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HERNIA OF THE ABDOMINAL CICATRIX, AND OPERATIONS FOR ITS CURE

BY

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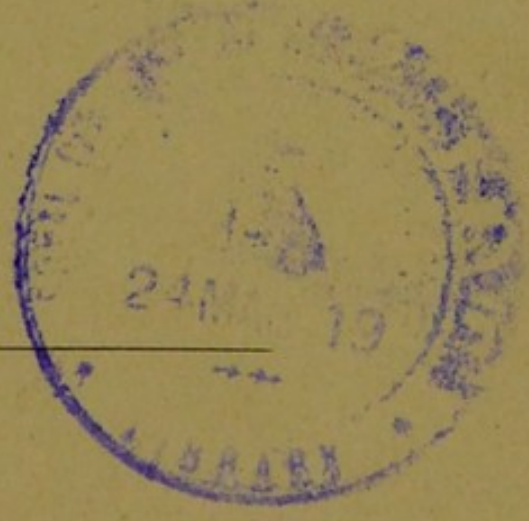

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HERNIA OF THE ABDOMINAL CICATRIX AND OPERATIONS FOR ITS CURE.[1]

HERNIA of the cicatrix after abdominal section is unfortunately an accident of no great rarity. A mere digital protrusion may be kept back by pressure skilfully applied. If, however, it is suffered to attain a large size it may prove more troublesome than the disease for which the operation was performed. It may also become in itself a direct source of danger demanding surgical steps for its relief. The late Mr. Greig Smith, the loss of whom we all regret, clearly refers to the less advanced type of ventral hernia when he lays down his principles of treatment in his well-known work.[2] Indeed, it would at first seem as though he referred to primary ventral hernia independent of any surgical wound, but he distinctly states that "ventral hernia so-called is simply a stretching of scar-tissue which permits the abdominal contents to escape through the parietes and to bulge outwardly under the skin." Further,[3] in his paragraphs on hernia after operation, he distinctly refers back to the same passage. Hence he is clearly speaking of surgical ventral hernia. Mr. Greig Smith continues:[4] "There is no narrow neck as in umbilical hernia and no dissection of skin from parietes by burrowing omentum or intestine as in umbilical hernia. The hernial sac is simply stretched peritoneum; the coverings are stretched cicatricial tissue with a little fat and stretched skin. To cure this condition it is necessary to remove or push aside the redundant and attenuated tissues and bring into contact and keep in contact the thick and

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[1] A paper read at a meeting of the Harveian Society of London on Nov. 18th, 1897.

[2] Abdominal Surgery, vol. i., fifth edition, 1896, p. 114.

[3] Ibid., p. 147.

[4] Ibid., p. 114.

non-yielding parietes. To do this satisfactorily it is rarely necessary to enter the abdominal cavity." Here follows a description of his operation where the cavity is not opened.

Deeply regretting that Mr. Greig Smith, who was living when I began to prepare these notes last autumn, is no longer amongst us, I must be allowed to respectfully observe, in the interest of patients and operators, that the deceased surgeon's description of surgical ventral hernia can only apply to a very early stage of that troublesome complication. Even at that stage I should hesitate to operate without opening the peritoneum. When the hernia has developed further, so far from there being "no narrow neck" there may be a very tense narrow neck as in two of the four severe cases presently to be described.[5] Secondary sacs and burrowing of omentum and intestine are observed in this form of rupture just as in umbilical hernia. Firm adhesion of intestine to the cicatrix is frequent. I will now give the notes of four particularly severe cases in my own practice where all the above noted complications were detected. An operation was demanded on account of those complications which were successfully relieved. I must add that I am not sanguine about the ultimate result as far as complete immunity from recurrence is concerned. The four cases simply show that hernia of the cicatrix is a serious condition.

CASE 1. *Hernia of ovariotomy-wound two years; large sac; secondary pouch; circular sharp edged neck with intimate adhesion of the transverse colon in the middle of cicatrix.*— A single woman, aged fifty-one years, was admitted into my wards at the Samaritan Hospital in June, 1895. On April 10th, 1893, the late Mr. Hulke removed an ovarian tumour. The incision, Mr. Bland Sutton kindly informed me, was closed by a single series of waxed silk sutures. She remained six weeks in bed after the operation and wore strapping all that time. She did not have a belt till a month after her discharge from the Middlesex Hospital, but went to work with a linen binder round her abdomen. The belt was not made to measure and did not fit. The patient told me that she first noticed a swelling in the abdominal scar eight months before admission—that is, in November, 1894, or

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[5] Dr. Benno Schmidt in speaking of hernia of the abdominal cicatrix rightly observes that "as a rule the neck of the sac has not a sharp border" ("Die Unterleibsbrüche," Billroth und Luecke, Deutsche Chirurgie, 1896, p. 357).

over one and a half years after the ovariotomy. It caused her extreme inconvenience and she could not earn her living. She declared that otherwise her health was good; unfortunately she concealed the fact that in April, 1895, she had been seized with a slight convulsion which lasted for a few minutes. The abdominal walls were found to be very relaxed. The cicatrix was about four inches long and S-shaped. In the middle and nearer its upper than its lower limit was a circular hernial aperture nearly two inches wide. The edge felt sharp excepting above, where a soft body which I at once recognised as intestine adhered to it. When the patient coughed intestine escaped freely. On June 25th, 1895, I operated. I mapped out an incision carried all round the redundant skin and then dissected deeper on the right of the cicatrix proceeding cautiously till the peritoneum was opened. Then a deep secondary pouch was found, passing to the left under the left rectus and full of adherent omentum which I set free. The sharp circular neck of the hernia was now reached. The peritoneum was reflected over it, passing on to the sac, and half an inch of the transverse colon was firmly incorporated with the upper part of the neck. I cut into the peritoneum all round the ring, passing in front of the adherent colon, dissected away the pouch which extended far to the left under the skin, and then cut away the redundant integument. Then I trimmed the sharp aponeurotic border of the neck of the sac and dissected off the adherent colon, a difficult process as the fibrous tissue was incorporated with the wall of the intestine and there was much bleeding. The liberated colon slipped up high above the wound. I sewed together the cut edges of the peritoneum with stout catgut. Then I closed the aponeurotic layer, which had been freely trimmed so as to destroy the abdominal aperture, with the same material. The integuments were united with interrupted silkworm-gut sutures. All the silkworm-gut sutures were removed by July 3rd. On the 18th the patient had an attack of hemiplegia; spastic contraction of the right hand was marked. I sent her to St. Mary's Hospital in August, where she remained under the care of Dr. Maguire for a few weeks. The new wound healed well. The patient tried to do a little work in the autumn and admitted that the operation had given her great relief. No longer did a mass of intestine come out of the abdominal cavity on the least exertion. A fatal attack of paralysis occurred in December, 1895. The wound was quite strong when she died.

CASE 2. *Hernia of hysterectomy-wound four years; large sac with large secondary pouch; circular sharp-edged neck in the lower extremity of the cicatrix; firm adhesion of the small intestine and omentum to the fundus of the sac.*—The patient, a single woman, aged fifty-two years, had undergone varied treatment for uterine fibroid. Four years before I saw her an exploratory incision was made and six months later Dr. Remfry removed the uterus by supravaginal hysterectomy using the serre-nœud.[6] Soon after leaving the hospital a rupture developed. The patient left off her belt at the end of two years. The rupture grew larger and caused attacks of severe pain. The patient was referred to me by Dr. Frederick McCann and came under my care on March 9th, 1896. There was a hernial protrusion at the lower end of a cicatrix nearly five inches long. On reducing a mass of bowel I could feel the sharp neck of the sac about one and a half inches in diameter, and as the edge was soft and blunt on the right side I concluded that intestine must be adherent there. The fundus of the bladder rose in the groin completely to the right of the hernia and below it. On March 13th I operated, managing the integuments as in Case 1. I found the omentum strongly adherent to the sac when I dissected up the skin to the right of the cicatrix. After tying and dividing the omentum I explored the left side of the sac from within. I came upon a long coil of small intestine firmly adherent to the peritoneum close to the skin incision which I had mapped out on the left side of the much-stretched cicatrix. A small piece of the serous coat of the intestine was torn before I could set the gut free; the adhesions extended to the left iliac fossa far beyond the hernia. Then I found very firm omental adhesions to the under side of the upper part of the scar; one indeed lay above it, whilst another lay in a secondary pouch of peritoneum which ran under the rectus muscle an inch beyond the left limits of the main hernial sac. The omentum was hard to draw out of this secondary pouch. I now completed the excision of the sac by cutting through all the tissues on the left. The excised parietes were pyriform in outline. I found some moderately firm adhesions of the ascending colon to the parietal peritoneum on the right, to the neck in fact. Most of the neck had already been trimmed away

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[6] The period was never seen after this operation.

during the separation of the complicated adhesions. I applied deep interrupted silkworm gut sutures through all the tissues including the peritoneum; then sewed up the aponeurotic layer with a continuous No. 3 silk suture, after which the silkworm gut threads were tied. The interrupted sutures were removed on the tenth day. In the course of the above operation I found that the stump of the uterus amputated four years previously was reduced to a broad, flat ligament which ran over the left side of the bladder and was lost above in the lower angle of the wound immediately below the hernial sac. The patient made a rapid recovery, but I enjoined long rest and she attended to my advice. In the summer she was in excellent health; the new cicatrix was firm and all the discomfort which she felt before operation had passed away.

CASE 3.—*Hernia of cicatrix of incision on the outer border of the right rectus for two years; enormous sac; no true neck; elongated secondary pouch with narrow neck almost strangulating the omentum; intimate adhesion of the omentum to the fundus of the sac; removal of the appendages for papillomatous disease.*—A woman, aged twenty-eight years, married eleven years, two children, the youngest eight years old, was sent into my wards in the Samaritan Hospital on March 21st, 1896. There was a large hernia of a cicatrix which extended along the outer border of the right rectus from the level of the umbilicus to the pubes. On coughing a large protrusion developed and the greater part of the intestines slipped into the sac when the patient walked about. There was also a tender swelling to the right of the uterus. The original mischief, as I learned from Mr. Lunn, was a neglected miscarriage, and she was so ill afterwards, in February, 1894, that she was unconscious when her friends took her into the Marylebone Infirmary. A large pelvic abscess was opened through the parietes and the peritoneal cavity was irrigated and drained. The patient made a good recovery but did not take care of herself. Severe pelvic pain and the constantly enlarging hernia made her seek for operative relief. On April 7th, 1896, I operated with the assistance of Mr. Corrie Keep. I made an elliptical incision around the distended integument, and dissected up the skin to the right. There was very dense cicatricial tissue beneath it, including, so to speak, a large mass of omentum. This was divided and then I explored the pelvis. The left as well as

See Journal note on flyleaf

the right appendages were extensively diseased. After aspirating the right tube there was no difficulty in removing the diseased parts and securing the pedicles. The tubes were cystic and papillomatous degeneration was detected in both. I then turned once more to the hernia. Much thickened peritoneum was trimmed away, including a secondary pouch with a very narrow neck full of adherent omentum running under the skin in the lowest part of the wound. The cut edges were dissected up from the muscular layer in front (a matter of some difficulty) and united with a continuous suture of No. ½ silk. Silkworm-gut sutures, interrupted, were passed through the skin, muscle and aponeurosis and tied. The patient made a good recovery. The sutures were removed on the tenth day. The patient remained perfectly comfortable. Unfortunately, in March, 1897, a small digital protrusion developed in the lower angle of the wound. This is a hernia of the milder form such as will presently be described. It gives no inconvenience and is held back by a bandage. Of course, if neglected it would become as serious as before.

CASE 4. *Double hernia of median abdominal wound; exploratory incision three years; large sac with two secondary pouches and long, narrow neck; small sac with narrow circular neck lower down; strong adhesion of small intestine and omentum to fundus of large sac.*—A woman, aged twenty-seven years, married six years, last confinement five years and three months previously, was sent to my wards by Mr. Corrie Keep on July 5th, 1896, for the relief of a large hernia of the abdominal cicatrix. The history was remarkable. Her mother stated that she had several fits when a child Dr. Findlater, of Edgware, and Mr. Sutton kindly sent me particulars of the operation where the wound was made, She was admitted into the London Infirmary in November. 1893, as a mental case. Her bowels were very stubborn from the date of her admission. On April 16th, 1894, they had not been opened for three weeks. She believed that she had swallowed a cork. The abdomen was greatly distended and the integuments were red, as though there was an abscess. The breath smelt fæcal and grumous liquid came away after enemata-like motion in cases of obstruction. At 8.30 P.M. on April 16th Mr. Bland Sutton operated and found no mechanical obstruction and nothing remarkable. The bowels except the sigmoid flexure were quite empty. At 10 P.M. she got out of bed, tore off all her dressings, and

passed an enormous stool. During convalescence she was restless, but not more so than before the operation. About nine months before I saw her the scar began to bulge. Mr. Keep had kept her under observation for some time and found that the hernia was steadily increasing in size. The patient suffered badly from dragging pains and earnestly begged for operative relief. The hernial pouch was pear-shaped and nearly five inches long, including the entire cicatrix. It was deeply pigmented, as though the brown line which probably developed after the patient's only pregnancy had increased in width by deposit of fresh pigment during cicatrisation. On further examination I found that the hernia was double, as I could feel an elliptical gap one inch long in the aponeurotic layer near the upper part of the wound and another admitting the tip of the forefinger at the lower angle. On coughing intestine could be felt issuing from both gaps and the whole cicatrix bulged forwards as a large sac. On July 8th, 1896, I operated with the assistance of Mr. Targett. I mapped out a pyriform incision in the skin around the sac and cautiously dissected up the integuments on the left. I came at once upon a coil of ileum which adhered rather firmly to the sac which issued from the upper gap ; it could not be detached without damage to its serous coat, which was repaired. The ileum then fell back into the abdominal cavity. There were several omental adhesions on the upper part of the sac and even higher on the parietes above the hernia. The omentum was set free, including a long and tough band which turned upwards and adhered to the transverse colon, drawing it down below the level of the umbilicus. Two secondary pouches existed in the sac wall, burrowing to the left under the skin, but they were empty. The peritoneum after the excision of its two sacs was separated from the aponeurotic tissues and its edges united with fine catgut and the two gaps in the aponeurosis carefully trimmed and united with stout catgut. The lower or circular gap in the wound was occupied by a short process of peritoneum containing no adherent intestine or omentum; it was readily trimmed away. The integuments were brought together with interrupted silkworm-gut sutures.

During convalescence the patient had symptoms of hystero-epilepsy and was very violent from the first, yet there was absolutely no trouble due to flatulence or any difficulty in getting the bowels open. All the skin sutures were removed on the eleventh day and the patient was discharged on the twentieth

day. A month later she was reported as quite free from any of the trouble due to the hernia; she was under treatment for her nerve symptoms in the Marylebone Infirmary.

It is clear that the above cases were forms of ventral hernia which could not have been treated after the fashion recommended by Mr. Greig Smith, and they displayed conditions which he seemed to consider as rare or non-existent in this kind of rupture. Operations of the kind just described are not without risk. I know of two fatal cases, in one of which inflammation of the parotid occurred.

In analysing these four cases the first thing to note is the apparent cause of the hernia in each. In none could either the operator or his method be blamed. Thus the patient in Case 4 was half insane and considering her behaviour directly after the first operation it is remarkable that she did not suffer from worse complications than hernia. In Case 1 the patient chose to wear an ill-fitting belt from the first without acquainting Mr. Hulke of the fact. How far her cerebral disease was the cause of carelessness on her part I cannot say. Case 3 is easily understood the incision was made through inflamed tissues for the relief of suppuration and drainage was necessary. There remains Case 2. Here the operator had to cut through an old cicatrix made for exploratory purposes and he found it best to use the serre-nœud. Under such conditions hernia may develop notwithstanding the greatest care. As with these four cases so it is as a rule with most other instances of hernia of abdominal cicatrices, save where there has been manifestly undue hurry in removing the sutures or where the peritoneum has been taken up too far from its cut edge or where the operator has evidently been careless in regard to the bandaging or strapping of the wound. In all four cases the patient eagerly solicited an operation for the relief of her condition. In Case 3 an operation was urgent, the discomfort was extreme, and the hernia very large. The patient in Case 2 also suffered badly, the neck of the sac was very sharp, and, as in Case 3, the patient was perfectly competent to decide for herself. In the latter respect the matter was somewhat different in the first and last cases. In Case 1 the patient concealed from us the fact that she had suffered from disease. Her friends admitted that she dreaded to let the truth be known lest she might lose a situation. I fancy that I should not have operated had I known about the fit; hemiplegia is a much more serious matter than ventral hernia, and the

attack after the operation gave me great anxiety. Still, there was a dangerous hernia with a narrow neck causing extreme discomfort which the operation entirely relieved. The patient in Case 4 also had serious nerve disorder, but the hernia was causing her misery and by means of vigilant nursing the patient recovered from the operation with complete relief from all abdominal trouble. The nerve disease was of a much less grave character than in Case 1 and the hernia had undoubtedly aggravated it. In all, the peritoneum of the main sac was closely incorporated with the skin so that it could not be dissected off. On the other hand, the secondary sacs did not in any case adhere to the skin or aponeurotic tissues; indeed, in Cases 2 and 3 I discovered the secondary sac by inverting it when dragging an omentum which proved to be adherent to its inner wall. Strictly speaking, a secondary sac is only a lateral offshoot of the main sac which not being pressed firmly forwards against the cicatrised integuments does not rapidly contract adhesions.

The neck of the sac was a narrow ring with sharp edges in Cases 1 and 2. In Case 4 there were two sacs; the larger had a neck consisting of a gap between the recti. The neck of the lesser sac was a more circular space near the lower angle of the wound. The upper sac was clearly the older. The lower admitted intestine and omentum but was free from adhesions, it represented an earlier degree of rupture as in cases which will presently be related. The diagnosis of intestinal adhesions to the sharp ring in Cases 1 and 2 was easily made. In Case 3 there was no true neck; in this case there was a secondary pouch with a very narrow neck almost strangulating the omentum. In Case 1 the neck of the sac was nearer the upper than the lower extremity of the wound. In Cases 1, 2, and 4 no drainage-tube had been inserted at the first operation, but in Case 2 the lower end of the wound had been filled by the stump of a uterine fibroid. Case 3 was drained; the wound was lateral. The tendency to adhesion of omentum and intestine to the parietes behind the neck of the sac was marked in these cases. It is very usual to find adhesions behind a normal cicatrix when a second ovariotomy is performed long after the first.

Turning to the steps of the operation it is self evident that the operator should map out his incision through the protruding skin and then cut through the skin at a point which seems safe. Complete excision cannot be safely effected till towards the end of the operation. If the peri-

toneum be not closely adherent to the integuments at the selected point so much the better, but the knife often comes on omentum (Cases 2 and 3) or intestine (Case 4) at once. Thus the above cases show that, as I have before remarked, a neglected hernia of the cicatrix is a serious condition and involves complications that demand operative relief. Yet when they are relieved it is not certain that the hernial protrusion will not recur (Case 3). The aponeurosis and muscle are too often irretrievably damaged; the operation is rather for the liberation of intestine and omentum than for complete restoration of the parietes to their previous normal condition.

I will now turn to the consideration of hernia of the cicatrix in its earlier stages when no operation is required. I have seen a very large number of ruptures of this kind, but I think that it is only fair that I should confine myself at present to cases where I was the original operator. I have taken considerable pains to search for after-histories and shall be glad of any further information.

CASE 5.—In February, 1891, I operated on a woman, aged thirty-five years, who was fairly nourished, and removed two ovarian cysts. The incision, two and a half inches in length, was closed with five deep silkworm-gut sutures and a continuous horsehair suture was applied to the integuments along its lower half. These were removed on the seventh day. Fourteen months later the wound was strong. In August, 1894, I felt a small gap in the aponeurotic layer large enough to admit the point of my little finger. In May, 1897, I found that the gap had not grown larger and that there was distinct impulse over it on coughing. This was one of Mr. Greig Smith's type of ventral hernia, I suspect. It caused the patient no inconvenience. I never remove all the sutures on the seventh day now, but I doubt if their early removal caused the hernia. No drainage-tube was used in this or in the next two cases.

CASE 6.—In November, 1891, I removed a large tubo-ovarian cyst from a rather thin woman, aged forty-six years (II-para). The incision, three inches long, was closed with six deep silkworm-gut and three superficial horsehair sutures. Half the deep sutures were removed on the seventh day, the rest on the tenth. I often saw this patient afterwards. In October, 1894, I detected a minute hernia in the middle of the cicatrix; on coughing it formed a pro-

trusion as large as a cob-nut. This case is almost identical with the last. Let it be noted that here as in the next case the hernia was not in the lower angle of the scar.

CASE 7.—The patient in this case was a multipara, aged forty-three years. She was rather fat. In July, 1893, I removed the appendages for chronic disease through an incision not quite three inches in length. I closed the wound with five deep and one superficial silkworm-gut sutures. By the eighth day they were all removed. A year later the cicatrix was strong. I saw the patient this spring. There was a small hernial protrusion in the middle of the cicatrix admitting the tip of the forefinger.

In a case of ruptured tubal pregnancy where I drained a slight hernial protrusion developed five years afterwards. Lastly remains a curious case where I removed both ovaries six years ago for checking the growth of a moderately large fibroid in a rather stout subject, aged thirty-nine years. The tumour diminished steadily in size. It happened, however, that a small pedunculated growth of the shape and size of a large brass button lay in front of the tumour in the median line so that it pressed against the scar. No doubt the pressure of the belt acted prejudicially under these exceptional circumstances. The pedunculated outgrowth pressed the cicatricial tissue apart and has come to lie under the skin. It gives no inconvenience though it may prove troublesome when the uterus becomes much smaller from dragging on the scar.

It is remarkable that though I at one time used the drainage-tube very freely I have only once seen a hernia form in its track and that was in one of the cases above noted. Thus an incipient hernia of a cicatrix is not very serious provided that it be carefully watched, the patient being intelligent and prompt to carry out the advice of her medical attendant. No operation is demanded in this form of hernia. Were it necessary I should hesitate to follow Mr. Greig Smith's advice, leaving the sac unopened. In the smallest protrusion there might be an omental or even intestinal adhesion. Experience shows that a small hernia may be kept back indefinitely by careful bandaging so as to remain in a stationary condition. The patient must be warned to be particularly cautious if she finds that she is growing stouter, for in a corpulent subject scar-tissue is apt to grow weak,

whilst fat omentum tends to push its way into the sac to which it soon becomes adherent.

The cause of hernia is manifestly non-union of the cicatrix in one of the layers or stretching of the cicatrix. Hence the best method of ensuring union, in other words, the best kind of suture, is a matter of great importance. Unfortunately this question is by no means settled. According to my own experience I am no believer in the superiority of any method. I have known hernia to occur where the wound had been closed by a row of interrupted sutures passing through all the layers. I have seen just as bad hernia when the aponeurotic layer had been united by a separate continuous catgut suture. Deep interrupted sutures, whatever has been said to the contrary, must surely allow of the normal union of each layer as a rule, for I have examined many scars of wounds so treated ten or more years earlier by Spencer Wells and found them sound, though I have detected hernia in similar cases once under that surgeon. Separate union of the aponeurosis is no guarantee against the development of a hernia. Many operators (Martin, Winckel, and Chrobak) admit this fact. Mr. Cripps goes so far as to declare that a continuous catgut or other suture applied to the aponeurosis actually weakens the wound, being a foreign body.

In operations such as those which I have described for the cure of a hernia separate union of the aponeurosis is absolutely necessary as the edges of that layer gape widely and have to be trimmed and brought together. The peritoneal layer may also in these cases need separate suture. When on the other hand a wound through normal tissues is closed the structures on each side are healthy, free from atrophic changes, and easily brought into apposition by deep interrupted sutures. Statistics about the relative merits of sutures are untrustworthy for several reasons. I spoke on this subject at the Geneva meeting of the International Gynæcological Congress in 1896,[7] and noted that when an operator published better results after a change of treatment it often implied that he had become a better and more experienced surgeon. There was a more serious fallacy, for some of the same speakers who issued these records laid stress on the fact that a hernia did not always develop until many years after the operation. Here they were quite correct; yet with that knowledge they published the results of five, ten, or twenty

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[7] La Gynécologie, vol. i., 1896, p. 523.

years' experience with an older method and compared them with what they are pleased to call the more satisfactory results of two or three later years' experience of a newer method. This grave source of fallacy is prominent in the "Report of the Discussion on Abdominal Sutures and Abdominal Hernia at the Vienna Meeting of the Deutsche Gesellschaft für Gynäkologie, June, 1895."[8] All manners of suture seemed to answer in the practice of different authorities who at the same time admitted that none guaranteed against hernia. Since I prepared these notes early last autumn Professor La Torre's important essay on the same subject has been published. I agree with him that up to the present day we lack precise knowledge on many questions relating to hernia and sutures. The sixty-three opinions which he has collected since the German Congress are very conflicting and in many cases seem based on insecure foundations such as I have just indicated.[9]

Bossi of Genoa represents the extreme school which advocates suture of each layer separately. He unites the peritoneum in this manner, and there are British[10] and other operators who agree with him. In cases of hernia like Cases 1, 3, and 4 in this paper where much peritoneum is trimmed away separate suture of the cut edges of that membrane may be necessary else apposition will be imperfect. I strongly object to this practice, however, after an ordinary abdominal section, for I know well that union of the serous layer begins very early even when a single set of deep interrupted and not very close sutures are applied. Nearly twenty years ago I found complete union of the peritoneum in necropsies on patients who had died with septic or other bad symptoms within a few days after ovariotomy.[11] No doubt the wound aften gapes when sepsis

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[8] Centralblatt für Gynäkologie, 1895, p. 780.

[9] "Quel est le Mode de Fermeture de l'Abdomen qui paraît garantir le mieux contre les Abcès, les Éventrations et les Hernies?" La Gynécologie, vol. ii., 1897, passim. The sixty-three opinions will be found on pp. 213 to 244. See also Dr. Currier's Suggestions Concerning Ventral Hernia Resulting from Abdominal Section and its Treatment, with Discussion, Transactions of the American Gynæcological Society, vol. xxii., 1897, p. 106.

[10] Bland Sutton and Giles: The Diseases of Women, 1897, p. 383.

[11] Clinical and Pathological Observations on Tumours of the Ovary, &c., p. 129. Case 1.—Death on sixth day; peritoneal edges adherent. Case 2.—Death on eighth day (tetanus); peritoneum united very closely throughout.

has lasted for several days, but not through the fault of the suture.[12] On the other hand, Martin and Mr. Greig Smith represent the school diametrically opposed to Bossi. Martin holds that complicated methods appear doubtful. He passes silk threads through all the layers. It is true that he applies a few superficial sutures to the skin, but more to ensure speedy healing of a cutaneous-wound than to avoid hernia. Mr. Greig Smith advocated the deep suture ("mass-suture," as he called it) on good theoretical grounds, though he gave directions for the application of continuous sutures in separate layers. He looked on "the separate suturing of each parietal layer as a refinement always, and as a superfluity usually, provided that the single group suture is properly placed."[13]

I myself always apply deep interrupted sutures and take up not more than one-eighth of an inch of the peritoneum. If too much serous membrane be taken up it will become everted and prevent the aponeurotic layer from uniting; thus a hernial pouch is actually manufactured by the operator. On the other hand I disapprove of the practice of leaving the serous layers out of the stitching altogether. When sutured the peritoneum unites rapidly and thus cuts off its great cavity from the wound—an aim we all desire. The suture track surrounded by lymph never seems to endanger the peritoneal cavity. The fibres of the rectus muscles must be included in the sutures else they will retreat inside their sutured sheath. When ordinary precautions are taken there will be no fear of suppuration of the sutured muscle. The same management is necessary for the closure of muscle in an incision away from the middle line. I often apply a few superficial sutures to the integument, after Spencer Wells's and Martin's practice, so as to make a sightly scar. In some very thin and in most very stout subjects I unite the sheath of the rectus with a continuous buried suture. In a very thin subject this prevents all danger of imperfect union from eversion of the sutured line of peritoneum. In a very stout patient I think that it is advisable to suture the sheath separately. Mr. Greig Smith when arguing against separate

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[12] Ibid., p. 130. Very fat subject; pyæmia; death on twentieth day. "The peritoneal borders of the wound were so feebly united by lymph that they came apart in gentle traction at the necropsy." Thus at least they were united. Of course, the union was weak in these early and fatal cases. What I endeavoured to demonstrate above is that the union of the peritoneum is speedy without separate sutures.

[13] Loc. cit., p. 110.

suture of each layer as an absolute necessity rightly observes that as young cicatricial tissue is the same for all the layers, and as each layer will certainly appropriate its own bundle of fibres from the common stock, little harm can be done if apposition be not accurate. Unfortunately this apposition may be very inaccurate in a fat wound, the subcutaneous and subserous adipose tissue being likely to form a junction at one or more points, and healing is relatively slow. The separate suture neutralises these dangers. I need hardly say that it must be gently applied, for one of the evils of the separate layer system of suturing is that it takes up time and each layer is exposed to much handling. On the other hand, the application of the deep sutures in a very fat wound may involve rough handling. The nozzle of most needle-holders is apt to bruise the fat. Hence I prefer to pass a large Péan's pedicle needle through the wound, then to thread it, and lastly to withdraw it. In an average or a thin wound it is handier to pass a curved or straight suture needle ready threaded through the tissues; Wells's well-known method, though not essential, as he believed, is the best, as the layers are the least disturbed if the needle be pushed through the serous layer outwards on each side. The deep sutures should be removed in part about the ninth day. It is best to take out the remainder within the end of the first fortnight. Still, better too late than too early is the rule for the removal of sutures. I need hardly say that sutures must be clean when applied and not tightened too much, and that the wound must be carefully supported by strapping and bandages. The operator must further remember that the most dangerous enemy to the wound is the steady pressure of flatulent intestine behind it.

The material for suture is not a matter of primary importance as far as our present subject is concerned. I much prefer silkworm-gut to silk, but the latter material is used and commended by many experienced operators. For the aponeurosis, where a continuous suture is applied, stout catgut or No. 1 or 2 silk is the best material. Fine catgut answers best to unite muscular tissue in abdominal wounds away from the median line.

In conclusion, I must admit that I feel sceptical about perfect success even with all the precautions which I practise. Martin rightly pointed out at Vienna in 1895 that the entire discussion on hernia of the abdominal wound was not on a sound basis, for different abdominal wounds healed

very variously. Secondly, reports on the value of any one method are open to fallacies as I have already demonstrated. Lastly, the patient is often to blame for the complication. She is apt to discard the proper supports very early and in other ways to disregard advice. Hence it is the duty of the surgeon to warn her very strongly. For, as we have seen, a hernia of the abdominal wound may develop into a very ugly complication demanding surgical treatment which however necessary and justifiable is seldom in every respect satisfactory.

Granville-place, W.

Mr. Butler-Smythe congratulated his colleague on the success attending his efforts to relieve those women suffering from ventral hernia. Mr. Doran had his sympathy in that one instance where the hernia had returned after the operation, but perhaps it might be some consolation to him to know that there was no surgeon living of whom it could be said, that he had not had many such cases following his operations. He (Mr. Butler-Smythe), ridiculed the idea of operators stating "that they could not trace a single case of ventral hernia in their own practice." The fact was, that when an operation for the removal of an abdominal tumour was unfortunately followed by a hernial protrusion, varying from the size of a walnut to that of a pouch reaching from the ensiform cartilage to the pubes, and containing the greater portion of the abdominal contents, it was, to say the least, improbable that those patients would return to the original operator, but rather would seek fresh advice. Ventral hernia would now and again occur no matter how careful the surgeon might be in the manner of closing the abdominal wound. In most of the cases read that evening it seemed that the hernia had occurred at either end of the abdominal scar, and this looked as if the closing of the upper and lower angles of the wound had been imperfectly sutured. In his opinion the chief point in sewing up the wound was to approximate the sheaths of the recti muscles as accurately as possible. Union of fibrous tissue was stronger and more permanent than that of muscle or skin. He was convinced that if attention were directed to the accurate suturing of the aponeurosis, the chances of hernia would be greatly diminished.

In reply to Mr. Butler-Smythe, Mr. Doran remarked that the edge of the rectus muscle, as well as its sheath, should always be included in the suture, whether the aponeurotic layer were united separately and continuously, or simply closed by deep interrupted sutures passed through all the layers of the parietes.

addenda

Deep sutures à la Sabbon Middlesex Hospital Reports for 1879. Abdominal cystectomy for Empyema with. Case 24 p. 223 "a little suppuration appeared in the abdominal wound, which was re-opened on Sept. 25th (& Sept 8th) & several of the deep sutures removed. The wound then closed, & she was discharged convalescent Sept. 30th" (Sutton operator)
See also Trans. Obst. Soc. Vol XLIV 1902. p. 183

See case of Crumps. Cystectomy hypertrophy. Perfect wound 2 years only interrupted sutures

Dwyer, Lyon Med Record Nov 17. 1901. Acute Staphylococcal infection in neck of Herniated Operation - Cicatrix
See case 3 in this reprint

See Swayfield's report of practice of contemporary German authorities
Bishop Edmunds. Prevention of Ventral Hernia. B. M. J. II 04 p 59

X. Sutton's Second-Sutton's Essays on Hysterectomy "Some trouble from a stitch" Case 36. p 106