pressure—as proved by the distended plicæ. The hæmorrhage was shown by the microscopical sections to have come from the vessels of the submucosa.

II. *Dr. Lockyer's Case of Uterus Septus Unicollis, with Multiple Fibroids.*

The patient was aged 42 years. She had thrice been pregnant; one pregnancy terminated in abortion, the second and third went to term and ended normally in the birth of two fully-developed children; the last pregnancy began 5½ years before the patient came under observation; a full-term child was born and is still living. Dr. Lockyer saw the patient first in August, 1904. She had noticed an increase in size of the abdomen for eight months, during which time she had suffered from severe menorrhagia and dysmenorrhœa.

She was thought by her doctor to be pregnant in June 1904, but as severe hæmorrhage set in, upon further examination he diagnosed fibroid tumour of the uterus, and this diagnosis was confirmed by two gynæcologists. Hysterectomy was advised as the losses continued, and the patient was unable to attend to her work. On examination a very mobile tumour reaching half-way up to the umbilicus was felt. *Per vaginam* this solid growth projected downwards and protruded into both anterior and posterior fornices. The os uteri was single and very patulous. The tumour was removed on August 18th, 1904, by retroperitoneal hysterectomy. The left ovary was cystic, and the corresponding tube inflamed and swollen; both were removed with the growth. The right tube and ovary were spared, being normal. The amputation was performed through the upper part of the cervix below the level of the os internum. The patient made an uninterrupted recovery, and still has a slight show corresponding to her monthly periods (January, 1905).

The specimen measured six inches from side to side and five inches in the vertical direction (Fig. VI.). On section two cava uteri were discovered, separated by a septum, which ended a quarter of an inch above the site of amputation in a bevelled muscular knob half an inch in diameter. This septum contained a spherical fibroid one and a quarter inches in diameter, completely encapsuled in the musculature. The lower half-inch of the septum was not involved. The septum was covered on both sides with uterine mucosa. Externally there was a shallow wide groove dividing the entire specimen into a small left, and a large right portion. To the upper and outer angle of the left half was attached the swollen left Fallopian tube and cystic ovary; at the corresponding point on the right half was seen the cut end of the normal right tube. The distance between the tubes was six inches. The width of the right half was four inches, that of the left two inches, the measurements being taken from the centre of the groove dividing the two segments. The right cavity was occupied by one lobe of a large fibroid, of which two other lobes lay within the fundus of this half of the uterus. The projecting submucous lobe measured three and a half inches in its vertical and two inches in its transverse diameter. The uterine mucous membrane covering it was much thinned. The interstitial part of this tumour measured two by three inches, it had theerfore much the same dimensions as the submucous portion. The small left segment of the uterus contained a short cavity measuring one and a quarter inches from the cut cervical surface to the fundus. Its outer wall bore a fibroid the

size of a walnut. There were therefore three separate and distinct growths associated with this septate uterus—the large tumour in the right half, one intermediate in size lying in the upper part of the septum, and the smallest within the lateral wall of the small left half of the uterus. The central axis of the distended right cavity lay in the horizontal and that of the left half in the vertical plane. Microscopical sections of the left tube and ovary showed nothing of importance. The cyst was of the distension variety and of the size of a walnut.

These cases throw some light on two subjects of considerable importance in respect to malformed uterus, namely (1) hæmato-salpinx and (2) fibro-myoma as complications.

Hæmatosalpinx. Taking into consideration the origin of the hæmatosalpinx in Mr. Doran's case, it is clear that the ætiology contrasts with that of the case described by Micholitsch,[10] where the patient was a girl, aged 21 years, who had menstruated regularly from the age of eighteen. She had been subject to pain in the left iliac fossa for about a year. This pain was aggravated by menstruation. An irregularly-shaped and almost fixed, cystic tumour occupied the left iliac fossa and extended far down into the pelvis. At the operation, as in our case, adhesions were detected. When they were set free it was seen that the uterus was reduced to a right cornu bearing a normal Fallopian tube and ovary. It was connected by a band with the tumour. On further inspection the latter proved to be a left cornu with greatly hypertrophied walls; its cavity, quite closed on the uterine side, was full of old blood, and it communicated with a thickened Fallopian tube converted into a hæmatosalpinx. The dilated tube adhered to an ovary, itself practically reduced to a blood-cyst. In this case the atresia of the left cornu had been complete from the first. We have reason to believe that the obstruction in our case had existed for about three years. X. O. Werder[11] records a case of "didelphic uterus with lateral hæmatocolpos, hæmatometra and hæmatosalpinx." The patient was aged 18. She began to menstruate at 15. The flow was always accompanied with paroxysmal pain chiefly on the right side and back. The distended uterus contained over a quart of tarry-looking tenacious fluid. The distended tube measured six inches in length, and was four inches in circumference at its widest diameter, which was situated at the fimbriated end. The hæmato-colpos was tapped and washed out one month after the other

structures had been removed by laparotomy. The patient recovered. Löhlein[12] describes a case in some respects similar to the above. The patient was single, aged 18. Her general development seemed retarded, for she first walked when three years old, and did not menstruate until she was 16; the flow was painless at first and always regular. For one year there had been attacks of pelvic pain, especially on the second and third days of the flow. This was accompanied with sickness, headache, pyrexia, and constipation. A gradual increase in size of the lower abdomen had been noticed during one year. The patient had a wide pelvis. The interspinous measurement was 29·5 c.m. and the intercristal 31 c.m. At the laparotomy a large quantity of reddish-yellow ascitic fluid was discovered. The right tube was distended with blood to the size of a child's head, and united to this by adhesions were the vermiform appendix and the omentum. The proximal part of the tube for 6 c.m. was not dilated. The thick walled uterus was full of blood, and a hæmatocolpos unilateralis partialis lay beneath it. Löhlein removed the right corpus uteri and tube per abdomen, and left the hæmatocolpos to be dealt with per vaginam. The left half of the uterus was bent backwards and towards its own side; it was narrower than the right. Deep in the pelvis lay a well-developed left ovary. The hæmatocolpos was opened a month after the laparotomy, and after this second operation subsequent menstruation was painless.

Katz[13] recorded last year a case in which there was a rudimentary horn containing blood (hæmatometra). To this was attached a Fallopian tube, the distal extremity of which was distended into a large blood sac (hæmatosalpinx). This was quite free from the ovary which lay beneath the tube, whilst between its outer pole and the hæmatosalpinx there intervened a portion of the mesosalpinx. The interest of this case lies in the systematic report of the pathohistology of the hæmatosalpinx. As our own investigations on this subject were made at the end of 1903, about one year before Katz's work was published, it is interesting to note that two independent observers found much the same conditions in two remote cases. Katz's histological observations on the structure of the tube are as follows:—

(1) At the uterine end of the ampullary portion: epithelium flattened and low-lying. The plicæ contained a few dilated vessels and in many places *free hæmorrhage* was noted. The musculature was much hypertrophied and the muscular strands were separated by hæmorrhage, and many vessels were filled with blood clot. There was round-celled infiltration in the neighbourhood

of vessels, especially towards the peritoneal surface. (2) At the transition of the middle part of the tube into the actual hæmatosalpinx the number and size of the plicæ were reduced. The hæmorrhage in the tissues was here more excessive, and the epithelium more affected and often absent. The muscle was in part replaced by connective tissue. The round-celled infiltration was more marked, especially under the peritoneum, where there were subperitoneal collection of round cells. (3) The tube-wall was thinner, scarcely any mucous membrane remained, that which persisted was broken up into fragments. There were fewer vessels in the muscle layers. Collections of round cells lay in the connective tissue between the muscle-bundles. In the ovary there was nothing to note.

Katz has collected 19 cases of hæmatosalpinx complicating uterine malformation, and has given all the important details relating to these cases in tabular form. His list includes Löhlein's case mentioned above, but he does not mention those of Micholitsch or Werder. All these cases were treated by laparotomy, with two fatal results. In the above twenty-one cases there was hæmatometra associated with hæmatosalpinx. In our case there was no hæmatometra. Hæmatometra in uterus duplex is not always associated with hæmatosalpinx. Katz's Table 1 includes 16 cases of hæmatometra.* In seven there was also hæmatosalpinx. Of the nine remaining, in which the tubes were not distended with blood, four were examples of double, and five of single, hæmatometra. It is not uncommon to meet with a unilateral hæmatocolpos in cases of hæmatometra with, or without, hæmatosalpinx, but blood cysts in the ovary in this connection appear to be very rare. We have met with but two instances of ovarian blood cysts in the literature on this subject. The first (Micholitsch) is noted above, the second was reported by Lorrain and Billon.[16] In their case the left uterus had the appearance of a pedunculated subperitoneal fibroid attached to the left side of a normal uterus. At its upper extremity was attached the left Fallopian tube. On section a little thick reddish fluid escaped and a canal was found lined with uterine mucosa and continuous with that of the left side. There was no communication with the main uterine cavity, the two being separated by muscular tissue 5 mm. thick. The left tube was distended into a hæmatosalpinx and the left ovary contained a large hæmorrhagic cyst. This makes in all a series of twenty-four cases (including our own) of hæmatosalpinx associated with uterine malformation found in medical literature. For a

*See also Eberlin, "Zur Diagnose der Hæmatometra bei Fibromyoma Uteri Bicornis und Atresia Vaginæ," *Zeitschrift für Geb. u Gyn.*, Vol., xxxi., 1895, p. 365.

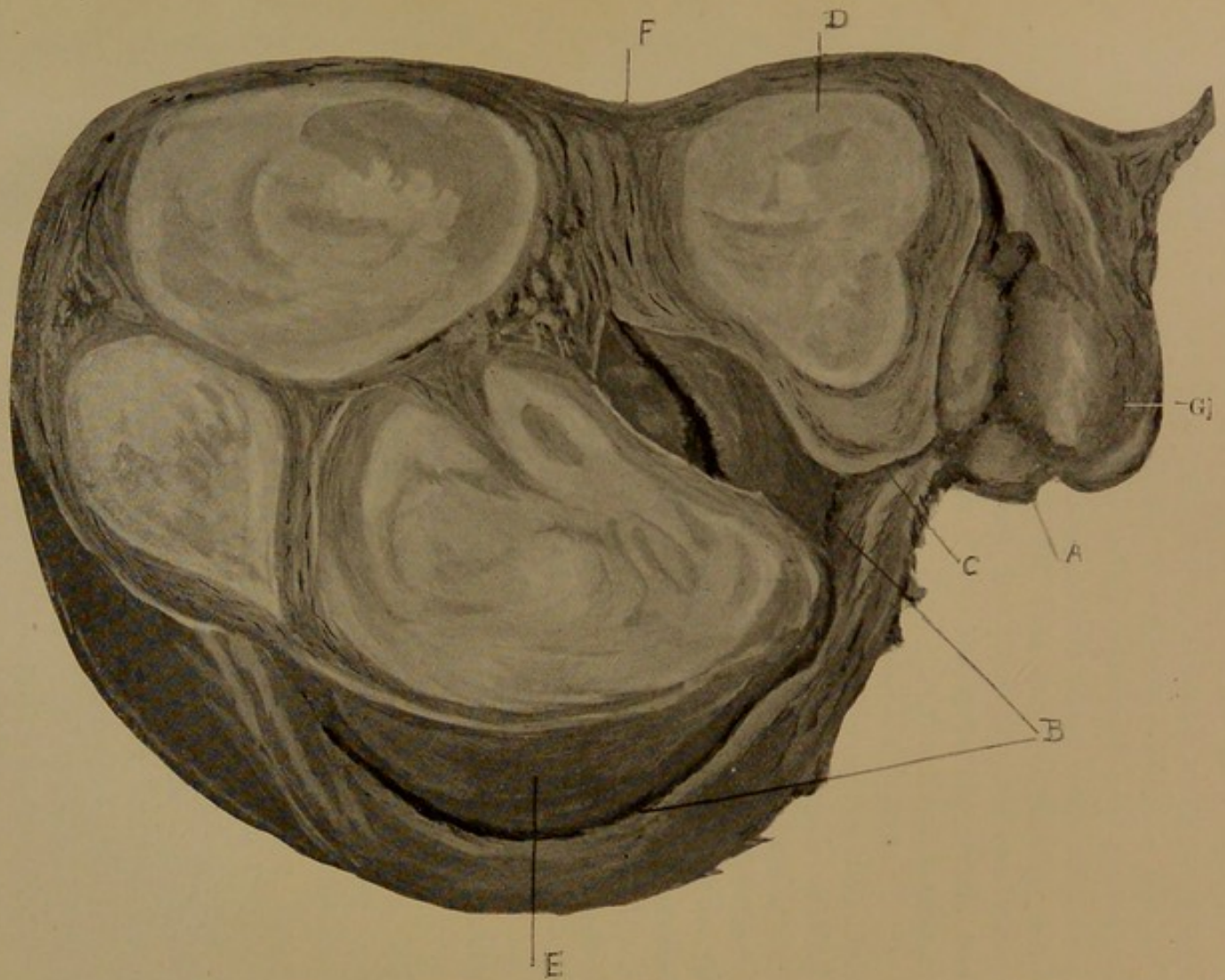

FIG. VI.

Dr. Lockyer's Specimen of Uterus septus, coronal section.

A Cavum uteri, left; B Cavum uteri, right; C Septum between A and B; D Fibroid in Septum; E Fibroid in right cavum; F Groove between right and left halves; G small Fibroid.

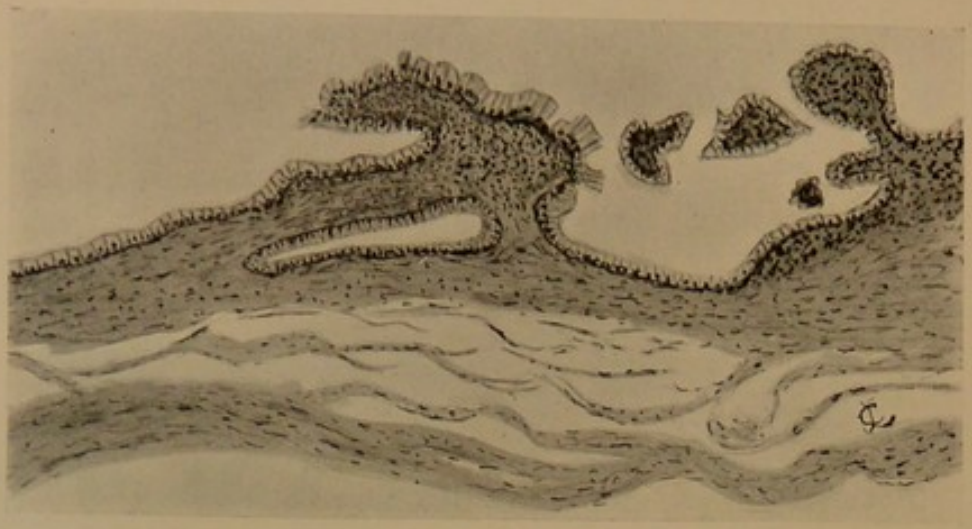

FIG. II.

Section of tube wall showing fusion of two plicæ and distension of the same by free hæmorrhage into the connective tissue core.

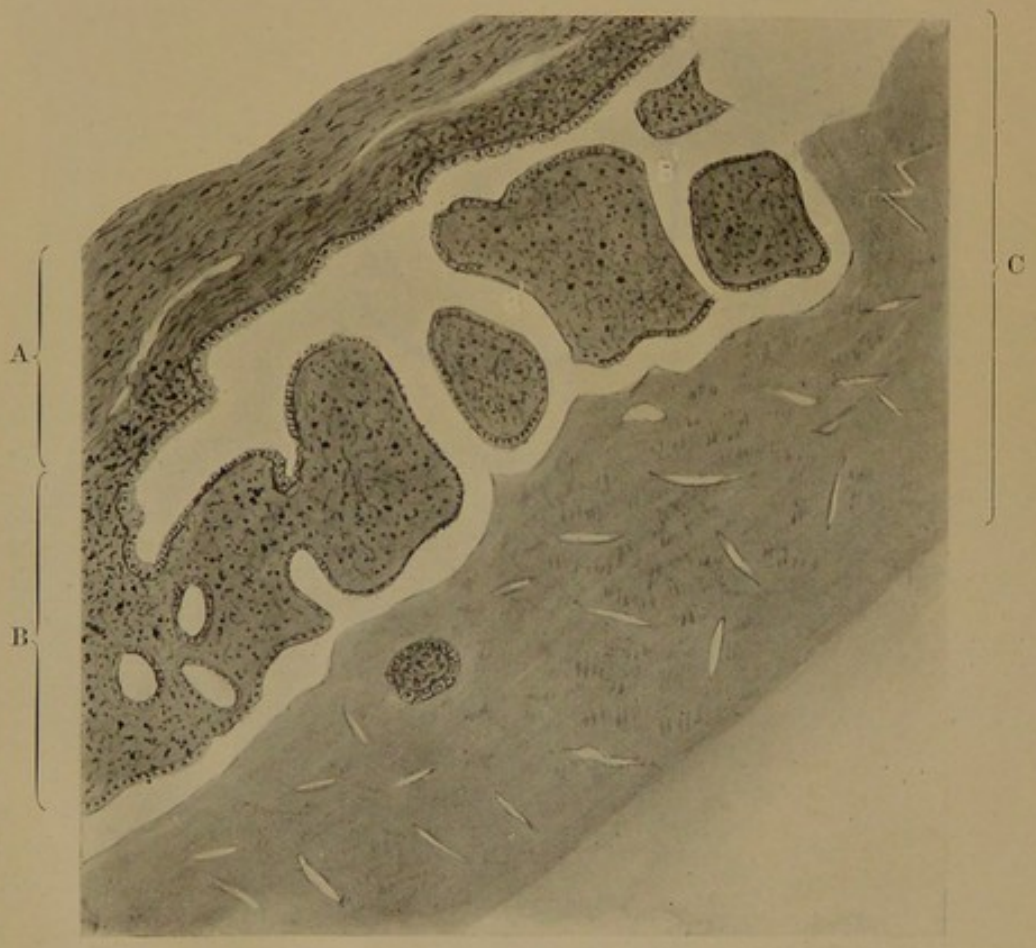

FIG. III.

Section taken through tube wall and contained hæmorrhage.

A Tube wall showing low-lying cubical epithelium ; B Plicæ distended with blood, the epithelium is much flattened out and is represented by basement membrane only at B' B' ; C Blood-clot fissured in the process of embedding and fixing on slide.

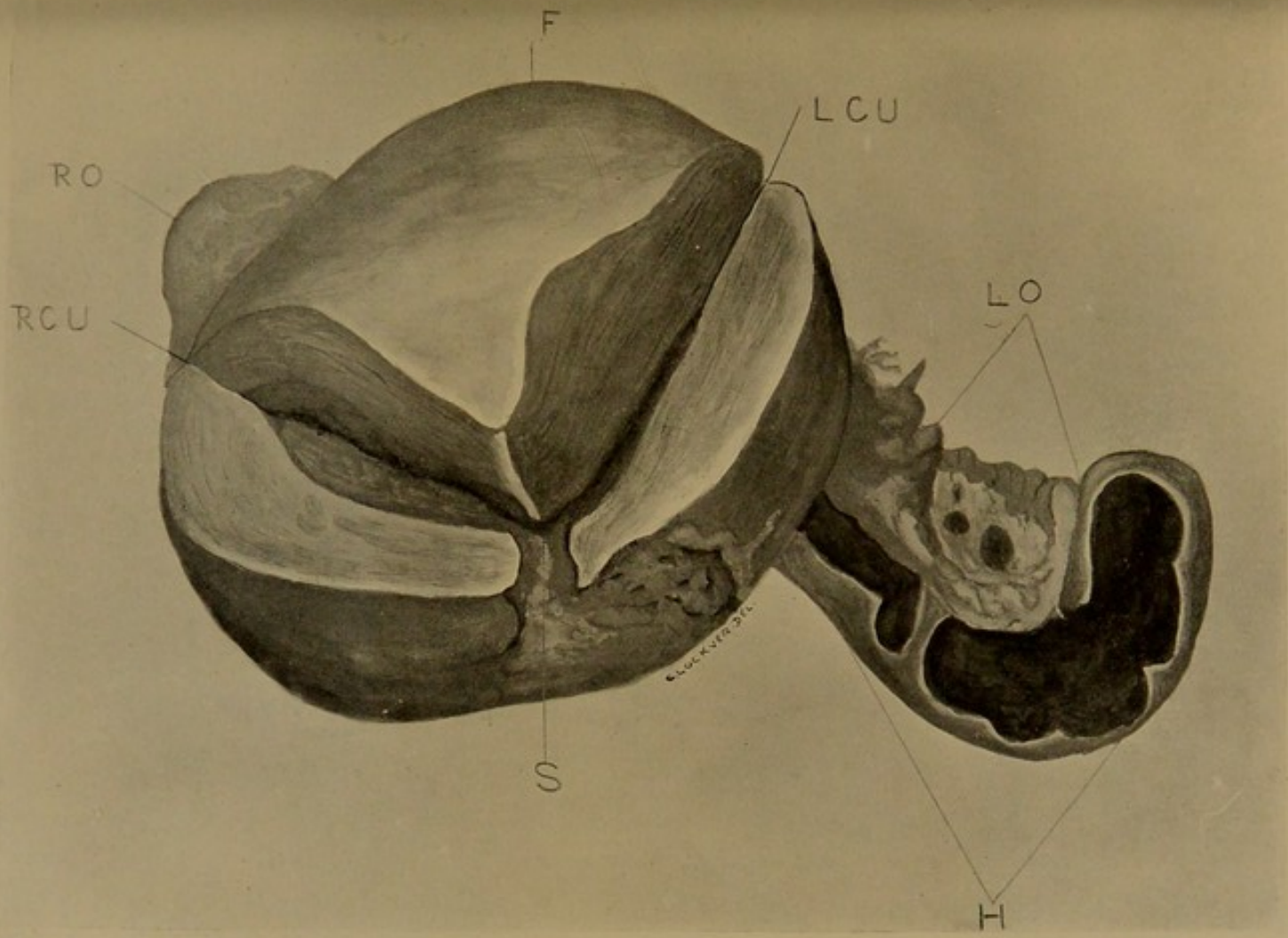

FIG. I.

Mr. Alban Doran's specimen of Uterus septus with fibroid in septum and hæmato-salpinx.

F = Fibroid. S = Septum. H = Hæmato-salpinx with tube twisted to show posterior surface.
LO = Left Ovary with portion removed. RO = Right Ovary. LCU = Left Cavum Uteri.
RCU = Right Cavum Uteri.

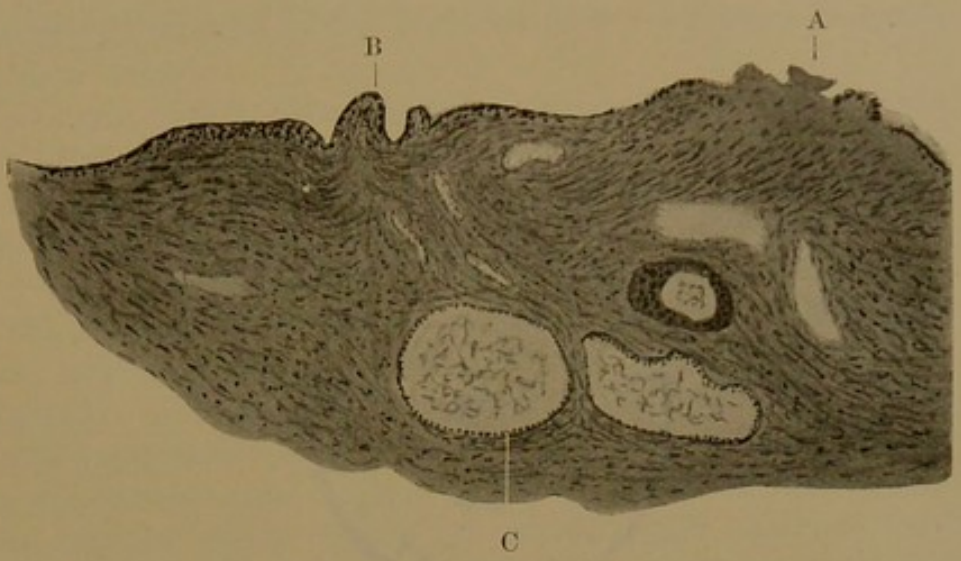

FIG. IV.

Section of tube wall showing the reduction of the epithelial lining to a flattened-nucleated lamina, beneath which there is a layer of extravasated blood.

A shows blood-clot undergoing organisation by fibroblasts; B remains of a plica containing partly organised clot; C cystic space of plical origin.

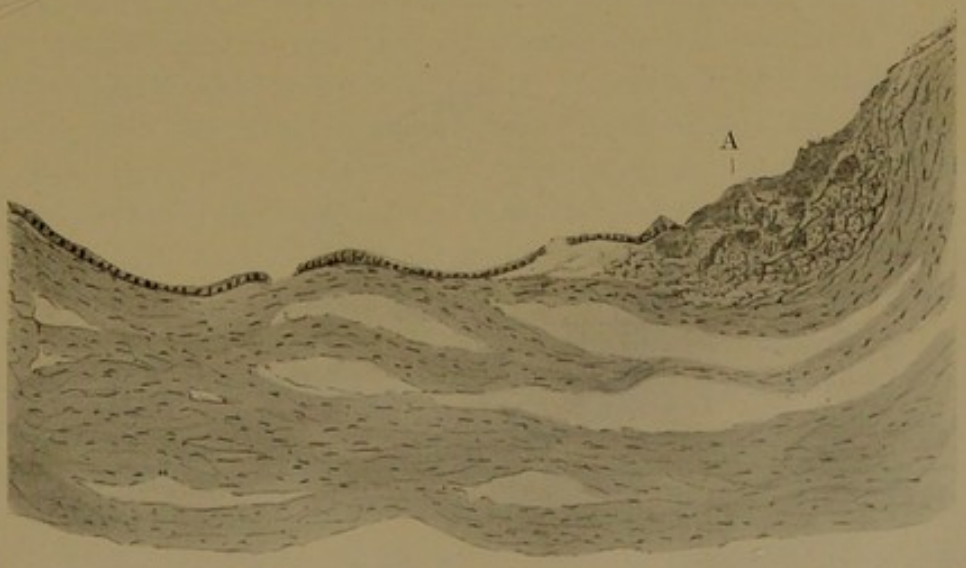

FIG. V.

Section of tube wall showing total absence of plicæ, partial destruction of epithelium. It is replaced at A by granulations invading blood clot.

description of eighteen in this series we refer our readers to Katz's valuable monograph.

Considered apart from dystocia, hæmatosalpinx is a rare complication in uterine fibroid disease. The proportion is 2·88 per cent. according to Daniel[17] in his recent report on tubal pregnancy associated with this form of tumour.

Fibroids in Malformed Uterus. We will now take into consideration the condition of the uteri. Our cases were both examples of uterus subseptus unicollis associated with fibro-myomata. In attempting to estimate the relative frequency of combined malformation and new growth we have reviewed all the available literature up to the present time. Older authors, such as Kussmaul and Rokitansky, are freely quoted by more recent observers. In Kussmaul's great classic "Von dem Mangel, der Verkümmerung und Verdoppelung der Gebärmutter" (Würzburg, 1859), no mention is made of new growths in connection with the many varieties of malformations of the female genitalia which are placed on record. We have gone through the titular descriptions of the 127 cases of female genital deformities collected by Livius Fürst[2], but in none of these is there any record of new growth. Falk[3] quotes Israel[4] as having collected 93 cases of female genital malformation between 1866 and 1884, but no mention is made of new growth in this series. Falk[3] himself records one case of fibroid tumour occurring in a uterus duplex to which we will revert. Ludwig Pick[5] makes the assertion that the combination of "this kind of dysplasia" with true new growth is very rare. Up to 1896, however, Pick was able to collect twelve cases, ten from the literature and two from Landau's clinic, described by the author himself (myoma in uterus bicornis 9, in uterus unicornis 1, in uterus subseptus 1, and in uterus didelphys 1). Sigismund[6] found a polypoid growth attached to the cervix of the gravid half of a uterus septus; we shall have more to say about this case later. A case missed by Ludwig Pick is one of the five examples of female genital malformation described by Pompe de Meerdervoort[7] in 1895. In the next year (1896) Dr. Giles'[8] paper containing a list of 21 cases of uterus didelphys in living adults appeared in the *Transactions of the Obstetrical Society of London.* In this list there is no mention made of the presence of new growth, but in an addendum (page 326) notes are given of Dr. Galabin's case of uterus didelphys with fibroid tumour of one side. Gow,[9] in March, 1898, described a uterus duplex associated with an intra-ligamentary myoma.

We must now dwell at greater length on these and on other

examples of new growth in malformed uterus published since Pick collected 12 cases in 1896, including others of an earlier date which are omitted in his series.

1. In Falk's case the patient's age was 41. She had been married for 20 years, but had never conceived. Menstruation started at the age of 15; it was regular, lasting for three days, and was fairly free. Dysmenorrhœa had been complained of for nine years, and for a few months before operation pelvic and sacral pain had been troublesome. The pelvic measurements were normal (not too wide). The vagina was divided by a septum 8 m.m. thick. In each portio vaginalis there existed a small hole. The sound passed 6½ c.m. in the right half and 7 c.m. in the left half of the uterus. Two sounds introduced simultaneously did not touch in the cavity. On bimanual examination a uterus of normal shape and size was felt on the right side, whilst on the left was detected a tumour of the size of a child's head. Falk's case is instructive to all who may have to operate on malformed genital tracts. He proposed to remove the uterus through the vagina after cutting away the vaginal septum. But the dissection of the septum from the anterior and posterior fornices proved difficult owing to the narrowness of the vagina and involved much hæmorrhage, the precise cause of which, not evident at the time, will be explained. As the patient was very weak, hysterectomy was deferred. Four months later the uterus with its tumour was removed by abdominal section. The patient recovered. During the period between the two operations the patient suffered much pain which had to be subdued by morphine. The right round ligament was much stretched forming a band 1 c.m. wide. The left was normal. On this abnormality a theory has been founded, as will be explained. Externally the uterine body was irregular in shape and nodular, especially at the right cornu, and on the right posterior surface. The fundus of both bodies formed a confluent indivisible mass anteriorly, whilst behind there was a growth the size of a fist, 21 c.m. in circumference; this lay between the bodies of the two uteri which were quite distinct from each other posteriorly. The situation of the left tube was lower and more anterior than normal. The growth was an intra-mural fibroid of the left half of the uterus. There were other small interstitial fibroids present. This case is an example of uterus duplex or uterus septus bilocularis cum vagina septa.

Josephson (*Archiv f. Gyn.*, Vol. lxiv., p. 423) examined the specimen with Falk, after the case had been published by the latter author. He found that the growth behind was not connected with the septum between the uterine cavities, whilst one of the small interstitial

fibroids mentioned above, which formed a thickening between the two uteri was a myoma of the size of a pigeon's egg, which had developed in the *vaginal* wall close to its upper or uterine attachment. This remarkable relation of the vagina to a fibroid growth seems, in our opinion, to account for the difficulty experienced by Falk in dissecting it away at the first operation, and for the hæmorrhage which ensued on that occasion.

2. The case of Sigismund is doubtful as regards the nature of the growth. Like our two cases it was an instance of uterus septus with single vagina. The patient was aged 30, she had never been ill excepting that she had to stay in bed for the first two days at each menstrual epoch. There had been a normal delivery two years before she came under observation. Then she again became pregnant and aborted. The third and last pregnancy ended in the birth of a child at full term, which the mother was able to suckle. No examination was made at the time of birth, but a slight perineal tear was discovered and treated on antiseptic lines. On the fourth day the temperature rose to 104°, and the accoucheur felt a sense of resistance on the side of the uterus. Sigismund saw the patient seven days after labour. The temperature was then 101° and the pulse rate was 116 per minute. The uterine fundus was 7·7 c.m. above the pubes, reaching in fact to the umbilicus on the seventh day. The lochial discharge was yellowish-red and not offensive; the perineal tear was not inflamed. An out-growth from the uterus was felt to reach for three fingers' breadth above the pubes on the left side, and this corresponded in position to the pain complained of by the patient. Under anæsthesia the cervix was found to be torn and protruding from it was a "polypus" with a pedicle 1·5 c.m. wide; the entire polypus measured 4 c.m. and was attached to the anterior cervical wall. As the cervix was gaping the finger could be easily introduced, and by this means it was found that a common cervical canal led into two cavities—a small one on the left and a larger on the right side. A piece of placenta measuring $3 \times 2 \times \frac{1}{2}$ c.m. was found in the right cavity. In this streptococci were afterwards discovered. An intra-uterine douche was given, the temperature subsided, and the subinvolution disappeared, but the "polypus" was not removed. Sigismund regarded the subinvolution as due to the malformation, whilst, in his opinion, the tag of tissue hanging from the cervix represented a submucous myoma. He also held that the temperature was due to auto-infection. All these conclusions seem to us to be questionable. The perineum was torn and also the cervix, and a piece of infected placenta was discovered. There seems, there-

fore, to be ample cause for the fever without resorting to "auto-infection" as an explanation for it, and as regards the "polypus," we think that Falk is probably right when, in commenting on this case, he regards it as a tag of the septum which became partially separated at the time of birth.

3. In the case of Pompe de Meerdervoort the patient was aged 30 years; she had been married nine years. Coitus was impossible. On examination the vagina was found to be absent. A tumour was felt occupying the true pelvis and compressing the rectum. By laparatomy a fibroid of the size of a fœtal head was found in the anterior part of the left horn of a uterus bicornis. The growths measured $13 \times 9{\cdot}5 \times 6$ c.m. Hysterectomy was performed; the patient died.

4. Galabin's case appeared as an original report in Dr. Giles's paper (see bibliography). "Miss A., aged 42, had had an abdominal tumour for ten years or more. In June, 1891, she was laid up in bed with acute abdominal pain and pyrexia. On examination a fibroid tumour of the uterus was found, reaching three inches above the level of the umbilicus; its surface was somewhat irregular. There were signs of a not very severe peritonitis. The vagina was found to be completely double, the two halves of equal size, each provided with a cervix uteri. She had not been aware of any abnormality. A more complete examination was made a month later, when the peritonitis had subsided. A sound passed $5\frac{1}{2}$ in. into the left cervix uteri, and evidently went nearly into the centre of the tumour. Into the right cervix the sound passed $2\frac{1}{2}$ in., and bimanually it was found that the right uterus, with the sound within it, was quite movable, and entirely separate from the tumour of the left uterus. It was decided not to advise any operation, the menorrhagia not being excessive."

5. A cystic intraligamentary myoma with double uterus was shown by W. J. Gow at the Obstetrical Society in 1898.[9] The tumour was removed by abdominal hysterectomy. The patient was a single woman aged 32 years. The right broad ligament was occupied by a tumour which showed extensive cystic changes; clear fluid exuded from it on section, and there was hæmorrhage into its tissues. The uterus appeared normal in shape and size, lying in contact with the left side of the tumour; whilst running obliquely upwards and to the right of this was another uterus larger than the first and shaped like a spindle. Into the upper and outer angle of this uterus the right Fallopian tube opened and the round ligament was traced to the same point. This second uterus communicated with the one

on the left side at the level of the internal os. The condition was not diagnosed; the patient recovered. For want of a drawing the relations of the right broad ligament, tumour, and right cornu seem obscure

6. In Paul Mundé's case[14] the patient was aged 26. She had had two children and two miscarriages. She had suffered pain in the right ovarian region. The uterus and vagina were both double; the right half was parous, the left half rudimentary. The parous half contained a fibroid the size of two fists. The right half of the vagina was the longer. A portion of the vaginal septum had been torn away.

7. Clark,[15] of Philadelphia, described a case in which the myoma occupied the septum and body of a uterus bicornis, only the lower part of the cervix being free of the growth.

8. Carl Wagner[18] described a case of "uterus bicornis with a large 'fibroma' in each horn and also multiple fibromata around the small fundus." The larger fibroid was about the size of a fist; it was situated in the right horn. There was a fibroid the size of an orange in the left horn. A number of smaller growths the size of walnuts lay in the fundus common to the two horns. Each ovary was situated at the extreme lateral ends of the respective horns. The patient was 26 years of age. She had never been pregnant. She suffered greatly from constipation and almost incessant urination. Dysmenorrhœa was severe. The parts were removed; the right ureter gave rise to some difficulty since it ran for a distance of about 2in. "in the fibrous mass of the right horn." The patient recovered from the operation and all her symptoms disappeared. From the sketch appended to Wagner's paper it will be seen that by "small fundus" and "common fundus" the author means the portion of the cornua which are united for a short distance above the cervix.

9. In Mr. Doran's case,[20] published in 1899, a fibroid of the size of a hen's egg developed in the rudimentary right cornu of a woman who had borne one child and had also aborted. The right round ligament not only made clear the nature of the malformation, but also presented another remarkable feature of importance, as will presently be explained, in respect to Meyer's theory about the origin of malformations of the uterus. The tumour and the right appendages were removed. Since the report was published the patient bore a child to term, which was spontaneously delivered alive.

10. Meurer[21] mentions a case in which a tumour lying to the left of the uterus was taken for a dermoid cyst of the left ovary. At the operation it was regarded as a subserous myoma, but on closer

examination after removal it was seen to be a fibroid in the left rudimentary horn of a uterus bicornis.

11. Ranken Lyle's "Case of Cæsarean Section at Full Term for Complete Obstruction by Fibroid Tumour, Double Uterus and Vagina," appeared in the pages of this Journal last December (Vol. vi., p. 438). "Pedunculated myomatous mass in Douglas's pouch" was, very naturally, diagnosed, the uterus was opened, the child and placenta removed and the uterine wound closed by suture. The mass was then lifted out of Douglas's pouch, and proved to be a myomatous uterus, quite independent of that which had been opened. It bore the right appendages and was attached to the top of the vagina on the right. The peritoneum passed directly from the posterior surface of the bladder between the two uteri to the anterior surface of the rectum. This right uterus was amputated above the cervix. It was then found that the left, which had been opened for the extraction of the fœtus, bore the left Fallopian tube and ovary. During her recovery Ranken Lyle examined the patient and found that the vagina was completely double. There was a distinct and separate cervix at the upper end of each canal; the septum was attached at its inferior limits to the vestibule anteriorly and to the perineum behind. This case seems a genuine example of uterus didelphys, although it might have been ranked as an extreme form of uterus bicornis duplex with double vagina, as it is not absolutely evident that the cervix was double throughout.

12. Pick omitted to include Dr. Amand Routh's case,[19] published in 1887. A pathological committee reported it as "a fibroid growing from the undeveloped horn of a uterus unicollis."

A valuable article, "Ueber die Neoplasmen der missbildeten Gebärmütter," by C. D. Josephson, appeared four years ago in the *Archiv für Gynäkologie* (Vol. lxiv., p. 376). Josephson refers to Pick's 12 cases, and adds not only fresh notes about one of that series (J. Schmidt), but also a drawing of the specimen where the symmetry of the two uterine cavities and of the fibroid developed in the septum between them, was as marked as in Mr. Doran's case. In Dr. Lockyer's specimen one cornu was greatly distorted by fibroid growths developed in its walls away from the septum which was also the seat of a fibroid.

Josephson also adds twelve cases published since Pick's article which we have quoted and not included in our own additions above. Four are recorded by Pick, and two jointly by the same author and Landau; one by Paltauf, three by Gunsett, all the above being fibro-

myoma. Finally Heinricius, of Helsingfors, describes one case of adeno-myoma, and Czerwenka one of carcinoma and sarcoma.

Thus, in addition to the 12 well-known cases collected by Pick, and 12 others which we have collected above, with two cases in our operative practice, 26 in all, we must now add, to bring the list up to date, the 12 quoted by Josephson and not included in our series. This makes a total of 38 cases of new growth in malformed uteri.

Considering the large number of cases of malformation of the uterus mentioned in literature the number of new growths in this connection is relatively small, although some examples may have been overlooked, and we are justified in concluding that septate, bicorned, and didelphic uteri are less prone to harbour tumours of clinical importance than are normal uteri.

With regard to the type of malformation in Mr. Doran's case, if we follow the classification of Livius Fürst,[2] it would fall under his heading of Double Combination, No. 6, *i.e.*, Uterus partim septus, vagina simplex; type 24, *i.e.*, uterus planifundalis, or type 33, uterus foras arcuatus; which of these two types it may be is impossible to say owing to the fibroid being situated at, and distorting, the fundus. This is one of the rarest combinations, for amongst 127 cases recorded by Livius Fürst there is not one single example of this type. Dr. Lockyer's case is an example of uterus partim septus, vagina simplex, type uterus introrsum arcuatus. This is a defect which must have occurred before the twelfth week of fœtal life, by which time the septum should have disappeared; and by the twentieth week the "introrsum" or depression between the two horns has usually given place to uterus planifundalis. In both our cases the arbor vitæ could not well be studied, as only a small portion of the cervix was removed.

In conclusion we need hardly remind the reader that the above clinical and pathological notes are sufficient for a single communication based on two cases under the authors' treatment. In other words we cannot discuss at length the ætiology and embryology of fibroid disease in double uterus. Pick believes that a true myoma may develop at a very early stage between the two ducts of Müller and thus prevent their fusion, the growth sometimes becoming a large tumour in adult life. But R. Meyer,[22] with whom Falk[3] agrees, advances a more probable theory. Myoma is not the cause of malformed uterus according to his views; the malformation is really due to the traction on Müller's ducts by uterine ligaments developed abnormally in advance of the other uterine elements. In Falk's own case, which we have described, the right round ligament was much

stretched, forming a band 1 c.m. wide. In Mr. Doran's case of fibroid developed in the rudimentary cornu of a uterus unicornis (No. 9 in our series in this communication) the round ligament formed a very broad ribbon-like structure running from the outer border of the anterior aspect of the tumour and curving inwards into the inguinal canal.* It was far larger and stouter than the normal round ligament which ran from the opposite and well-developed cornu, already the seat of two pregnancies. Hence stoutness of one round ligament may be a useful indication to a puzzled operator.

Addendum.

Another case of fibroid tumour associated with double uterus was published quite recently by M. E. Foisy ("Uterus double avec fibromes sous-péritonéaux et salpingite double; hystérectomie susvaginale—Guérison," *Annales de Gynécol. et d'Obstét.*, January, 1905, p. 43). The patient was 39 years old, pregnant four times—first when 24, abortion at second month, retained placenta, severe septic complications; second when 25, pregnant to term, child born dead, strangled by funis, septic complications during puerperium; 3rd when 27, delivered at term of a female child, breech presentation; fourth when 31, abortion at third month; retained placenta four days; septic symptoms, not severe, for a few days. When 33, the patient contracted gonorrhœa; pelvic pains and impaired health ensued and she never thoroughly recovered. Foisy detected an elastic tender mass in each lateral fornix. Chronic disease of the appendages was diagnosed. At the operation the appendages were found to be diseased, but they lay high up and the tender elastic masses proved to be two uteri, with distinct cavities, the right cavity running vertically and the left almost at a right angle into the canal of a common cervix. It would be interesting to know if the favourable third pregnancy developed in the more favourably placed right uterine cavity. A very deep recto-vesical fold passed between the uteri. The right uterus bore a subserous fibroid of the size of a walnut on its anterior aspect near the cervix; on the same aspect of the left was a smaller growth of the same character. There was no such growth at the point of union of the uteri.

Lastly, we find that in preparing the above communication we omitted a case published in 1893 by Pauchet ("Uterus bifide:

* This condition is conspicuous in the specimen, as it is now preserved in the Museum, R.C.S., Path. Series, No. 4647A; see also drawing, *Brit. Med. Jour.*, Vol. I. 1899, p. 1389.

Méniel: "Uterus double avec grossesse unilatérale post-abortum" *Annales de Gynéc. et d'Obstét.* Aug. 1910 (vol. III) p. 431. "Le ligament rond du côté gauche était anormalement court et large, chacun" [the right corner was the seat of the pregnancy, the round ligament

fibrome à droite, grossesse à gauche," *Gazette des Hopitaux*, 1903, p. 1411). The patient was 40 years of age, and her last labour occurred when she was 26. For four years she had suffered from menorrhagia and for three months from amenorrhœa and a painful abdominal swelling. Tubal gestation was suspected; at the operation uterus bicornis unicollis was discovered. The right cornu was the seat of an interstitial myoma which projected into its cavity, whilst the left cornu contained a three months' fœtus and was much smaller than the right. Its canal was obstructed by a fibroid close to the cervix. The uterus was amputated at the cervix and the patient recovered.

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