Gilliam (D. Tod)

THE OPERATIVE TREATMENT OF VENTRAL HERNIA RESULTING FROM ABDOMINAL SECTION.

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FROM

THE MEDICAL NEWS,

August 13, 1892.

[Reprinted from THE MEDICAL NEWS, August 13, 1892.]

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VENTRAL HERNIA, succeeding abdominal section, differs from the ordinary forms of hernia in that there is no sac with a constricted neck. It forms a broad-based protrusion of the abdominal wall, and is the result of a stretching and separation of the abdominal parietes. The mischief commences in the line of incision, usually the linea alba, which, yielding to the pressure of the abdominal contents and the lateral traction of the abdominal muscles, bulges forward. This forms an entering wedge, and progressive thinning and separation of the fibers go hand-in-hand with increase of bulk. The bulwarks that prevent this occurrence, under natural conditions, are the triangulated arrangement of the superimposed fibers of three sets of muscles, ably reinforced in the middle line by the recti, to which may be added the fascia and the fibrous commissure of the linea alba.

[1] Read in the Section of Obstetrics and Diseases of Women of the American Medical Association, at Detroit, June, 1892.

The peritoneum proper, I think, offers little resistance to the intra-abdominal pressure, and yet I believe it plays an important rôle in the prevention and promotion of ventral hernia. In the natural state the parietal peritoneum offers a perfectly smooth, slippery surface to the visceral peritoneum, and this, in connection with the rotund shape of the abdomen, is a valuable safeguard against hernia.

There is no direct and continued impact of the viscera against the walls, for with every varying movement of the body, however slight, they glance and glide away from each other, thus ever shifting and equalizing the pressure. I will not recount the manner in which the different layers of muscle, with their fibers running in different directions, contribute to this end by insensible contractions, and how they reinforce each other in meeting the assaults from within.

Now, anything that roughens the peritoneum acts as a predisposing cause of hernia. Adhesions to the same membrane are of like import, though in the main conservative. The intra-abdominal pressure becomes concentrated and persistent, and the result is a final yielding of the parietes. Another factor is the cicatricial tissue in the line of incision. I am aware of the fact that some of the operations now in vogue for the radical cure of hernia are based upon the formation of a cicatricial plug at the site of hernial protrusion.

It is a very common belief that a tissue is resistant and stable in proportion to its density. This, however, I believe to be an error. Cicatricial tissue will not compare in point of endurance with healthy,

natural tissues. It has not the vitality. It is not momentarily renewed and strengthened as they are. It is just in those cases in which suppuration and healing by granulation take place that we reap the harvest of herniæ after our abdominal work. Another factor, and one of the most important, is the retraction and contraction of the abdominal muscles. They continually draw away from the weakest point, enlarging the gap and still further weakening the vulnerable part. The woman with relaxed abdominal walls, of which the muscular tonus is diminished, is, according to my experience, much less susceptible to hernia than she of undiminished muscular vigor.

After the hernia is formed and the parietal resistance removed, the viscera become dislocated, with elongation of their ligamentous attachments and prolapse of the mesentery. The places previously occupied by the organs contract, and there is no more room for them in the cavity proper; they lack the support of their natural attachments. Thus by degrees everything becomes changed, and the difficulties multiply. For these reasons the operative treatment of ventral hernia must often be an unrequited task, and this probably accounts for the general apathy and paucity of literature on the subject.

In the light of the foregoing, the ideal treatment of ventral hernia of this form would be to enter the peritoneal cavity, break up adhesions, lop off redundancies, restore the healthy peritoneum, and so manage the superimposed structures as to bring them as nearly as possible into their natural

state and relations, and secure healing by first intention to avoid the weakness of scar-tissue. In a large proportion of cases this is impracticable, and the difficulty is enhanced by the altered state of the abdominal cavity and its contents.

What we most need is an operation that will give a fair measure of success, and which is sufficiently simple and easy of execution to secure its general adoption. It should also be comparatively safe. The invasion of the peritoneal cavity, especially when adhesions exist, must therefore be avoided; for, aside from the extreme difficulty attending the section, when bowel and omentum are glued to the attenuated abdominal wall, rendered more difficult still by the flabbiness incidental to a hernial pouch, the length of time necessary to, and at times the impossibility of, liberating the adhesions, render the procedure extremely unsafe.

The next most desirable method would be to cut down to and deflect the fascia to one side of the median line, dissect up the muscular structures from the median line outward on both sides, interdigitate or overlap these from opposite sides, and suture them in their relative positions. The object of this method is to avoid the weakness and defects attendant on a direct line of union by interposing a series of muscular, fascial, and cutaneous structures between the cavity and the outer world on the median line.

This, while theoretically plausible, is practically impossible; for, it must be remembered, that even in the normal state it is next to impossible to curtail the abdominal cavity to such an extent as to allow the overlapping of muscles and fascia from

opposite sides, and now, that the capacity of the cavity has been reduced, the difficulty is even greater. "Yes, but," it will be said, "there is a redundancy in the pouch that will easily admit of this." I think that on careful examination very little muscular structure will be found at this point, and such as may be found will be so attenuated, wide-meshed, and wanting in contractile properties as to be of little avail. The fascia might be of some benefit, but the skin is too extensile and wanting in elasticity to be of lasting service.

The technique that I have adopted, and which seems to me the most practical, the easiest of execution, the safest and the most lasting in its results, will be recognized as an old-time friend in a new garb. It simply consists in the denudation of an elliptical surface, the turning in of redundant tissue, and the union by suture, and, as an operation for cystocele, has been in use many years.

Before describing the operation in detail, however, it will be necessary to give the preliminary treatment. If the case be one of long standing, with prolapsed viscera and a contracted abdominal cavity, the patient will need a preparatory treatment of several weeks' duration. The object of this treatment is to restore, in a measure, the lost abdominal capacity and to strengthen, if possible, the visceral supports. The bowels must be assiduously attended to; the general health looked after; massage used to improve the muscular tonus, and the patient kept recumbent. At stated intervals, say once or twice a day, the patient is placed in the Trendelenburg position, to distend the upper abdo-

men and to restore the organs to their natural positions. The length of time that this position will be maintained will depend on the easy endurance of the patient. Flatulence, if it exists, should be combated by the proper remedies, of which turpentine is one of the best. For several days preceding the operation measures directed to securing asepsis should be resorted to, not only in the way of general baths, but the cutaneous surface over and around the hernial patch should receive the most painstaking care. In view of the exceeding difficulty attending this part of the work, on account of the lax and wrinkled condition of the skin, I have directed that the patient be placed on her feet during the scrubbing, in order that the skin might be put upon the stretch and the wrinkles effaced. The researches of Kelly have shown how extremely difficult it is to dislodge the germs that ensconce themselves between the layers of epithelium, and hence the extra care. As healing by first intention is the *sine qua non* to a successful issue, it will be seen that the preliminary cleansing process cannot be too rigid. All this having been attended to, and the utmost care being observed in the preparation of the instruments, appliances, and the persons of the operator and assistants, the case is ready.

OPERATION.—With a curved sound depress the pouch over the median line, carrying the instrument in toward the cavity, and with tenacula approximate the sides, being careful not to use traction, as there must be no tension. The line of contact will be found to be elliptical. This may be blazed, or marked out with iodine or ink. Now, with scissors

and tenaculum, follow this around, laying bare the fascia and working toward the center, until an inch or more is exposed. This leaves an elliptical island surrounded by an elliptical furrow. It is well to freshen the outer margin of the skin of the island. If the area is not too large I am in the habit of denuding the whole. Bleeding vessels being secured, the blood and dèbris cleared away, and the parts washed with an antiseptic solution, a small rubber drainage-tube is slipped over the sound and the parts depressed as before. The tube must be long enough to project at either extremity. The use of the tube is sometimes dispensed with, especially if the entire surface has been pared. A continuous catgut suture is now run along the inner aspect of the denuded strip and made to include the skin-margin of the central island. A second and a third row are superimposed until the gap is closed and the parts brought into nice apposition. The probe is now withdrawn, leaving the drainage-tube in place. Aristol is sprinkled over the wound and a heavy layer of gauze over this.

Strips of rubber adhesive plaster, to which tapes have been attached, are now applied to the sides of the abdomen well down, and the tapes tied over the dressings in the median line. Over this is placed a thick layer of absorbent cotton, held in place by a four-tailed flannel bandage. The patient is put to bed and treated just as after abdominal section, the object being to prevent vomiting and the accumulation of intestinal flatus.