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A PLEA FOR

EXTRAPERITONEAL OPERATION,

WITH CASE.

BY

GEORGE M. EDEBOHLS, M.D.,

Gynecologist to St. Francis Hospital, New York.

[Reprinted from the AMERICAN JOURNAL OF OBSTETRICS AND DISEASES
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VENTRAL HERNIA:

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As a text for my remarks I will take the history of the patient presented to this Society four weeks ago.

A. S., a widow, 38 years of age, came under my care February 17th, 1890. She was married at 21 and had never been pregnant. At 23 she contracted a chancre from her husband. This was followed by well-marked secondary manifestations. About this time a leucorrhœa developed which lasted for fifteen years, still persisting when I first saw her. Four years previously she suffered from an inflammatory affection in the pelvis, which has troubled her more or less ever since in spite of almost constant treatment.

The patient, when I first saw her, was in a pitiful physical condition, anemic in the extreme, cachectic, and suffering from an outbreak of tertiary syphilis. An examination of the pelvic organs discovered an enlarged and retroverted uterus firmly adherent to the rectum, and flanked on either side by enlarged, convoluted, and tender tubes. Abdominal exploratory puncture (guided by combined rectal and vaginal touch) of the left tube yielded pus and established the diagnosis of pyo-salpinx.

Laparotomy, February 28th, 1890, disclosed a pyo-salpinx on either side and a uterus firmly fixed by adhesions to the rectum. Both tubes and ovaries were enucleated, tied off, and removed. In doing this the left tube ruptured and discharged about an ounce of pus into the peritoneal cavity. This was immediately washed out by free flushing with ster-

¹ Read before the New York Obstetrical Society, March 3d, 1891.

ilized water. The adhesions of the uterus to the rectum were broken up, and the fundus was brought forward, but not attached, to the anterior abdominal wall. The incision in the abdominal wall, ten centimetres in length, was closed with silkworm-gut sutures embracing the entire thickness of the parietes. No drainage.

The sutures were removed on the eighth day, and primary union was found to have been secured. Subsequently a small fistula formed at the lower end of the cicatrix, which, six weeks later, had entirely healed. Patient was discharged, May 8th, 1890, with a well-fitting abdominal supporter, perfectly, and I may here add permanently, relieved of all her former symptoms.

She was naturally of a careless disposition, and this perfect freedom from symptoms caused her to look upon the abdominal supporter as an unnecessary annoyance. She discarded all abdominal support within a few days after leaving hospital, and, as a consequence, a ventral hernia developed in the cicatrix. For the cure of this hernia she re-entered hospital December 27th, 1890.

The cicatrix, instead of forming a linear scar, was found stretched into the form of an ellipse ten centimetres long by five centimetres wide at its middle. The margins of the recti muscles had separated to the same extent, and nothing but a thin layer of attenuated scar tissue, backed by peritoneum, served to retain the intestines within this space. On coughing the hernial tumor visibly threatened to rupture its thin covering of skin and peritoneum.

Operation, December 29th, 1890. An elliptical incision was carried in the healthy skin along the border of and embracing the entire cicatrix. The cutaneous layer was carefully dissected from the peritoneal over the entire extent of the cicatrix. At one point a slight nick was made in the peritoneum which a little greater care would have served to avoid. The minute aperture was immediately closed by compression forceps, and, at the completion of denudation, by a catgut suture.

The separated margins of the recti muscles could now be distinctly felt. The original elliptical incision was deepened to the subperitoneal fat in such a manner as to pass by and

lay bare the internal margins of the recti and the fascia on either side.

The denuded internal margins of the recti were split by a longitudinal incision two centimetres deep, running the entire length of the diastasis on either side, into an anterior and a posterior flap. The spreading of these flaps gave two broad, raw surfaces of muscle, which were brought together in the median line over the previously infolded raw peritoneal sac.

The wound was united in the following manner: Ten silk-worm-gut sutures were passed on one side of the wound through skin, superficial fat, the fascial covering of the rectus, and the rectus itself, emerging in the depths of the wound near the lowest part of the deep flap formed by splitting the muscle. The sutures then traversed the tissues of the opposite side in inverse order.

Before tying the silk-worm-gut sutures upon the skin, the margins of the fascia were brought together by a row of buried catgut sutures embracing the fascia and a small bite of the immediately subjacent muscle. A bundle composed of six or eight strands of silk-worm gut was carried along the anterior face of the inverted peritoneal pouch, deep down behind all sutures, and brought out at either end of the wound for drainage. The usual antiseptic dressings were applied.

The silk-worm sutures and drains were removed on the tenth day, when complete and firm primary union was found to have occurred.

Patient was discharged with a strong linear scar February 3d, 1891.

The literature of ventral hernia, especially that relating to the operative cure of herniæ following laparotomy, is surprisingly meagre. I exclude from consideration here the so-called epigastric herniæ, recently so ably and interestingly elucidated by O. Witzel ("Ueber den medianen Bauchbruch," *Samml. klin. Vorträge*, N. F., No. 10), as well as the subject of umbilical hernia, to which Sänger¹⁷ has lately furnished a valuable contribution.

Wylie²¹ has put on record the largest number of operations for the cure of ventral hernia performed by a single operator—*i.e.*, eight—six women being operated upon, two of them

NOTE.—The small figures refer to literature at the end of the article.

requiring a second operation. In five of the six cases the herniæ were the result of laparatomies. Martin,¹² in reporting twenty-two second laparatomies performed upon the same patient, relates eight cases in which the hernia resulting from the first operation was exsected at the second. None of Martin's cases, however, were undertaken for the direct and sole purpose of curing the hernia. Intra-abdominal conditions furnished the indications for each of the operations.

Billroth,⁴ Chrobak,⁴ Gerdy,⁶ Gusserow,¹² Hoffa,⁹ Maydl,¹³ Olshausen,¹² Simon,⁸ Winiwarter,⁴ each report two; Balandin,² Bigelow,³ Jeffremovsky,¹⁰ Mayo,¹⁴ Michael,¹⁵ Sims,¹⁸ Young,²² each one operation for the radical cure of non-strangulated ventral hernia.

The causes of ventral hernia following laparotomy are succinctly stated by Martin:¹² "Not the method of suture, but the state of nutrition, the occupation, and the tone of the tissues of the patient determine the occurrence of hernia." To these causes I would add the use of the drainage tube for longer than four or five days after laparotomy.

As to the frequency of the occurrence of hernia after laparatomies, it is difficult to obtain reliable statistics on a sufficiently large scale to make them practically valuable. Of fifty-four cases of laparotomy performed by me in which I have been able to follow the patients and to inspect the cicatrix at periods of time varying from three months to several years after operation, I have observed a diastasis of the recti in the region of the scar in four. In two of these there was no protrusion of the abdominal contents; in two a well-developed hernia existed. For statistical purposes I would, however, class all cases with well-marked diastasis of the recti muscles as hernia; my statistics, therefore, as far as I can gather them, are four herniæ out of fifty-four cases surviving laparotomy.

In two of my patients the neglect to wear an abdominal supporter after leaving hospital seemed to be the chief cause; contributory in one (the case above related) was a syphilitic cachexia, in the other the existence of pregnancy at the time of operation and its uninterrupted progress to term thereafter. In the third case the patient was summoned home before fairly convalescent, to nurse a paralyzed husband; her

exertions in lifting the heavy man may reasonably be credited with the causation of the hernia. In the fourth case I am inclined to attribute the hernia to the use of the drainage tube, as the hernial aperture corresponds in situation and size with the latter.

The prevention of ventral hernia after laparotomy follows naturally from what has just been said. It consists in avoiding the causes as far as possible, and in wearing a properly adjusted and suitable abdominal supporter for at least six months after operation.

I will not dwell upon the distressing symptoms—pains, digestive disturbances, nervous manifestations, etc.—occurring in connection with ventral hernia. The positive dangers of the condition are strangulation and rupture. Jordan¹¹ has recorded two cases, Dudley⁵ and Pye¹⁶ each one, and the writer has personal knowledge of one unrecorded case in the practice of a colleague, where death followed operations demanded for the relief of strangulated ventral hernia. Of recoveries following operations for this indication, Beach² and Jordan¹² each report an instance. Curiously enough, the only two cases of spontaneous rupture of ventral hernia which I have been able to find recorded (Wallace,¹⁹ Wood²⁰) both ended in recovery without operation. The writer knows of a third case in the practice of a gynecologist of this city in which a ventral hernia following ovariectomy ruptured about a year after operation. The everted intestines were replaced, the wound of exit was closed by suture, and the patient made a good recovery.

The treatment of ventral hernia may be conducted along two lines, the prothetic or palliative, and the operative for radical cure. The former seems to find its chief adherents among the French. In the perusal of the French literature, as far as accessible to me, on the subject, I have not come across a single case of operation undertaken for the radical cure of ventral hernia, and but a solitary instance of kelotomy, ending fatally, for strangulated ventral hernia.

The indications for operative treatment are given when a ventral hernia becomes strangulated; when the coverings of the hernia become ulcerated, or so attenuated that the danger of rupture is imminent; and when it is found impossible to

obtain relief by wearing a truss. Another indication, optional with the patient, is the unwillingness to wear a truss, even though it serve to retain the hernia. In operating for the relief of strangulated ventral hernia, the same principles obtain which are applicable to *strangulated herniæ occurring in other parts*. I do not propose to enter further upon this aspect of the subject, but shall confine myself, in my closing remarks, entirely to the operative treatment of non-strangulated ventral hernia.

Gerdy,⁶ as long ago as 1836, reported two cases of ventral hernia in which he operated successfully in the following manner: He inverted the entire hernia, skin and all, into the abdomen; sewed the skin to the margins of the opening in the abdominal wall; treated the inverted cutaneous sac with ammonia to produce adhesive inflammation; and then sutured together the margins of the opening of the inverted cutaneous sac. He obtained firm union in seven to eight days. Bigelow,⁸ by applying the same principle of causing adhesive inflammation of the cutaneous covering, succeeded in radically curing, without operation, a large, inflamed umbilical hernia of seven years' duration and irreducible for two months. The hernia was slowly reduced by compression with adhesive straps, and the cavity of the inverted integuments obliterated by blistering during a period of six months.

Hadlich⁸ reported two cases operated upon by Simon, in 1872 and 1876, after the following manner: A long denudation of the skin, two centimetres wide, was made on either side, over the margins of the hernial aperture. After reduction of the hernia these raw surfaces were brought together and united by three rows of sutures, the first row attaching the internal edges of the opposite denudations to each other, the second embracing the entire thickness of the approximated flaps, and the third joining the external edges over these. Simon obtained good results in both of his cases, although the second required four separate operations.

Hegar,⁷ in 1879, proposed a slight modification of Simon's operation, making the cutaneous denudation of horseshoe form. He reports one case with unsuccessful result. Jefremovsky¹⁰ reports an additional case of failure, due to want of proper care in the after-treatment. Hoffa⁹ describes two

cases operated upon by Maas; one after a modification of Simon's method, perfectly successful after two years. The second case was operated upon by excision of the sac, including peritoneum, and suture; relapse in six months. Hoffa makes the point that Simon's operation, or a modification thereof, is indicated when advanced atrophy of the structures of the abdominal wall exists; opening the peritoneum and sutures when the tissues are in approximately normal condition.

Balandin¹ attempted to improve on Simon's method by deepening his incision into the substance of the muscle on either side, instead of limiting himself to a mere denudation of the skin. He reports one case with partial success.

The balance of the cases of ventral hernia operated on for radical cure have been performed by opening the peritoneum, exsecting or trimming the peritoneum and cicatrix, and uniting the opposite margins by suture. Some operators have pierced the entire thickness of the abdominal wall with the suture, tying upon the cutaneous surface; others have united by rows of sutures, varying in number, the different layers of the abdominal walls. Michael¹⁵ used buried sutures of silver wire, the sutures embracing fascia, muscle, and peritoneum on either side. He reports one case with good result after seven months.

The principle of flap-splitting, or its equivalent, has also been applied to the operation for the radical cure of ventral hernia. The attempt of Balandin¹ in this direction has already been alluded to. Maydl¹⁸ in his two operations opened the sheath of the recti on their adjoining aspects, suturing the posterior layers of the sheath, the recti themselves, and the anterior sheaths, separately. Chrobak⁴ imitated Maydl in opening the sheaths, but embraced both layers of the sheath together with the muscle itself in one suture. Tait (quoted by Sänger, *Centralbl. f. Gynäkol.*, 1888, page 768, and 1890, page 476) has extended the principle of flap-splitting to operations for ventral hernia, and Sänger¹⁷ himself reports a number of cases of umbilical hernia in which he employed the method.

I am a firm believer in the correctness of the principle of flap-splitting wherever and whenever it can be applied, and

made it a part of the operative technique in the case reported at the beginning of this paper.

I come now to what I consider the most important matter in connection with the operation for radical cure of ventral hernia: the performance of the operation without opening the peritoneal cavity. It was this thought which dominated the minds of operators when performing the operation of Simon or one of its modifications. But full success could only be expected exceptionally from operations which merely added another barrier of skin, as ineffectual as the first, to the exit of the hernia. Though others, no doubt, entertained the thought, Maydl,¹³ as far as I am aware, first gave expression to the possibility of separating skin and peritoneum, and of closing the hernia over the latter, but speaks with dread of the difficulty of the procedure.

Polk (*AM. JOUR. OBST.*, 1887, p. 53), in the discussion following the reading of Wylie's paper²¹ before this Society, said: "It ought to be possible to unite the fascia without opening the peritoneal cavity."

To Chrobak,⁴ however, seems to belong the credit of first having made a systematic attempt to carry out the idea of dissecting the cutaneous from the peritoneal layer of the cicatrix, and thus to avoid opening the peritoneal cavity. It is true he did not succeed, but punched the peritoneum full of holes in its middle, and found the separation especially troublesome at the lower end of the scar. He resolved at the time never to attempt it again. His second case, the only one he has since reported, was not adapted to the procedure, the immense extent of the hernia—from sternum to pubis—forming the contra-indication.

The only other case in which an attempt appears to have been made to denude without opening the peritoneum is that of Young.²² The account of the operation, however, is not very clear. "He (Young) separated the attachments to the point of escape, which proved to be the umbilicus. The sac was evacuated and found to be filled with an accumulation of fat. As it was impossible to return this mass into the cavity through the original opening, the speaker concluded to distend the sac and remove the mass. A great deal of hemorrhage followed." The patient died on the fifth day of ether intoxica-

tion, in the opinion of Dr. Young; of pyemia due to minute septic emboli, according to Dr. Walker, who witnessed the operation.

As far as I can ascertain, the case reported at the beginning of this paper is the first one on record in which an operation for the radical cure of ventral hernia was performed by dissecting the cutaneous from the peritoneal layer of the hernial sac, practically without opening the peritoneum, inverting the peritoneal pouch, and bringing together over it the separated margins of the recti muscles, fascia, and skin.

The main object in writing this paper is to advocate the adoption of this method, as a general rule of practice, whenever practicable. The only contra-indications that occur to me at present are ulcerations, excessive size, or extreme thinness of the hernial sac. Whenever these conditions obtain it is better to cut out the entire cicatrix, peritoneum included.

The advantages of the extraperitoneal method are several. First, and most apparent, it takes the operation out of the category of laparatomies, thus avoiding the dangers and uncertainties of the latter. In the next place, the inverted peritoneum serves to strengthen the new cicatrix by becoming attached to and thickening its internal aspect, in the same way that the inverted and folded sac is utilized in MacEwen's operation for the radical cure of inguinal hernia. A third advantage is afforded in the not infrequent cases of non-strangulated ventral hernia with adhesions of the contents to each other and to the sac wall. The tedious and time-consuming separation of the viscera from each other and from the sac wall can be avoided by reducing the hernia *en bloc* without opening the sac. Sims¹⁸ reported to this Society in 1886 an operation for ventral hernia in which he found a hernial ring ten inches in circumference; within the sac was a mass of intestine that had become firmly matted together, so that it was necessary to tear it away. The operation lasted four hours and seventeen minutes, as many as one hundred and fifty bleeding points being tied. A number of similar cases are on record. I see no good reason why the hernia may not be reduced *en masse* without opening the sac, provided the contents of the latter are not strangulated, and thus render

unnecessary the dangerous and tedious separation of visceral adhesions.

In conclusion I would call the attention of those who may feel inclined to adopt the procedure in practice to the advisability, not to say necessity, of draining the space between the inverted peritoneum and the posterior sheath of the recti muscles. Maydl¹³ has already laid stress upon this point. In my case I drained the subperitoneal space by six or eight strands of silkworm gut united in a bundle and emerging at either angle of the wound. A considerable quantity of serum was thus drained off which, if retained, might have undergone undesirable changes and interfered with primary union.

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