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A Study of the Radical Cure of
Hernia by Marcy's Method.

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A STUDY OF THE RADICAL CURE OF HERNIA BY MARCY'S METHOD.

WITH A REPORT OF EIGHT CASES INCLUDING OPERATIONS.

The operation for the radical cure of hernia consists in the treatment of the viscera, peritoneal sac, the opening in the abdominal wall, and the incision of the skin.

Marcy's operation differs very materially from all others in three important respects, viz: the manner of suturing the rings with a perineal needle, taking a shoemaker's stitch; the suture material, kangaroo tendon, a non-irritating, easily made aseptic material which is very strong and capable of resisting absorption and softening for a very long time, sufficiently long for the complete metamorphosis of a plastic exudation into firm connective tissue; the restoration of the obliquity of the inguinal canal by a free dissection of the canal, the elevation of the cord, and the tight closure of the internal ring below it, the dropping of the cord, and the reformation of the canal by drawing together the tissues from either side over the cord with tendon and the shoemaker's stitch.

The advantage of the manner of stitching consists of the close apposition into which it brings tissues, the breadth of the opposing surfaces it affords, and the material thickening it produces in the already thinned-out abdominal wall.

The superiority of kangaroo tendon over silk as a buried suture depends on its being less irritable and less likely to act as a foreign body with the formation of a sinus, and slow healing. Although silk has been used successfully as a buried suture by many masters in surgery, there is evidence of its causing harm



at times in an apparently aseptic wound. Catgut is absorbed too quickly unless over-chromicized, and then it may act as an irritant. All sutures which are brought out upon the skin surface for final removal, cannot be compared with the buried material, because they are removed early and leave the plastic exudate without support, then absorption as a rule rapidly occurs. There is none, or but little connective tissue formation, and the old breach may quickly re-form, within six weeks after the primary operation.

Three months after burying the tendon in the second operation, in case 2, it was removed in apparently the same condition as when inserted, and five months after the primary operation, tendon was removed in short pieces, which was pale in color, soft, somewhat thickened, easily broken, but retained its original shape. In both instances the tendon was surrounded by a dense mesh-work of connective tissue which was sufficient evidence of round cell infiltration that had undergone complete metamorphosis.

The restoration of the obliquity of the canal affords the natural means for strengthening the parts and helps to prevent a recurrence of the hernia.

An incision is made in the skin over the inguinal canal, and in the same direction, between three and four inches in length; the opening is widened by dissecting up with the fingers the skin and superficial fascia on either side, and the cord exposed. The canal is then opened by passing in a director above the cord and cutting with a scalpel the outer wall. It should be opened way to the top. The cord should now be separated from its attachments and drawn out with the sac, which in small indirect herniæ is usually found empty and concealed beneath the infundibuliform or fascia propria of the cord, so as to expose the rings.

When the gut is strangulated, the sac is carefully opened with the aid of a director and the internal ring cut above. Gerster's suggestion to cut the con-

striction from without inward instead of from within outwards is an especially valuable one. The gut is further drawn out and very carefully inspected before it is returned to the abdomen. If the peritoneal coat is smooth and shiny, the gut may be put back into place and the sac, if free from adherent omentum, closed with sutures passed through the neck. When there are adhesions between the omentum and sac they should be broken down and the bleeding points tied with animal ligature. If the omentum is deformed with many adhesions, which when separated leave large raw surfaces, with many bleeding points, or is reduced with great difficulty, perhaps only by enlarging the ring, to sew it off near the abdominal opening with a shoemaker's stitch, so as to include all the vessels, cut away the protruding portion, and close in the raw surface with an over-and-over stitch, may be considered better surgery than the reduction of the mutilated part.

If gangrenous changes have started in the gut, as indicated by the roughened peritoneal coat and greasy sensation to the touch, there are three ways of proceeding: when in a doubtful condition, enlarge the opening in the abdominal wall sufficiently to allow free circulation in the gut, draw further out the strangulated coil so as to expose about an inch that is in a normal condition, pack aseptic gauze lightly about and under the coil so as to prevent the spontaneous return of the bowel, and keep the parts covered with sterilized hot wet cloths wrung out of a normal salt solution. In this manner the changes in the circulation of the strangulated gut may be watched for several hours if necessary, during which time the patient is maintained under ether narcosis, and, if the circulation shows signs of returning in the strangulated portion by a change of the dark color to a paler, redder hue, the parts may be immediately repaired.

When gangrene of the gut has taken place, one can resort to a resection with the formation of an anas-

tomosis by some one of the various perfected methods, or an artificial anus may be made, and the gut sewed into the inguinal wound, or the gut can be fastened with a few stitches to the edges of the opening and after dressing the wound aseptically, left to the care of nature. In either case the prognosis is very bad and depends as much upon the condition of the patient at the time of operating, as upon the severity of the operation *per se*.

The treatment of the sac is a very important matter and, as a rule, the most difficult part of the operation for a radical cure. It should be dissected out in every case where it is possible to do so except in young children, and all traces removed from the edges of the internal ring. As it lies flaccid in the canal the sac can hardly be distinguished from the elements proper to the cord, and it must be opened near the neck by a careful dissection with a director and scalpel, while one bears in mind that it may be confined in the sheath of the cord, under the fascia propria, then separated all around from the tissues forming the internal ring, and finally stripped off from the cord and other adhesions, from the neck downward, that one may be sure of its complete removal from the hernial canal. The sac should then be freed from any contents, the neck sewed off, the remains excised, and the stump dropped into place. Unless this is properly done there will be a peritoneal pouch that extends into and acts upon the canal every time there is any abdominal straining, very much like a bag of water before the advancing head during parturition, which finally may effect a dilation of the rings and reproduce the hernia. This is due to the fact that if the sac is not entirely separated from the internal ring and sewed off by itself the complete closure of the neck is attended with great difficulty and one has no means of determining that a small pouch is not left immediately beneath the cord, or that a part of the sac is not included in the sutured edges of the internal

ring. When the sac is not entirely removed from the hernial canal it becomes a weak point in the operation for radical cure to the hernia and was the probable cause of failure in many of the earlier operations, especially those where the ring was closed without making an incision in the skin.

The final steps of the operation consist in closing the internal ring tightly with a line of shoemaker stitches, starting from the lower margin of the ring and working upward; the closure of the external ring after the cord is dropped back into place, by drawing together the tissues on either side, with an over-and-over stitch, so as to cover over the cord; the approximation of the edges of the skin wound with a continuous buried suture; and the sealing of the line of incision with collodion reinforced by a few fibers of absorbent cotton.

Case 1.—Clarence S., age 41 years, has had an oblique inguinal hernia for twenty years on the right side for which he has worn a truss fourteen years, and on the left side he has had a similar hernia for four years. A short time before operating the gut had slipped down the canal and was returned only with great difficulty under narcosis, and at the time of operating a bunch was found in the groin which proved to be strangulated omentum undergoing a process of suppuration.

Operation Nov. 20, 1891. The right side was treated by dissecting up the cord and closing the rings without interfering with the sac; the incision in the skin was repaired in the usual manner. On the left side the sac, including omentum, was tied off at the neck and the canal and skin closed except at the lower angle, where a strand of tendon ligature was brought out to act as drainage.¹

The wounds healed quickly, all but the open end on the left side, by first intention, and for about four months there was an apparent cure, when the abdominal wall began to bulge at the inguinal rings on both sides and soon afterwards the herniæ were reproduced.

May 9, 1892, the case was again operated upon, this time

¹ As buried tendon or animal ligature of any kind will almost always cause trouble in a septic wound and sooner or later have to be removed unless early absorption takes place, it must be considered a bad practice to drain a wound in this manner. If there is any question about the aseptic condition of the wound, it is better not to use a continuous suture nor to bury it so that it can not easily be removed in case of necessity. To drain an aseptic wound in this manner offers an unnecessary path for possible infection.

by Dr. Marcy, who closed the rings and wound without dissecting out the sac. Both wounds healed by first intention, but in from four to six weeks after the operation small multiple abscesses formed at the site of the incisions, which would discharge, rapidly heal, and then break down again. They did not appear like ordinary abscesses, but more like a retrogressive degeneration of tissue without inflammatory changes. Treatment by antiseptic cleansing and dressing did not apparently modify the course of this trouble, but as soon as a truss was applied with pressure it immediately ceased. However, before this measure of relief was adopted, the abdominal wall became quite thin from the breaking down of tissue, and although by wearing a truss the patient experienced no trouble until fall, a direct abdominal hernia then developed above the cord, near the upper limit of the internal ring but unconnected with it, on the right side.

To relieve this last trouble a third operation was performed by Dr. Marcy, Feb. 14, 1893. The sac was opened and found to contain adherent omentum; this was freed from its adhesions and a large portion sewed off and removed. The sac was tied at the neck and the stump returned to the abdomen. The operation was finished in the usual manner. Healing occurred by first intention, but at the end of a month the tissue again began to break down the same as after the first operation, and the patient was advised to wear a supporter with a large hair pad. May 1, a small abscess formed and since the patient has been free from trouble. July 15, there was an apparent cure.

Case 2.—An oblique inguinal hernia in a feeble male child 3 months old. Operation Dec. 8, 1891. The cord was raised and the ring closed by a simple over-and-over stitch. The collodion dressing became loosened from the action of urine at the end of two days and was removed, the skin carefully cleansed with a bichloride solution and dried, and a fresh collodion seal applied. Healing occurred by first intention and resulted in a radical cure of the hernia.

Case 3.—Charles G., age 40 years, has had an old oblique inguinal hernia on the left side. Operation Feb. 2, 1892, without excision of the sac. Healing occurred by first intention and it looked for a while as though a radical cure would be the result; in July, however, there appeared a swelling over the ring which seemed to indicate a return of the hernia, but which slowly disappeared and the patient did very well until March, 1893, when the parts were strained severely by coughing and lifting and the hernia was reproduced.

Case 4.—Arthur B., age 27 years, has had an oblique inguinal hernia on the right side since childhood. Operation June 15, 1892. The ring was closed without interfering with the

sac, healing occurred by first intention and a radical cure of the hernia followed.

Case 5.—William S., age 25 years, has had an oblique inguinal hernia on each side for some time and for which he has worn a double truss. Both sides were operated upon for the closure of the ring without the obliteration of the sac, August 1, 1892, and healed by primary union. The right side was radically cured, but the hernia on the left returned and a second operation was performed Dec. 8, 1892. The sac was untouched, but the canal was carefully opened and the ring sewed up tightly about the cord so as to shut off the lumen of the sac at the neck. About six weeks after the operation the patient slipped on the ice, and in the attempt to save himself gave the side a severe wrench, which immediately opened the ring and let the gut down. A third operation was thereby necessitated and performed March 9, 1893. This time the sac was opened, dissected out, ligatured and removed and the smooth edges of the internal ring, very much thickened by the former operations, were scarified and tightly approximated; the canal and skin wound were closed in the usual manner. The parts healed by first intention and there is every reason to expect a radical cure.

Case 6.—Leah G., age 55 years; married but never has been pregnant; has had an inguinal hernia for five years. The sac was a large one, extending as far as the labia and united to the surrounding tissues by firm adhesions. Strangulation occurred Feb. 28, 1893, and continued six hours and till the time of operation. The gut was found deeply congested and of a bluish hue, but with a smooth glistening peritoneal coat. It was returned to the abdomen, the sac carefully dissected out and excised, and the operation finished in the usual manner. Although careful aseptic and antiseptic precautions were used, the wound became infected and healed by a slow process of granulation, which was greatly retarded by the presence of the deep buried suture; however, the case finally recovered and the hernia has shown no evidence of returning.

Since writing the above I have operated on two cases:

Case 7.—Richard S., age 47 years. On the left side he has suffered from a direct inguinal hernia for nearly one year and April 20, 1893, another suddenly developed on the right side. Two days later both sides were operated on and the sac carefully dissected out and excised, primary union occurred and promises well for a radical cure.

Case 8.—Alley S., age 11 years, was seen July 2, 1893, with a strangulated inguinal hernia complicated by an undescended testicle, which lay directly in the canal. The gut was returned to the abdomen with some difficulty under

narcosis and then it was found impossible to wear a truss owing to the presence of the testicle. Therefore it was deemed best to make an incision, sew up the ring, and if possible, bring the testicle down into the scrotum. The tunica vaginalis, testicle and cord were dissected out *en masse*, the ring closed without opening the sac, the tunica opened and its contents inspected, the cord stretched as much as possible, a pocket made in the scrotum by inserting into it the fingers, the testicle and its tunics were partly brought down and the skin of the scrotum was brought up until the parts were nearly in their normal relation and fastened firmly by a suture that passed through the skin at the bottom of the scrotum and the cut edges of the tunica, and brought the bruised surfaces of these membranes into close apposition. The parts healed by primary intention, and as a result of the swelling and subsequent absorption natural to the process of repair, the traction exerted by the scrotum in seeking its normal position and perhaps the aid rendered by the force of gravity the testicle has descended still further, and at present is in a position out of harm's way. It is too early to decide the question of cure of the hernia.

In reviewing the above cases the value of excision of the sac is at once manifest; some cases cannot be cured without this procedure and there is always a great risk of a return of the hernia where the sac is left. The difficulties in cases one, three and five, came from this source; the excision of the sac on the left side in case one, was performed after a ligature had been passed simply about the neck and therefore the adherent omentum was contained between its cut edges and prevented proper union. In young subjects the hernia is usually of the nature of the congenital variety and the simple closure of the ring pinches the neck of the sac together, sets up a local irritation, and promotes the natural obliteration of the communication between the cavities of the peritoneum and tunica vaginalis.

