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BY

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In giving the above title to this paper, I have not aimed at its being accurately descriptive, but have chosen it on the score of brevity for the sake of more easy reference. A more proper title would be "An intra-pelvic yet extra-peritoneal treatment of the Stump in cases of Hysterectomy."

I propose briefly to sketch the methods most commonly in use for the treatment of the cervical stump, quoting from the papers and speeches of various operators; to quote some cases of the intra-pelvic treatment of the stump by those who have so operated; then to narrate those cases in my own practice; and finally, to make some observations which I hope will tend to show the intra-pelvic and extra-peritoneal method will eventually become *the* method of treatment, where practicable, in cases of fibrous tumour of the uterus.

Improvements in operations are brought about either by some "happy thought" occurring to an operator in the course of an operation, or by the gradual evolution of methods worked out, it may be, by various operators extending over a considerable space of time. We have seen this process evolved in the case of ovariotomy through the ligature and pins, then the clamp, then the actual cautery (which had such good results) and which initiated the intra-abdominal treatment of the pedicle until we have arrived at the simple ligature of silk, which has reduced the mortality to its present favourable percentage.

In dealing, however, with the stump in hysterectomy, we

are brought to face a totally different condition than we have in the pedicle of an ovarian tumour, for we have to manipulate a stump composed of contractile tissue, which by its shrinkage, when constricted as a whole, relaxes the pressure on the vessels and opens up the danger of fatal hæmorrhage. To obviate this danger the majority of operators prefer to bring the stump outside the abdominal wound where it is open to observation, and can be further constricted from time to time as necessity requires.

If, however, we can carry out a method whereby the vessels can be effectually secured and at the same time do away with the disadvantages of the clamp, we shall, I venture to think, see our cases get well more rapidly, and our patients less exposed both to danger from septic absorption as well as to inconvenience from tension on the stump and the abdominal wound, and from the inevitable crowding of the bladder.

It will not be necessary before such a Society as ours to enter into details with regard to the usual method of procedure in cases of hysterectomy as practised by Bantock, Lawson Tait, and others, where the stump is secured outside the abdominal wound by a *serre-nœud*, the peritoneum in some cases being sewn over the end of the stump, but I think I shall be able to show that there has been a desire and many attempts to attain to a better practice, though hitherto the larger mortality has dissuaded many from persevering in their endeavours to render the intra-pelvic treatment of the stump easy and safe.

In order to prevent this paper extending to an inordinate length, I will limit myself to extracts from our own excellent Journal, a paper in the *Lancet* by Mr. Milton, of Cairo, the discussion on Mr. Meredith's paper before the Medical Society, and from the *American Journal of Obstetrics;* and, as I think it would be more systematic to proceed in order of time, I will commence with a report of a case presented by Dr. Christian Fenger to the Gynæcological Society of Chicago on June 29th, 1888 (vol. iv. of this Journal, p. 399).

The case was a fibro-cystoma growing from the fundus uteri by a thick pedicle in a woman aged 35. He says:

"After temporary elastic constriction around the cervix, the tumours were enucleated, and as the uterine cavity was not opened, I united the wound of the wall of the uterus with buried step sutures, deep and superficial, and a final continuous suture along the inverted borders of the peritoneum." An abscess formed in the stump, which was evacuated ten days after the operation, nevertheless the patient died in the third week after the operation. I shall have to refer to this suppuration of the stump later on.

At a meeting of the Society on Dec. 12th, 1888 (vol. iv. p. 463), Dr. Bantock exhibited a tumour he had removed from a woman at the Samaritan Hospital. Mr. Lawson Tait had opened her abdomen in 1881, but had closed it again, deeming the case malignant. When Dr. Bantock operated there was albuminuria, the broad ligaments were reflected over the tumour, and the blood vessels were very large. "After the removal of the mass . . . an enormous surface was left exposed; but it rapidly contracted after the removal of the tumour . . . After tying many bleeding points . . . he stitched the anterior half of the peritoneum to the posterior, and completely obliterated the raw surface. The patient died in six days. At the *post-mortem* examination the *peritoneal cavity was found perfectly healthy*. There was no trace of the line of suture of the two layers of peritoneum, which was absolutely healed. When he made a small incision through the peritoneum, which would represent the top of the closed sac, about an ounce of reddish clear inodorous fluid escaped, not the red turbid serum characteristic of septicæmia, but perfectly bland, non-irritating fluid, free from decomposition." The kidney disease was probably the chief factor in causing death. In this case also we see there was a tendency to suppuration of the stump, as doubtless, if she lived, the serous acccumulation observed at the necropsy would have passed on into suppuration.

At the same meeting Dr. Fancourt Barnes showed a tumour weighing 4lbs., removed from a woman aged 30. It was sub-peritoneal, with a thick pedicle composed of uterine tissue. "This he transfixed and tied and returned into the

abdomen ; the patient had recovered without a bad symptom. He thought it better to tie and return the pedicle, when possible, than to treat it with the clamp."

I shall doubtless be met with the objection that in this case, and also that of Dr. Fenger, the tumours were pediculated to the fundus, and that they were not cases of hysterectomy, but I quote them because in both cases the pedicle was of uterine contractile tissue, and yet there was no hæmorrhage from the stump. That of Dr. Bantock was a case of true sub-peritoneal hysterectomy, though that successful hysterectomist usually repudiates such a procedure.

At the meeting of the Society on Jan. 23rd, 1889, Dr. Bantock brought before the Society a case of fibroid of the uterus, which had been confided to him by Dr. Vincent Jackson, of Wolverhampton. The patient was 34 years of age, and the tumour had existed for five years. There was great difficulty experienced in raising the tumour out of the abdomen, and it was found to spring from the left aspect of the fundus. " The short fleshy pedicle was transfixed with a needle carrying a double ligature, and each half was slowly tightened, the whole being encircled by another ligature ; the stump was pared on each side obliquely towards the centre. The edges were then approximated, and the peritoneal covering on each side was stitched together with cat-gut sutures . . . The weight of the tumour was 2¼ lbs. The result of the operation was not given. The hæmorrhage was the only thing to be feared, and that might be avoided by proper attention to the application of the ligature, and by not leaving a great piece of stump to slough away inside the peritoneum." The reference here made as to probable sloughing inside the peritoneum seems a little inaccurate, as if the peritoneum was sufficiently secured over the stump the sloughing would take place sub-peritoneally.

In the discussion that followed Dr. Bantock said : " Some pedicles would be insecure and dangerous, no matter however carefully they were tied." . . . He had tried both plans, and it was his want of success with the ligature that had led him to have recourse almost invariably to the extra-peritoneal treatment. . . . He had applied the double ligature,

transfixing it in addition to a circular ligature, and even stitched the peritoneal edges together ; yet before the operation had been completed, oozing had often begun. " He insisted on the fact that patients did not usually die from the hæmorrhage, as such, but from septicæmia, due to the decomposition of the ooze. That was why the using a drainage tube was advised. It must be that they feared the oozing from the stump of the pedicle, for there was nowhere else it could come from. He would be very glad if a method could be devised to overcome the difficulties and drawbacks, as the recovery took much less time. Hitherto, however, he had heard of no such method which would give them such assurance against hæmorrhage as they could obtain from the extra-abdominal method." In answer to these remarks I contend that if the peritoneum can be got to heal over the stump, any oozing must take place beneath the peritoneum. It is a healthful sign when we see such a successful operator by the extra-abdominal method longing for a safe way of treating the stump intra-abdominally. Mr. Lawson Tait at the same discussion said that " he regretted nothing so much as having been induced to try the intra-peritoneal treatment of the pedicle."

At p. 269 of vol. v. of our Journal, there is a note by Dr. Rakuza, of Odessa, taken from the Transactions of the Third General Meeting of Russian Medical Men at St. Petersburg, 1889, on supra-vaginal amputation of the uterus. In five cases an intra-peritoneal operation was performed with three recoveries and two deaths from peritonitis.

Dr. Rakuza's general deductions are these :—

(1) The extra-peritoneal method gives by far better results than the intra-peritoneal.

(2) Even under strictest antiseptic precautions, the intra-peritoneal amputation is always associated with the danger of a secondary infection (through the cervical canal).

(3) The operation is justified only in cases of pedunculated fibroids, and in such ones when the stump is very short.

Here, again, is, I think, an error in expecting septic mischief through the cervical canal, for if the operation be properly performed the cervical canal is shut off from the

peritoneal cavity, and becomes securely sealed in about forty-eight hours.

At the meeting of our Society held February 26th, 1890, Mr. Reeves brought forward a case (see vol. vi. of our Journal, p. 72) of a patient aged 28, who had a tumour extending to $2\frac{1}{2}$ inches above the umbilicus. "In that case, after tying the broad ligament, he tied each uterine artery separately and treated the stump after the intra-peritoneal method. This case was one of a small series that had perfectly recovered." "He took the precaution to destroy the cervical canal by means of Paquelin's cautery, and he left in a drainage tube for a day or two."

(Mr. Reeves does not say how he treated the stump nor why he inserted a drainage tube. If the stump were covered over with flaps of peritoneum there would be no need of a drainage tube. He also omits to say anything of the progress of the case, whether there was any rise of temperature, &c.).

"He particularly commended the practice which he suggested, of tying the uterine arteries separately, which had for effect to prevent hæmorrhage. He thought that they would soon be able to show that the removal of the uterus in properly chosen cases would have as little mortality as ovariotomy with the intra-peritoneal treatment of the pedicle."

In the discussion that followed I asked for more information as to the treatment adopted by Mr. Reeves in respect to the cervical stump. Did he sew the peritoneum over it? Did he take no other precaution against hæmorrhage than the ligature of the uterine arteries?

Dr. Bantock said "that the very first case in which he removed a fibroid tumour from the uterus he had secured both arteries, and then put another ligature around the body of the uterus, dividing the uterus into a sort of double flap. He stitched those two flaps together, and in spite of that there was oozing from the stump enough to cause the patient's death, though the amount did not exceed an ounce. . . . That case had led him to rely exclusively upon the extra-peritoneal method." I cannot help thinking that in this case Dr. Bantock failed to secure the peritoneal flaps over the

stump—if he had used Lembert's suture the result might have been different.

Dr. Bantock went on to say that "the uterine arteries were not the only vessels supplying the body of the uterus, for there were twigs supplying the cervix, which furnished quite enough blood to carry off the patient, unless proper precautions had been taken. He thought that in spite of all that had been said to push forward the intra-peritoneal method . . . the extra-peritoneal method would be ultimately found most saving of life."

Since this paper was written Mr. Reeves has published an article on "Hysterectomy" in the *Medical Press* of November 25 and December 9, in which he says:—"The great danger to be overcome is the old one of bleeding. Various plans have been devised to prevent secondary hæmorrhage, one of the most successful of which, in some hands, has been the use of the elastic ligature round the cervix, which is dropped back into the pelvis. Some years ago I drew professional attention to a more surgical method of dealing with the pedicle, by first tying the uterine arteries on either side of the cervix." He then narrates one or two cases, especially one, the specimen from which he exhibited at this Society. He ligatured the appendages in the usual way, then, securing the broad ligaments by long pressure forceps he divided them down to the level of the inner os, and secured the uterine arteries by ligatures passed by an aneurism needle close to the cervix. He advocates the passing of the needle through the vaginal roof—a proceeding that I consider inadvisable, as such a puncture opens a channel for sepsis and is fraught with some risk to the ureters. In conclusion, he says: "To have finished with the operation when the abdomen is closed, to do away with a mortifying stump and the attendant dangers of its breaking away and falling back, to be rid of peritonitis, septicæmia, and secondary hæmorrhage, must be great gains, and the rapidly increasing experience of Continental operators in the method I advocate tells more than I can say or write in its favour. A Dutch operator at Leyden has had forty-four cases with four or five deaths. Dr.

Chrotak, of Vienna, has had ten, chiefly by this method, all successful . . . and several other operators have adopted it with most encouraging results. It only remains for British operators to do likewise and to have similar results."

At a meeting of the Gynæcological Society of Chicago, held January 17th, 1890, and reported in the *British Gynæcological Journal* (vol. vi., p. 242), Dr. Henry Byford referred to a case of vaginal fixation of the stump in abdominal hysterectomy. He showed a pair of forceps for use in this method whereby the stump of the cervix brought through the anterior *cul-de-sac* is clamped and held in the vagina. In the case Dr. Byford referred to, he left the elastic ligature on. In a few days the temperature arose to 102° F., when he introduced a Sims speculum and cut off the stump. The patient did well. In another case the cervix, similarly treated, on being released turned up again into the connective tissue behind the bladder, and took up a normal condition, though entirely extra-peritoneal. This patient also recovered.

At another meeting of the same Society, held April 18th, 1890, Dr. Henry Byford exhibited a small fibroid, the stump of which he had treated in the same way. He said: "This makes six cases on which I have operated in this way, all recovering. It is a method, I think, that has not been tried by anyone else. The operation is simply this: the broad ligaments are tied off, the uterus amputated below the tumour, and the stump is sewed up somewhat after Schrœder's method, but with cat-gut and silk-worm stitches. The bladder is separated, an opening made down into the vagina in the anterior fornix just against the cervix. The silk-worm gut sutures, left long, are used for traction, and the cervix is drawn down and forward into the vagina, and a clamp put on from the vagina . . . The clamp prevents the contact of the slough with the patient's parts, and avoids septic trouble. After I turn the stump down, I sew the peritoneum from behind the bladder to the posterior wall of the cervix. There is no raw surface left for extensive adhesive inflammation in the pelvis, with its consequent peritonitis, and obstruction of the bowels."

In the discussion which followed Dr. Martin said: "The only objection that I can offer to the operation performed by Dr. Byford is that for a nervous, rapid operator, the procedure is altogether too long. Dr. Byford spends from two and a-half to three hours in performing this operation, and while the abdominal cavity is perfect after the stump is secured . . . at the same time it is very tedious and a great many operators, even good ones, would object to doing it on that account. It seems to me that this method of treating the pedicle is an advantage over the fixation of the stump in the abdominal wall by means of clamps, inasmuch as it does not interfere in the slightest with the bladder, and it does not leave an ugly, depressed cicatrix."

At a meeting of the American Gynæcological Society held in September, 1889 (reported in vol. vi. of our Journal, p. 521), Dr. Henry Byford read a paper on "A New Method of treating the Stump in Abdominal Hysterectomy." He says: "An ideal method of treating the stump in all cases of abdominal hysterectomy has not yet been discovered, and probably never can be. Each case will require the employment of a method adapted to the character and relations of the tumour.

"Meinert first suggested the vaginal fixation of the stump, recommending turning the stump into the vagina through an incision into the recto-vaginal *cul-de-sac*. The objections would be the difficulty of access to the *cul-de-sac*, the necessity of separating the bladder so as to prevent traction, and the obstacles that might be encountered in cutting off the end of the cervix in case sloughing should occur, and septicæmia follow. The raw surface left by the separated bladder could not be easily covered by peritoneum, and thus an extra raw surface would be left for the peritoneal cavity to manage.

"There remains one other method, a variety of vaginal fixation, which has not, I believe, either been suggested, recommended, or employed except in the case I am about to report. To avoid an unnatural ventral fixation, I turned the stump into the vagina and chose a procedure which seemed to me, and still seems, the most direct and best one for the

purpose. It consists in sewing up the short stump somewhat after Schrœder's manner, separating the bladder from the uterus, opening the anterior fornix near the cervix, turning the stump forward into the vagina and fixing it there by a pedicle-pin, introduced from the vaginal side, and a small gauze tampon placed in front and over it. By separating a flap of peritoneum from the posterior surface of the stump, before trimming it and introducing the stitches, and introducing them under it, this flap may be united to the vesical peritoneum, and the peritoneal cavity be protected from the stump. In case a rapid operation is desirable, the pedicle may be included in a clamp or rubber ligature, and turned forward into the vagina without suturing. When sloughing commences, the clamp or ligature and sloughing tissue can, if necessary, be cut off by the aid of a Sims speculum."

He then narrated a case in which he left the rubber ligature on the cervix, and though the abdominal drainage tube formed a communication with the vaginal opening, the patient got well.

Dr. Henry Byford brought forward yet another similar case before the Gynæcological Society of Chicago, on Feb. 20th, 1891, reported in our journal for August of last year, p. 228.

In the discussion which followed, Dr. Watkins said : "I am very much pleased with Dr. Byford's treatment of the stump. I do not see any reason for treating the stump by abdominal fixation, when we have this method, which is so much better. Vaginal fixation causes little, if any tension, diminishes the risk of infection, and also leaves much less raw surface to heal."

Dr. Byford, in closing the discussion said : "In regard to the safety of the operation, I would state that I have done it fourteen times with one death, and that was due to septic peritonitis above the incision, while the peritoneum below, in the bottom of the pelvis, was normal."

In a discussion on another paper of Dr. Byford's, before the American Gynæcological Society, September 17th, 1890, on the same subject, Dr. Skene suggested "dilatation and inversion of the cervix, which would fill the indications without wounding the vagina at all."

I think we must wait for a report of more cases done on this plan; but it seems to me that the dilatation and inversion would take up a considerable time, and be very difficult, and there would be serious risk of interfering with the ureters.

Dr. Dudley had tried inversion after dilatation, and found it exceedingly difficult. The entire removal of the stump was also difficult and dangerous.

In the American Journal of Obstetrics for April, 1890, there appeared a paper by Dr. James Goffe, of New York, on "A new method: the intra-abdominal but extra-peritoneal method of disposing of the Pedicle in supra-vaginal Hysterectomy for Fibroid Tumour, with report of four successful cases."

He says: "Dr. Martin, of Berlin, has enunciated the broad principle, which I think we all recognise, that the only way to finish any abdominal operation is to restore the parts to their proper relations in the pelvis. The disastrous consequences from hæmorrhage and sepsis that attended the intra-abdominal treatment of the pedicle led to the method of fixing the stump in the abdominal wound. Thus far this extra-peritoneal method has given the best results. It is not free from danger, however, the best operators losing from ten to fifteen per cent. Moreover, the objections to it, even in cases that recover, are many. The convalescence is prolonged and tedious. The sloughing stump makes a disagreeable, nasty wound, and after recovery results in an unsightly scar. The constant dragging upon the abdominal wall is also an undesirable *sequela*. Moreover, as Dr. Wylie has pointed out, the presence of this stump in the abdominal wound favours the production of hernia. The broad ligaments, too, are put upon the stretch to an unnatural degree, and the bladder is compressed and restrained from its proper functions. There is no question about it—the intra-abdominal method is the ideal treatment. The only condition is can you make it safe—safe from hæmorrhage at the time of the operation, safe from the subsequent hæmorrhage, and safe from sepsis due to suppuration of the stump?"

He then narrates four cases:—

Case I., aged 40, married, never pregnant, ill three years.

Case II., aged 41, married, 3 children, ill seven years.
Case III., aged 29, single, ill two years.
Case IV., aged 35, married, never pregnant.

His method of operating was shortly as follows. In the *first case*, the bladder was dissected off the face of the tumour, over which it was spread, to a height of about six inches, an elastic ligature was thrown around the entire mass, and the tumour cut away. The pedicle was transfixed and tied within the flap, below the elastic ligature; the stump was then trimmed down, and the raw surface of the separated bladder stitched over to the posterior flap of the stump. The patient did well till the fourth day, when the temperature rose, and the next day to 102° F. The os uteri was then dilated, pus was evacuated, and after frequent irrigations the patient got quite well, and went out in a month from the date of the operation. The ligature came away in three to four months.

From this case Dr. Goffe argued that if all the raw stump could be covered with peritoneum, there would be no fear of the escape of any pus into its cavity.

In Case II., therefore, anterior and posterior flaps were stripped off the uterus, the stump transfixed and tied inside the flaps and the whole stitched over with catgut. In this case also no abnormal symptoms occurred till the fourth day, when the temperature rose to 101° F. The os uteri was then dilated, drained and irrigated, the ligature and slough coming away on the ninth day. She was well in a month.

In Case III. there was some hæmorrhage from an assistant making too strong traction, so that the uterine end of the broad ligament slipped out of the ligature; this was, however, secured. In this case, too, the rise of temperature took place on the fourth day, and was treated in the same way as the others, the ligature and slough coming away on the seventeenth day, and the patient was up in a month.

In Case IV., through an error in diagnosis, an exploratory incision was closed, but the major operation took place three weeks later. In this case, owing to the shortness of the broad ligaments, clamps were placed on them, incisions were made down to their tips, and the peritoneum divided and stripped

from the uterus, back and front. The pedicle was transfixed and tied, and then a continuous suture of cat-gut was applied from the outer end of one broad ligament and over the stump of the cervix to the outer end of the opposite broad ligament, "so that all there was to be seen in the bottom of the pelvis was smooth peritoneum, with this continuous line of cat-gut suture running across from side to side." Temperature rose on the fifth day, the cervix was treated as already described, and the ligature and slough came away on the fourteenth day. The patient left the hospital in five weeks.

Dr. Goffe further adds: "In regard to the operation itself, while each of the different features has been used by different operators, I know of no one having combined them all into a systematic method till I did so myself. . . . The advantages are that it has all the elements of safety that any of the operations in use have, and, I believe, more; moreover, it leaves no ligature in the pelvis to give trouble, and above all, it restores the organs to their proper relations in the pelvis."

I think those who desire to see the operation of hysterectomy improved on a more scientific basis, will agree with me that the operation as devised by Dr. Goffe is a step in the right direction, and that eventually we shall be able to control the hæmorrhage, not merely at the time of the operation, but also to lessen the chance of subsequent oozing.

We now come to the important address on the present position of abdominal surgery by Mr. Meredith, and the discussion on the same before the Medical Society of London on April 14th and 21st, 1890.

Speaking of ovariotomy and its former high mortality, he said, "The use of the *clamp* was undoubtedly the most direct factor in the causation of this mortality. . . . The dangers attending the use of the clamp chiefly arose from the ready channel thereby afforded for the entrance and spread of septic material in the peritoneal cavity; while the further risks of hæmorrhage on its removal, and the subsequent prolonged and tedious convalescence, would now appear to have constituted amply sufficient reasons for its condemnation long before the year 1878, when it was finally abandoned in favour of the intra-peritoneal ligature."

Coming to the subject of *uterine tumours*, he said : "Until ten years ago the results obtained in this branch of abdominal surgery were eminently unsatisfactory ; treatment of the uterine stump, whether by intra-peritoneal ligature, or by extra peritoneal compression with the old-fashioned ovariotomy clamp, being followed by a terrible mortality, due either to hæmorrhage or to septic poisoning."

He then goes on to describe the operation as at present more generally performed with abdominal fixation of the stump, directing the careful securing of the ovarian arteries (meaning to include, I suppose, the uterine arteries, which are far more important, though he does not mention them), but which, if efficiently done, so far prevents the probability of hæmorrhage as to make possible the securing of the uterine stump intra-abdominally.

After this he goes on to say, "the treatment of *pedunculated* uterine outgrowths by intra-peritoneal ligature (myotomy), and subsequent sealing of the stump, by uniting the edges of the peritoneal investment by sutures is a very successful procedure in properly selected instances, and its further consideration need not here detain us."

Since the sealing of the stump in these pedunculated cases is performed on the contractile tissue of the uterus, and has proved a success, surely we may hope that it can be successfully carried out with sections of the same tissue lower down.

In the discussion which followed, Mr. Treves, speaking of hysterectomy in cases of uterine fibroids, said, "The blood-vessels going to the mass were easy to find and to ligature ; they were mainly the ovarian, the uterine and the ovarian branch of the vaginal arteries. Having secured these, the ligaments on each side were divided, and a V-shaped section of the cervix was made, leaving a kind of flap on each side. When the tumour was removed in this manner, a large gash was made in the peritoneum, and after this was stitched up there remained a closed seam running across the pelvis. He contrasted an operation such as this, based on ordinary surgical principles, with the use of the *serre-nœud*, which might

be described as a barbarous instrument, to be compared only with the clamp in ovariotomy, and like it to be ultimately abandoned. The results he had so far obtained by the above method were admirable."

Mr. Skene Keith said "he agreed with Mr. Treves' remarks about hysterectomy; if that operation were to stand, the stump must be left inside; but he held that in tumours with a very thick solid stump the *serre-nœud* must be used."

With regard to this remark of Mr. Skene Keith, I will only say that even in very large fibrous tumours of the uterus the cervix proper is often not invaded, and it is remarkable how small a stump can be obtained even in these cases, and if it should happen that the fibroid invades and spreads out the cervix it is possible by enucleation so to reduce it as to obtain a comparatively small stump.

Mr. Lawson Tait, in the course of a severe criticism of Mr. Treves' remarks, said "His (Mr. Treves') method was not new. We had had all this over and over again any time these fifteen years. It was the 'stage' method of Schrœder, and even in his hands had a mortality of 30 per cent., and all of us had tried it with most disastrous results. A uterine stump from which a myoma had been removed was unlike anything else in the human body known to him. It was as hard as cartilage, and as brittle as cheese, so that a ligature would cut through it, or it was so completely infiltrated with serum that a tightened ligature would be quite loose in a few hours, and the vessels would bleed even at the end of forty-eight hours."

Venturing to differ from so great an authority as Mr. Lawson Tait, I must maintain that such stumps, so hard and so brittle, are not those usually met with, but the cervix uteri is remarkably tough; and with regard to the recurrence of bleeding, if all the vessels going to supply the uterine tumour are previously quite securely closed, there will be no bleeding, and should any arise it will be underneath a closed peritoneum, and any subsequent suppuration can be evacuated after the method of Dr. Goffe and myself, as will be related presently.

Mr. Lawson Tait himself proceeded to say, "We all know perfectly well, that if we could secure the vessels in our

stumps effectually, and then drop the stump back in the abdomen, we should have at once, in all probability, a 5 or 6 per cent. mortality for these dreadful operations."

I am glad to see that Mr. Lawson Tait seems to regard the closure of the blood-vessels the crux of the operation, and the only difficulty that bars the way for the intra-abdominal treatment of the stump, so that we may still live in hope of seeing this satisfactorily accomplished, and an hysterectomy which leaves the parts without any strain upon them established as a possible fact.

Mr. Greig-Smith (Bristol) said: "There was no doubt that in hysterectomy for fibroids, the intra-peritoneal method of treatment of the stump was the operation of election; but undoubtedly the worst cases—those most completely justifying removal—could not be treated in this way. No doubt we all aimed at devascularisation of the pedicle; and if we could get the cervix completely free of true muscular tissue, well free of ureters and bladder, and if the severed uterine canal could be covered with peritoneum, then we might safely treat the stump intra-peritoneally. One factor in the intra-peritoneal treatment he would regard as almost essential to its adoption, and that was the freedom of the stump from uterine fibre."

I would here point out that there is a far larger proportion of connective tissue in the cervix than in the body of the uterus, so if we are able to secure the stump of pedunculated fibroids growing from the body of the uterus, we ought more easily to be able to secure the cervical stump.

Dr. Elder (Nottingham), said: "Passing on to the treatment of the stump in hysterectomy, he was quite at one with Mr. Treves in regarding the clamp as the relic of a barbarous age, and thought the day was not far distant when it would be relegated to the limbo of antiquity, and its use superseded by an intra-peritoneal method more in accordance with the advanced surgery of to-day."

Dr. O'Callaghan (Carlow), said: "As to hysterectomy, it was utterly impossible to treat cases in the way which Mr. Treves had described." I trust Dr. O'Callaghan, in view of

the cases brought forward in this paper, will see a reason to alter his view of the impossible.

In the *Lancet* of November 29th, 1890, there appeared a paper on "Supra-vaginal (abdominal) Hysterectomy with the Scissors: a contribution to the Discussion on the treatment of the Uterine Stump," by H. N. M. Milton, of the Cairo Hospital. He says: "The almost universal condemnation (as reported in the medical papers) of the method advocated by Mr. Treves during a recent debate on abdominal surgery lends a certain interest to the record of the following three cases, in which a similar method was pursued." The points to be aimed at, he said, were, "To prevent hæmorrhage during operation and cicatrisation, and to place the wound in the best condition for rapid healing. For the prevention of hæmorrhage, two methods presented themselves: (1) ligature of the pedicle *en masse;* (2) ligature of the vessels separately. The simple ligature of the pedicle is evidently unreliable . . . while the *serre-nœud*, if a necessity, is but a necessary evil. On the other hand the arteries of the normal uterus are most easy to find and ligature. All the ovarian arteries and veins are easily included in the ligature of the broad ligaments. The uterine arteries and veins, passing up as they do along either side of the cervix uteri . . . can be grasped, after reflection of the peritoneum under which they lie, with ordinary artery forceps. The blood supply of a uterus increased to many times its original size must, of course, be modified."

He then proceeds to describe the operation. He shows that the blood supply can be efficiently controlled, even when the vessels are large, by ligaturing them separately; he then describes the preparation of the uterine stump: "By making a semi-lunar incision in the peritoneum, commencing laterally at the level of the os internum and passing across the front of the uterus an inch or so above the utero-vesical fold, to the corresponding point on the other side, and by separating the included peritoneum from the uterus . . . a peritoneal flap may be turned down for some two inches, carrying with it into safety the bladder. A similar posterior flap may then

be turned down, the incision being on a slightly lower level than the anterior one; and by separating the peritoneum from the sides of the cervix uteri at the points of union of the incisions, all fear of injuring the ureters may be avoided. The practicability of the above methods was evidenced by the three cases in which it has been employed, all of them having been successful. In all three cases the only instruments used after the abdominal incision was completed were scissors, forceps, and needles."

CASE I.—A negress, aged 28, severe hæmorrhage; sound passed 5½ inches. The broad ligaments were tied in two sections outside the ovaries. The flaps were formed as described above. "The tissues on either side of the cervix, containing the uterine arteries and veins, were then seized in two places with artery forceps outside the reflected peritoneum and snipped through. The uterus was then slowly snipped across just below the point where the cervix expanded into the enlarged body." There was scarcely any loss of blood. "A wedge-shaped fragment was snipped along the centre of the cervix, and the two lips thus formed roughly united with a couple of cat-gut stitches. All vessels held in the artery forceps were then tied with medium-sized cat-gut, and the peritoneal flaps united with a continuous cat-gut suture over the stump, the line of union extending from the point of ligature of one broad ligament to that of the other. . . . The aspect of the peritoneum was strikingly perfect; all one saw was a dry glistening surface, with a narrow line of union passing across the pelvis. No drainage tube was used. Stitches removed on the sixth day. On the tenth day she was up. The tumour, after draining, weighed 7 lbs."

CASE II.—A negress, aged 30. Profuse hæmorrhage, with great pain. Operation similar to Case I. Patient well in six days.

CASE III.—An Egyptian, aged 32. Extreme anæmia from severe hæmorrhage. Similar operation. Patient up on the twelfth day.

In his remarks at the end of the paper, Mr. Milton says: "It seems to me that whenever a uterus can be sufficiently

isolated to allow of a *serre-nœud* being tightened round its cervix, it will be equally possible to pick up the uterine vessels and to raise peritoneal flaps . . . . The extreme facility of the operation when performed on a comparatively small tumour is an argument for an early operation, and when one considers the perfect condition in which the peritoneum is left, it may be anticipated that the operation in the hands of skilled operators will be but little more dangerous than an exploratory abdominal section."

In the *Lancet* of September 26th last year, Mr. Milton writes that he has had another operation, also successful, making four cases with four recoveries. On March 8th of this year he operated similarly on a pregnant uterus at term. The patient was a fellah woman, primipara, aged 23. She had been in labour 100 hours, and was completely collapsed; the pelvis was greatly deformed, membranes ruptured three days previously, head jammed in the pelvis. She revived for a few hours after the operation, but died at seven next morning.

In the May number of our Journal in the Summary of Gynæcology, is a paper (p. 99), by Dr. Widenham Maunsell, of New Zealand, wherein he advocates both for fibromata and Porro's operation the fixing of the stump extra-abdominally, but instead of sewing the peritoneal flaps over the end of the stump, he spreads them over the outside of the abdomen, lightly stitching the edges to the skin; thus the decomposing stump is inside a sort of peritoneal saucer, and is quite cut off from any chance of infecting the peritoneal cavity.

Dr. Maunsell, in a paper read before the Otago Branch of the New Zealand Medical Association in 1887, described an intra-peritoneal (*i.e.*, sub-peritoneal) method of treating the stump, which consists in sewing the peritoneal flaps over the cervical stump; but he also vivifies the cervical canal so as to produce a complete closure of the canal, with the view of preventing any septic absorption—a method which I venture to think inadvisable, as closing the natural exit to any sub-peritoneal suppuration.

The last quotation I shall make will be from a paper by Mr. John McArdle, of St. Vincent's Hospital, Dublin, in the *Medical Press* of July 15th of last year, entitled "The Treatment of the Pedicle after Myomectomy and Hysterectomy." He details the case of a woman aged 42, with a tumour weighing 22lbs., whom he operated upon October 20th, 1889, in the usual way with abdominal fixation of the stump. On the tenth day she became suddenly very ill from the necrosed stump having got drawn into the lower angle of the wound, and from which there was rather free hæmorrhage. She died the same day. Commenting on this case, he says:—"Tendency to sepsis, weakening of the abdominal wall, interference with the bladder and rectum, and the danger of cough or straining causing yielding of the attachments of the stump, as in my case—all have had due weight in causing me to discard the extra-peritoneal method, just as most of us have long since bidden an eternal adieu to the clamp and cautery for ovarian pedicles. There can be no doubt but that the intra-peritoneal is the ideal method, but though I have succeeded with it I am forced to admit that if there be any truth in statistics, the relation of recoveries to deaths is very much in favour of the unscientific procedure. . . . Now, there must be some way of accounting for this. Wherein lies the greater safety of the crude operation? Can anything be done to lessen the mortality in the ideal? Where is the little deficiency which has so lamentable a result?

"I have studied the cause of death in the fatal cases which followed the intra-peritoneal operation, and I find that sepsis, sloughing of pedicle, hæmorrhage, uræmia, secondary abscess and exhaustion, are the most frequent, and in the order named.

"One thing is becoming clearer every day, and that is, the necessity of avoiding solutions of antiseptics which in any way interfere with the action of the peritoneum. Another point equally clear is the advisability of dealing with the stump in such a way as to avoid either necrosis or acute inflammation, if it is to be dropped into the abdomen."

He then refers to the too forcible temporary compres-

sion of blood-vessels, the damage to the uterine tissue by the application of the cautery or astringents, and says: "As far as I know, the greatest success achieved by the intra-peritoneal method is where it was possible to cover the stump thoroughly with peritoneum."

He sums up as follows:—

"(1) That notwithstanding the apparently high death-rate after the intra-peritoneal method, it will, with improvement in technique, rapidly follow the similar operation for ovarian pedicle to its proper position in surgery.

"(2) That anything—cautery, astringents, &c.—which will lower the vitality of the stump to be dropped into the abdomen, must be avoided.

"(3) That where the peritoneum of the stump is insufficient, the neighbouring omentum should be pressed into the service as in enterectomy.

"(4) That undue pressure during provisional occlusion of the vessels must not occur.

"(5) And that solutions which tend to produce any change in the peritoneum should be avoided as flushing material."

While I am writing this paper there appears in the number of the *Medical Press* for September 30th, p. 338, in the report from the correspondent at Vienna (which, by the way, is very badly reported), the following passage:—

"Eyon v. Braun Fernwald gave the history of a case where the woman bore her last child thirty years ago. She was suddenly attacked with pain, and observed for the first time a swelling in the lower part of the body, and soon after bleeding commenced." Professor Rokitansky treated the fibroma with Apostoli's method, and, he imagined, successfully. Fernwald found a tumour the size of a man's head, the os uteri admitting three fingers, through which was felt a large fœtid discharging mass. The reporter goes on to say, "Laparotomy was performed by cutting in the linea alba." Now, could anything be more absurd, or savouring of ignorance than such a sentence? As if he would say, "a flank incision was made in the central line," "opening the peritoneal

cavity, &c., and removing it [I suppose he means the uterus] in its entirety." Yet he goes on to say, "On reaching the tumour, it was found to be immovable, broken up with perforations that were discharging profusely. The ovarian tubes on both sides were ligatured and cut, the whole removed except the stump, which was finally sewn to the peritoneum, and the abdomen closed. All healed within three weeks without any untoward symptom."

We have here the history of another case by another operator, when the stump was healed sub-peritoneally, and the case did well.

Dr. Sinclair, in a letter to the *British Medical Journal* of November 14th, 1891, on Apostoli's treatment of uterine fibroids, ends thus: "Still there is a residuum of cases which not only justify but demand hysterectomy when all other measures have failed, and I confess that this residuum has a tendency to expand as one's experience of the improved operation of myomectomy increases. This operation consists in abdominal section, drawing out the uterus with its tumour, amputating so as to obtain flaps which will come together without tension, carefully finishing the stump like a plastic operation, by bringing the anterior and posterior serous coverings together, dropping the stump into the pelvis, flushing and draining. . . . So far all my cases of myoma operated on in this way—ten or a dozen—have recovered as after ovariotomy, and indeed there are no dangers inherent in the proceedings which are not involved in an ovariotomy of moderate difficulty." I disagree with Dr. Sinclair as to the necessity of draining if all bleeding points are secured.

I will now proceed to relate as briefly as possible my own experience.

CASE I.—S. T. W., aged 55, married nineteen years, never pregnant, admitted into Warrington Lodge, August 28th, 1890. Felt tumour in left vaginal region two years ago; has grown more rapidly lately; almost constant pain. First flooding one year ago. *Abdomen.*—Hard tumour up to umbilicus. *Vaginal Examination.* — Cervix low, widely spread over an intra-uterine fibroid. Uterine sound passes

up on left, then forwards to right, then backwards 8½ inches. On passing finger through os tumour can be felt. The cervix was divided slightly bilaterally, tumour felt, adhesions not very strong to uterine cavity. Four days afterwards tumour was found pressing more downwards.

The next day cœlio-hysterectomy was performed. Abdominal walls thin; incision from pubes to one inch above umbilicus; tumour drawn out of abdomen; elastic ligature placed round its base; uterine wall cut round about one-third up, and tumour shelled out of its bed in the cervix. Profuse hæmorrhage owing to the slipping of the vessels from under the elastic ligature; two of them were of about ¼in. in diameter—these were tied separately. The elastic ligature was tightened, the stump was then trimmed down and mopped with hot carbolized oil. The peritoneum was then sewn tightly over the stump with an uninterrupted suture of china twist with Lembert's stitches. On the elastic ligature being relaxed the stump did not bleed, except one small spot, which was ligatured. A large vessel then bled in the left broad ligament, which was tied. As there was still some oozing, a large sponge wrung out with tincture of matico was packed into the pelvis. Fourteen sutures of silkworm-gut were passed through the abdominal walls with Reverdun's needle and three superficial. The sponge was removed and the wound dressed with dry dressing. The operation lasted eighty minutes. The tumour weighed 6 lbs. 13 oz. It was exhibited to the Society at the meeting on January 22nd in this year. The uterine tissue had shrunk exposing half the tumour, and the uterus seemed to be lying on the upper part of the tumour and outside the portion of uterine tissue that contained the tumour. In spite of the tumour having been felt through the os uteri before the operation, it was the opinion of the Fellows of the Society that there were not two uterine cavities.

The patient did very well till the second day, when the temperature rose. The stitches were removed on the seventh day. Abdominal wound healed. On the 18th September—sixteen days after the operation—as the temperature indicated the formation of pus, I passed the sound very carefully

through the os uteri to the extent of 2¼ inches, and evacuated a quantity of thick offensive pus. (I had not at that time seen Dr. Goffe's paper quoted above, where he had followed the same line of treatment.) This had to be repeated from time to time, and the cervical canal syringed with carbolic lotion. She ultimately got quite well, and was discharged October 8th—thirty-six days after the operation.

CASE II.—J. H., aged 35; married ten years; had no children; thinks she had two abortions. Was admitted into Warrington Lodge, February 24th, 1891. Catamenia free, lasting seven days. Has been ailing seven years. Several medical men had seen her, two of whom thought her pregnant. She had felt a lump in the abdomen for about 2½ years. Periods had become less free and frequent. On coughing has pain in the hypogastrium. Walks fairly well. *Discharge* yellow and offensive.

Abdomen.—Tumour rather soft, as of indistinct fluid; soft fibroid or fibroid-cyst. *Vaginal Examination.*—Os uteri and cervix small. Rather high up in left posterior aspect of the pelvis and also in front of the cervix, is a large wide tumour, not so hard as an ordinary fibroid. Pressure on abdomen moves tumour and uterus. Uterine sound, upwards, forwards, and to right 6½ inches.

Operation.—Cœlio-hysterectomy on February 27th. Dr. Dudley Buxton administered the anæsthetic. Dr. Haslam assisted, and there were present besides, Dr. Macnaughton Jones, Mr. Bowreman Jessett, Mrs. Scharlieb, M.D., and two students and Dr. Marshall.

Incision umbilicus to pubes--main tumour lifted out when another was found deep in the pelvis on the right, continuous with the other. This, too, was brought out of the wound. The broad ligaments which were short were then clamped on each side with long bladed forceps and divided, and elastic rubber tube was passed round the base and the tumour cut away. Owing to the combined base of both tumours being very broad there was a large cut surface left without much depth, and as this rapidly contracted there was profuse hæmorrhage; the stump was then seized with forceps and the uterine arteries

ligatured with chromicised catgut. When some more of the cervix (fibrous tissue) was cut away there ensued further hæmorrhage, which was controlled with ligatures. I wish here to bear testimony to the able management by Dr. Dudley Buxton of the patient during anæsthesia, to which I attribute in no small degree the success of the operation.

Sponges filled with tincture of matico were packed into the pelvis and the whole length of raw surface laced with an uninterrupted chromicised catgut suture, the uterine stump being sewn with Lembert's stitches. All hæmorrhage ceased; the pelvis was sponged out, and the wound closed with fourteen silk-worm sutures. Owing to the hindrance from the hæmorrhage the operation lasted two hours seven minutes. The tumour weighed 3½lbs.

On the uterus being opened a small sessile polypus, the size of two peas were found situate just below the opening of the left oviduct. The left tumour had growing from its upper left aspect several hæmorrhagic tumours; which on being incised exhibited blood-stained walls of about ¼ inch. Both ovaries were enlarged about three times, and on being incised presented vascular districts with rather large blood vessels. The temperature before operation 96.8 to 98°F. There was considerable shock from the loss of blood. After the reaction she did fairly well for a few days, but on the fifth day the temperature gradually rose till on the eighth day it reached 103.4°F. The stitches were all removed on the sixth day; wound well healed, duckbill speculum passed, cervix held with a hook and sound carefully introduced into the os uteri, it passed only ½ inch and no pus was evacuated. The roof of the pelvis on the right felt full and hard, no pain. On March 7th, *i.e.*, the 8th day, the swelling was more marked, an aspirating needle was passed into the swelling, nothing withdrawn but a few drops of blood. The next day (March 8th), Mr. Bowreman Jessett saw her with me, when, as the bulging was very decided I made a deep incision through the most prominent part in the right *cul-de-sac*, and some blood and broken down blood clot, rather offensive, were evacuated, the wound was stretched with forceps and packed with

iodoform gauze. Notwithstanding this opening the swelling increased until it rose above the right groin and the line of suture could be traced across the abdomen. The patient left the hospital fairly well, April 8th, and feeling no pain.

I will not take up the time of the Society by detailing the history of this hæmatocele. It had to be opened several times, and on one occasion some offensive pus came through the os uteri. At last I put her under ether, and partly by dilating the old opening and partly by incision made a larger hole and inserted a thick drainage tube, an enlarged Greenhalgh's rubber stem, as the bulging top would retain it in place. Through this the cavity, which contained pus and blood and had a rough interior, was syringed frequently.

This hæmatocele probably occurred owing to some small arterial twig having been omitted in the ligaturing, and although it is much to be regretted as retarding the patient's recovery, yet it is a most fortunate complication to have arisen in this stage of the investigation, as it has afforded proof that if the peritoneum is given time, say forty-eight hours, and it has been well sutured, its healing is so secure that we need have no fear of any pus or blood escaping into its cavity. The peritoneal floor of the pelvis was in this case lifted up by pressure from beneath until it could be felt above the brim of the pelvis, and yet the suturing held, and as far as the operation was concerned, was a success.

The third case was that of a woman, A. H., age 46¾, married twenty and three quarter years, and had one child, born twenty years ago. Had been under a specialist at one of the Metropolitan Hospitals for fibroid of the uterus. This doctor saw her about every six months, said he could do nothing for her, and that if she was operated upon she would probably be dead in twenty-four hours. However, the tumour grew rather rapidly, and at a consultation with Dr. Bantock, May 11th of last year, in view of this rapid growth we agreed upon an exploratory operation. She was admitted into Warrington Lodge on May 27th. A hard tumour was felt in the abdomen. *Vaginal examination.*—Os uteri rather patent and granular, uterus jammed up on the right anterior aspect

of pelvis just behind os pubis. Uterine sound.—Upwards, forwards, right, then back 4½ inches, on the left, and pressed down into the pelvis is a very hard mass not easily movable.

The operation was performed on June 2nd.

Abdominal incision from just below umbilicus to pubes; walls thin, front of tumour covered with left broad ligaments, and oviduct considerably elongated and thickened. Left ovary deep down, not felt. The broad ligament was partly separated from the tumour and the oviduct tied and divided. The tumour was found, an unusual occurrence in fibroids, to be extensively adherent to the bottom of the pelvis. It was separated from these, and it and the uterus drawn up out of the abdomen. An elastic ligature was passed round the cervix—the tumour was then peeled off the uterus to which it was intimately adherent on the left upper aspect—in doing this the uterus was considerably torn. The peritoneum was then divided above the level of the inner os and peeled down; the cervix was transfixed and tied with silk in halves inside the peritoneal flaps, and the uterus together with the right ovary and oviduct cut away. There was some bleeding from the corner of the left broad ligament which was secured with catgut, and the uterine arteries on the other side separately. The pelvic peritoneal wound was then closed with an uninterrupted suture of chromicised cat-gut, the peritoneum over the stump of the cervix, with Lembert's stitches. Some bleeding points in the pelvis from the torn adhesions were then ligatured, the light falling well into the pelvis as the patient's head was towards the window and the body tilted up. A sponge wrung out of tincture of matico was temporarily packed into the pelvis. The wound was closed with 13 silk-worm sutures, and a glass drainage tube inserted because of the torn pelvic adhesions. The operation lasted 1 hour 35 minutes. On the sixth day the stitches were removed. Pain in region of left ovary and coloured discharge on June 11th and 12th. Glass tube removed on 3rd day. Indications of suppuration supervened and pus came from the os uteri on July 6th. I passed a pair of forceps up the os uteri and brought away the silk ligature that was around the cervix, and also the chromi-

cised catgut ligature that was around the uterine artery. From that time she did well and left July 15th.

In this case the closed peritoneum over the uterine stump held and resisted the suppuration of the cervical tissue going on just below it.

I will now briefly sum up the lessons to be learnt from the cases and discussions that we have been considering.

(1) No two cases are alike—we cannot therefore lay down any hard-and-fast rule for the treatment of the stump; the fibroid invading the uterus in so many ways and situations, a certain choice must ever be left to the operator, but that we are to bear in mind that, where it is possible of application the sub-peritoneal method holds out as good a prospect of success as any other, and leaves the other pelvic organs free and unfettered by any constriction or adhesion.

(2) That Dr. Byford's method does not commend itself because of the length of time the operation takes, and it is open to the grave objection of manipulation being required both in the abdomen and vagina in the course of the same operation.

(3) That Dr. Skene's suggestion of dilating and inverting the cervical canal is very difficult practically, and has the same objection against it of associated vaginal and abdominal manipulation.

(4) The best methods, it appears to me, are those of Dr. Goffe and Mr. Milton and so far carried out in a modified way by myself.

The main points in the operation seem to be:—

(1) Make the peritoneal flaps sufficiently large, as they can be reduced, but not added to.

(2) Secure absolutely every bleeding branch of the uterine arteries, if possible, separately.

(3) Lace the whole pelvic peritoneal wound across with an uninterrupted suture of chromicised catgut, taking care that Lembert's stitches are used over the uterine stump, so that it is entirely sealed with peritoneal covering.

It is recommended that the cervical stump be divided as low down as possible, for the proportion of connective tissue

to contractile tissue is greater than in the upper part of the uterus, where the contractile tissue prevails; there will therefore be less shrinking the more the amputation is carried through the cervix proper.

I would also point out the great advantage of using tincture of matico as a styptic where there is any oozing—it is very effectual and seems to do much less harm than others.

There remain three points for discussion :—

(1) Shall we use a drainage tube? I think where there have been any adhesions and consequent oozing, a drainage tube should be used, for at all events forty-eight hours; but where, after the pelvic wound is laced across, the pelvis remains quite dry after sponging, there is no necessity for any drainage.

(2) Shall the cervical canal be destroyed by the actual cautery, or any other caustic? This is an important point and had better be discussed in connection with the question—

(3) Shall the cervix be transfixed and tied like the pedicle in ovariotomy, inside the peritoneal flaps?

I think if the blood-vessels are quite secured on each side of the cervix, so that there is no bleeding, it is better not to tie the cervical stump, as such ligature tends to set up suppuration in connection with the cervical canal, and recovery is retarded until the ligature is extruded from the os. But the question of the destruction, *i.e.*, complete occlusion, if possible, of the cervical canal, will have to be weighed. If the canal is obliterated, the chance is very much lessened of any suppuration taking place, unless the very means used for its obliteration should tend to set up suppuration; on the other hand if the canal is left patent, *i.e.*, up to its roof of superimposed peritoneum, though the canal is in connection with the vagina, and the air may tend to induce suppuration in the cut end of the stump, with its lessened vascularity, yet the canal at the same time being open, the pus can easily be evacuated, and the risk of any pus finding its way into the peritoneal cavity is reduced to a minimum. I am inclined, therefore, to recommend that the canal be left patent, cleansed, if thought advisable, by a syringe-ful of solution of perchloride

of mercury or carbolic acid, and the vagina kept as antiseptic as possible by a tampon of iodoform gauze or other means.

I here close this, I fear, too lengthy paper, and trust that it may be the means of calling attention to a method of performing the operation of hysterectomy that, when we have mastered its details, will prove more scientific than the abdominal fixation of the stump, will leave the parts with their relations unaltered, and pain from unnatural tension impossible, and that will give results, as shown in the numerous cases that have recovered among those related in this paper, that, considering the greater gravity of the operation, will compare not unfavourably with those we have arrived at in ovariotomy.