ON REMOVAL OF THE CANCEROUS UTERUS BY THE ABDOMINAL ROUTE.*

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Excision of the uterus, historically considered, is of ancient date. Soranos of Ephesus, in his book on *Diseases of Women*, published a century before Christ, mentions the operation, but there can be no doubt that it was subsequently forgotten. Coming to the present century, Langenbeck in 1813 successfully removed the whole uterus (by the abdomen) for cancer; followed by Sauter, of Constance, who in 1822 had the first successful vaginal extirpation for cancer. In the following years Blundell, Récamier, Siebold, Delpech, and others performed the operation, but with very little success, so that the operation fell into disuse until 1879, when Czerny successfully reintroduced it. Billroth, Mikulicz, Schröder, Freund, and others soon followed, and the operation now took its place amongst the established proceedings in surgery.

Freund struck out a new path for himself by removing the uterus by the abdomen. His mortality was, however, prohibitive (about 72 per cent.), and it has now been universally discarded for the vaginal operation, an operation which by improved technique and antisepsis has now been performed with a general mortality of 10 per cent., and, in the hands of especially skilled operators, such as Schröder, Sänger, and Leopold, has even been reduced to between 4 and 5 per cent.

Although the vaginal operation for the removal of the cancerous uterus is the one universally adopted at the present time, we occasionally meet with a small percentage of cases which are not to be dealt with by this method, owing either to the bulk of the uterus or to extreme narrowness of the vagina, or, as in the specimen which I am about to show you, from fixity from old peritonitis due to diseased appendages; fixity due to malignant infiltration would, of course, make any operation unjustifiable.

During the last two years five such cases have come under my care, in which, removal by the vagina being practically impossible, I removed the cancerous uterus by the abdomen. All the patients recovered; four of these cases were suffering from epithelioma of the cervix; the fifth was a case of malignant degeneration of a uterine fibroid, the uterus being the size of a three-months' pregnancy, and the vagina extremely narrow. The age of the oldest patient was 60 years, and the youngest 32.

In the last case the patient had suffered for some five or six years from frequent attacks of pelvic peritonitis, originating primarily in a severe attack of septicæmia following abortion induced by herself with a knitting needle. I found the cervix stuffed with malignant growth (epithelioma), but movable, the Fallopian tubes being felt bimanually distended (pyosalpinx), and fixed high up by adhesions.

The operation itself differs in no respect, except in minor detail, from that of total extirpation of the fibroid uterus, the broad ligaments being tied off, and the stumps, with the uterine arteries, turned into the vagina; drainage I consider absolutely necessary in these malignant cases.

I prefer to operate in the Trendelenburg position, a position which renders the operation comparatively easy, and as a ligature material have abandoned silk for very stout catgut, specially prepared with ether, sublimate, and spirit of juniper, and have designed a special broad ligament needle which I have found very useful in this operation.

With regard to the question of recurrence, two of these cases are absolutely free after twelve and nine months respectively, two died at the end of twelve months (one of deposit in the lungs, the other of local recurrence), one died at six months, apparently of growth in the lumbar glands pressing on the ureter. May we not ask, Do we go far enough in our methods of operating on these unfortunate cases? Why not open up the connective tissue of the pelvis, and thoroughly eradicate all infected glands, if any are found, with the contiguous tissue, as in cancer of the breast, where we do not confine ourselves to the removal of the infected organ, but thoroughly clear out the axilla? This could only be properly carried out through the abdomen, but, with modern improvements as to

technique and antisepsis, I believe with a mortality not much greater than by the present vaginal operation. I venture to predict that the operation of the future will be an abdominal one on these lines; an operation with perhaps a slightly higher immediate mortality than the present, greatly counterbalanced, however, by a much longer respite to the patient.

In conclusion, it may be asked, Is the removal of the cancerous uterus a justifiable operation? To which I would reply, that it is both justifiable and proper in carefully selected cases, and for the following reasons: First, the immediate mortality does not forbid it; secondly, recurrence is not more rapid than after other operations for cancer; and, lastly, death after recurrence is not attended with so much suffering, the rectum and bladder being seldom perforated.

ON SUTURE OF FRACTURED PATELLA BY AN IMPROVED METHOD.*

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THE inadequacy of the various methods of suturing the patella after recent fracture, and the subsequent risk incidental to some at least of them, led me to review at length the whole subject of the operative treatment of fracture of this bone; and to try to arrive at definite conclusions as to wherein lay the causes of failure; and to endeavour to ascertain how best to obviate it.

It appeared on an analysis of recorded cases that the causes of failure might fairly be classified under two heads: (1) The adoption of a subcutaneous method, in which no effort is made to relieve the tension in the joint due to the extravasation of blood and serum, and in which accordingly no certainty of accurate approximation of the bony surfaces can be secured; and (2) the use of unsuitable materials for suturing the fragments together, and a faulty method of performing the operation in cases where the open treatment was selected.

1. In many cases, and especially where the separation of the fragments is extensive, free hæmorrhage takes place into the knee-joint, large clots form, the torn fibrous expansion of the quadriceps and the periosteum fall like a curtain over the edge of the upper fragment, and very marked tilting of the broken parts occurs, due partly to muscular contraction and partly to the pushing forwards of the free edges of the fragments by the fluid distending the synovial spaces. Under such conditions the application of a circumferential suture will tend only to increase the tilting of the fragments, and, though it may help to approximate the posterior borders, will almost certainly cause divergence of the anterior borders of the broken patella. In other words, it will tend to increase the angle of divergence between the fractured surfaces. Another objection to the method is that, being applied while distension of the joint is still present, the suture undergoes relaxation and becomes useless when the effusion has undergone absorption. This was very marked in one case in which I employed the circumferential suture, as at the end of ten days I had to remove the silk, which was quite lax and absolutely unsupporting.

2. The methods of direct suture of the fragments by drilling, and of circular antero-posterior ligature, either with silk or silver wire, were also open to grave objection. Silver wire, while theoretically perfect, was, in the size generally adopted, apt to cut through the drill holes, or when used circularly, as in Mr. Barker's method, was open to the risk of dividing a transverse into a quadrate fracture, as has happened in the practice of more than one surgeon. Another objection was the method employed of twisting the silver wire so that a large knob was finally left which often caused irritation to the underlying tissues, and necessitated subsequent removal. While silk was free from the latter objection it presented this grave defect, that if any failure took place in the chain of asepsis, serious risk occurred of infecting the joint cavity along the track of an absorbent material. This applied to both methods, but more especially to Mr. Barker's, where the silk passed between the articular surfaces of the patella and

* Read before the Midland Branch of the British Medical Association.

* Read in the Surgical Section of the Royal Academy of Medicine in Ireland.

the femoral condyles, and remained constantly as a foreign body in the joint.

In two previous cases I employed the method of drilling the fragments obliquely through the two-thirds of their depth on either side of the median line, and then obtaining approximation by means of two silk sutures. In the first case the result was all that could be desired; but in the second case a prepatellar abscess formed at the end of ten days, and though by that time fortunately the joint was shut off from danger, infection of one of the silk sutures took place, and it was only by its removal after a considerable time that a troublesome sinus became closed. However, in that case also the ultimate result was excellent, and the man is now, two years after, earning his living as a car-driver with perfect movement in the joint.

I could not, however, shut my eyes to the grave risk to which the latter patient had been exposed, and I determined accordingly in future cases to use some suture material incapable of absorbing septic germs, and easily rendered sterile before operation. Of all the various materials silver wire seemed to offer the most advantages in this respect. It appeared also that if a single drilling of each fragment only were practised, and some means of apposition employed which afforded a broader surface, and so reduced the liability to cut through the broken bone, that an important advance in the method of direct suture would be attained.

After consideration I finally decided on a D-shaped wire, No. 16 gauge, made of the softest silver, which, being flat on one surface and very broad, would be free from the tendency to cut through the drill hole, and would be strong enough to admit of only a single suture being inserted. This wire was specially drawn for me by Messrs. Fannin, and I found experimentally that it was of sufficient

Fig. 1.—Exact size of wire used showing sectional surface.

Fig. 2.—The loop *in situ*.

strength for one suture to hold together, under considerable strain, the sawn surfaces of a patella, and also that, on account of its shape and strength, a single loop of each end, interlocked as in the accompanying photograph, was quite sufficient to secure the suture, and the ends could be readily flattened down without forming any appreciable foreign body which could irritate the surrounding tissues. An opportunity was afforded me of putting theory to the test of practice last session, and in giving a

brief account of the case, I wish to emphasise those points which seem to be of importance in carrying out the procedure.¹

G. E., aged 24, was admitted into the Meath Hospital on November 11th, 1898. On the previous day he had fallen, and at the same time had felt something give way in his knee. He suffered great pain all night; and on admission next day his knee was found to be greatly distended, extremely tense, and with a transverse fracture of the patella in the lower third, an interval of about an inch separating the upper and lower fragments. The limb was kept elevated, a posterior splint fitted to the knee, and evaporating lotions applied for three days without any effort being made to bring the fragments into apposition. On the 14th—four days after the accident—the swelling had considerably subsided, active pain had gone, and, operation being determined on, the joint was opened by a large U-shaped flap having its convexity downwards just below the ligamentum patellae, and extending laterally well away from the margins of the fractured bone. I adopted the U-shaped flap for two reasons: it gives much freer access to the broken fragments; and, should a suture abscess or other accident to the skin wound occur, the joint wound is farther removed from the seat of infection. On opening the joint, a large number of firm and partly decolorised clots were freed and washed out with sterilised water, and it was then found that the line of fracture was very low down, running obliquely from above downwards 'towards the apex of the patella, and that the lower fragment was so tilted that its articular cartilage was the part presenting to the fractured surface of the upper fragment. It was evident, therefore, that without operation only the weakest form of fibrous union could have taken place. Both bony surfaces were covered with dense fibrinous exudation and blood clot,

and a torn fringe of periosteum was firmly embedded in that attached to the upper fragment. By means of a blunt periosteal elevator, the bony surfaces were cleared. The torn periosteum and aponeurosis were preserved for a future important step in the operation, being divided in the middle line to a point about half an inch above the upper margin of the fracture, and then reflected laterally to either side. Much difficulty was experienced in drilling the lower fragment owing to its small size, but at last this was successfully done, and the upper fragment was then also drilled obliquely exactly in the same median vertical line. The D wire was then passed without the intervention of any instrument, and, having been placed *in situ*, the joint was again thoroughly washed out with sterilised water. Accurate approximation of the fragments was then secured, the wire looped, and the divided aponeurosis and periosteum closely sutured with fine silk over the underlying wire. In this way the fractured surfaces were completely protected. I regard it as one of the most important steps of the operation. The skin flap was then closed with salmon-gut sutures, and when in position no trace of the wire loop could be detected with the fingers. Aseptic dressings were applied, a light posterior splint fitted, and the limb kept elevated on a couple of pillows. The dressing was re-applied on the third day as some slight serous oozing had shown through. The wound was perfectly dry. On the eighth day the sutures were removed, the skin incision being soundly healed. It was dressed again on the fourteenth day, and the splint removed in order to admit of passive motion being carried out. A few days later the patient was allowed to get up, and began to walk on crutches. A skiagraph kindly taken by Dr. Lane-Joynt at this period, three weeks after the operation, shows such accurate approximation of the fragments, that the oblique line of fracture can only be faintly recognised. The following week the man was brought to the Dublin Biological Club, and was able to walk into the room without the aid of a stick. Eight weeks after the operation he was able to walk over two miles on the level, and the only remaining evidence of his injury was a slight feeling of weakness on going up stairs.

In young and healthy subjects the ideal operation is primary suture; and with care and strictly aseptic precautions it offers no more grave risks than many of the forms of so-called subcutaneous suture, while in relative accuracy and efficiency no reasonable comparison can be established. Among the important points connected with the operation I would desire to specially emphasise the following:

1. The advisability of delaying operation for a few days after the injury until the subsidence of the more acute symptoms in the joints.
2. The thorough clearing out of the joint; all the recesses of the synovial membrane being completely freed from clots, and the broken surfaces of the bone thoroughly cleaned. This can only be secured by the open operation.
3. The use of an easily-sterilisable suture, strong enough to secure apposition by a single drilling, and so shaped as to render splitting of the bone an impossibility, and to prevent in fastening it the formation of a large and irritating loop.
4. The elevation, and not the resection, of the fibrous curtain, and its subsequent accurate suturing over the embedded wire, forming an additional barrier underneath the skin flap against infection or irritation.
5. The early commencement of passive movement, which is thus rendered feasible, and undoubtedly greatly shortens the period of disability following the fracture—a point of paramount importance to the class of persons most subject to the injury.

NOTE.

¹ For the photograph and notes of the case I am indebted to my late clinical clerk, Mr. F. G. FitzGerald.

THE DISPOSITION OF THE UTERO-VESICAL POUCH OF PERITONEUM IN CASES OF DISTENSION OF THE VAGINA AND UTERUS.

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IN his first lecture on Retention of Menstrual Blood,¹ Dr. Cullingworth has raised an interesting question concerning the disposition of the utero-vesical pouch of peritoneum in cases in which the vagina becomes distended with fluid.

He was able to answer the query with the statement that the bladder rises as the vagina distends, and the uterus remains perched on the summit of the vagina, and thus the fold retains its normal anatomical relations. This, it would appear, is the constant result where the vagina is the cavity that suffers the distension.

In 1892, I presented to the museum of St. Bartholomew's Hospital, a specimen (No. 3016A), which tends to confirm abun-