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A REPORT OF FOUR SUCCESSFUL CASES, WITH REMARKS.

By J. William White, M.D.,
Professor of Clinical Surgery, University of Pennsylvania; Surgeon to the University, Philadelphia, and German Hospitals.

presented by the author

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ORIGINAL ARTICLES.

THE RADICAL CURE OF HERNIA—A REPORT OF FOUR SUCCESSFUL CASES, WITH REMARKS.[1]

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Professor of Clinical Surgery, University of Pennsylvania; Surgeon to the University, Philadelphia, and German Hospitals.

Eliza Myers, sixty-three years of age, white, a native of Germany, and by occupation a domestic, was admitted to my ward in the Philadelphia Hospital, on the 11th of last December, with the following history: For nine years she had had a swelling in the neighborhood of the left groin, which had occasionally disappeared, but now and then became tender and painful. About four hours before admission she had been seized with a severe pain in the region of the swelling which increased, and which, when I saw her at 2 o'clock, A.M., was referred chiefly to the umbilicus. At this time there was frequent vomiting, fecal in color, but not in odor; a temperature of 97.2, and a pulse of 56; a hard tumor about the size of a walnut, quite movable, and feeling through the thick layers of subcutaneous fat which covered it like an enlarged lymphatic gland, was observable at or about the level of Poupart's ligament on the left side. Manipulation of this swelling excited vomiting; an enema given a short time previously had brought away a considerable quantity of fecal matter, and she had had a large spontaneous natural stool a few minutes before I saw her.

Taxis having failed to produce any effect, she was etherized, and the superincumbent layers of tissue divided, the tumor proving to be a femoral hernia containing a very small but very tense knuckle of gut with a little omentum. The constriction which was at the femoral ring was divided, and the gut, which rapidly assumed a natural appearance, was returned. The omentum, which was partially adherent to the neck of the sac, was dissected loose and tied off, a portion being removed. The sac itself was then carefully freed with the finger from its adhesions to the edges of the femoral ring, was drawn gently down-

[1] Read before the College of Physicians, April, 1889.

wards for a short distance and encircled with a stout cat-gut ligature which was tied tightly around the neck, the ends being left long. One of these ends was then threaded through a stout curved needle which was carried from within outward through the inner margin of the ring—Gimbernat's ligament—and the soft parts above it exclusive of the skin ; the other end was carried through the outer edge of the ring in the same manner, the femoral vein being protected by the tip of the finger ; these ends were then tightly knotted and cut off. An investigation with the finger then showed that the stump of the sac completely filled and occluded the ring. The pubic and iliac portions of the fascia lata were next closely brought together by interrupted sutures as were the soft parts above them, and a few cat-gut strands were laid through the deep portions of the wound which was then irrigated and dressed antiseptically. The case ran an aseptic course, union by first intention being obtained without a drop of pus. The highest temperature was 99.2. The bowels were moved on the fourth day by a small dose of Rochelle salts ; the patient was kept in bed for six weeks, but has ever since been up and about in the condition in which you now see her.

I desire to call attention in the clinical history of this case to the fact that with some general symptoms pointing to strangulation, she yet had local conditions that both to sight and touch seemed to favor the view that the swelling was due to lymphadenitis, and that at the same time she had one large evacuation produced by enema, and another which was spontaneous. Such a combination of circumstances might easily lead to a mistaken diagnosis, and constantly does lead to the postponement of operation, or to the failure on the part of the general practitioner to seek surgical aid until valuable lives have been lost.

I have recently called attention to these and other minor difficulties in the diagnosis of hernias, and merely wish now to emphasize the practical point that operation and not delay should be considered as indicated whenever there is reasonable ground for even a suspicion of strangulation.

Jacob Vetz, forty-nine years of age, was admitted to my ward in the Philadelphia Hospital on January 25th, 1889, with a left femoral hernia of moderate size which had given him much inconvenience by its occasional irreducibility, which was always accompanied by great pain and by symptoms of impending strangulation. Trusses had not been successful in retaining it, and the patient pressed earnestly for relief by operation. On the 28th of January, having previously been put on a restricted diet and having had moderate purgation by salines, he was etherized, and the following operation performed :—

The sac of the hernia was exposed by a longitudinal incision inclining slightly inwards at its lower end and extending from Poupart's ligament to a little below the inferior edge of the saphenous opening. The sac when exposed was found to be very adherent to the edges of the saphenous opening and to contain adherent omentum. It was opened by an incision corresponding to that through the skin and fascia, the knuckle of gut which it contained was easily reduced, and the omentum carefully separated and tied off, the stump being returned and left free within the abdominal cavity. The opening in the sac was closed by a continuous cat-gut suture, and the sac itself was then with considerable difficulty separated from the edges of the opening and from its adhesions to the femoral vein and to the margins of the ring, the tip of the index finger being swept around just within the ring so as gently to loosen the sac through its entire circumference. A cat-gut thread was passed through the fundus of the sac, and then alternately from side to side until the neck was reached, after which by drawing upon it the sac was doubled upon itself. It was then pushed gently into the femoral ring and was held in place by carrying the ends of the same suture through Poupart's ligament above, and through the pubic portion of the fascia lata below. It was then tightly knotted fixing the sac as a plug in the femoral ring and completely closing the latter at the same time by bringing together the ligament above and the ascia below. It having been ascertained by the finger that the femoral ring was in this

manner absolutely occluded, a suture was next passed through the pubic portion of the fascia forming the internal margin of the saphenous opening in such a way as to leave two long ends external, the loop of the suture being on the under surface of the fascia; these ends were then carried from below upwards and from within outwards through the iliac portion of the fascia forming the external margin of the saphenous opening, and were then drawn upon tightly and firmly knotted. The opening was thus closed in the same valvular manner as that employed by Macewen in the inguinal operation by which he causes the external pillar of the ring to overlap the conjoined tendon. A few cat-gut strands were then laid in the wound for drainage and the soft parts closed by interrupted sutures.

The case ran an aseptic course with the exception of a small stitch abscess which discharged itself along the track provided for drainage leaving a little sinus that soon healed. There was no suppuration or other disturbance of the deep portion of the wound. The highest temperature was 99.3. The patient was kept in bed for six weeks since which time he has been up walking about the hospital in the condition in which you now see him.

The method adopted in this latter case is a modification of that of Macewen as employed in the inguinal variety of hernia, and has been principally described and practised by Dr. H. W. Cushing, of Boston. The details of the operation for the radical cure of femoral hernia are not given satisfactorily, so far as I know, in any, even of the more recent, systematic works on operative surgery. Jacobson says: "Omental femoral hernia should be operated on when there is the least difficulty in fitting or unwillingness to wear a truss, the sac being always ligatured and taken away. The same course should be followed in all cases of strangulated femoral hernia when the condition of the patient admits it." He gives no description whatever of the operation. Stephen Smith describes a method for which he does not give his authority, which consists in transfixing the sac together with the pubic portion of the fascia lata and then Poupart's ligament in such a manner as to encircle with a wire suture the tissues in the neighborhood of the femoral ring. The method seems to me complicated, but I have had no opportunity of trying it, and the description is far from satisfactory. Barker briefly describes a method which is practically that which I employed in the case of the woman before you.

The questions still in dispute in regard to inguinal hernia are equally unsettled as to the femoral variety. Is it better to make a plug of the whole sac by folding it upon itself, or to avoid the sometimes tedious separation of the fundus by ligating and dividing the sac just below its neck, using the stump to occlude the ring? We have here an example of each method, and thus far with equally good results. Is it better to open the sac, or when possible to reduce its contents and treat the sac without opening it? It would seem safer to open it in cases of strangulation for the purpose of satisfying one's self as to the condition of its contents, and it is certainly absolutely necessary to open it when performing an operation for the radical cure of hernia, if, as in this instance, there is adherent gut or omentum. In other classes of cases it may be considered an open question. Should the temporary use of a truss follow the operation for radical cure? There is much to be said on both sides of this question, but my own feeling is that a compress and spica bandage give all that is needed in the way of moderate evenly distributed support, while avoiding the risk of producing absorption of the newly formed cicatricial tissue, which is inseparable from the more concentrated pressure of a truss.

The next case which I have to present is that of C. B., a man of twenty years of age, who was admitted to the German Hospital on the evening of May 5th, 1888, suffering with strangulated oblique, complete inguinal hernia of the right side. With the exception of the knuckle of gut which it contained, the scrotum on this side was empty, and it appeared that when the hernia was reduced the right testicle could be felt in the inguinal canal. It frequently gave him great pain and distress, and the hernia was very difficult to retain on account of the presence of the testicle, the truss exciting swelling and inflammation; for the same reason the attacks of strangulation had been frequent. On this occasion the pain was agonizing and unbearable, and both the patient and his family, who accompanied him, agreed that the prevention of other recurrences was worth any risk.

Herniotomy being performed in the usual manner, the small, immature testicle was discovered lying in the inguinal canal near the external abdominal ring and held in place by bands of recent inflammatory lymph. The sac, *i. e.*, the tunica vaginalis, contained a large quantity of fluid and ten or fifteen inches of much congested intestine. The stricture, which was at the internal ring, was divided and the gut easily reduced. On account of the history which the patient had given, and for the reasons stated above, the cord was then ligated as high as possible, the stump returned to the abdomen, and the remaining portion, together with the testicle, removed. This allowed the upper portion of the sac to be pulled strongly down and ligated, after which the remainder was easily dissected out with the finger, as in cases of castration. Cat-gut drainage was used, and the wound brought together, the superimposed layers in each wall of the wound being first stitched to each other, and the whole wound approximated afterward. Union by first intention under one dressing followed, and the patient was left with a firm cicatrix, and at the present time, eleven months after the operation, is without the slightest remains of the hernial tumor, although he has been actively following his trade of paper-hanger.

In these hernias in which the vaginal process of the peritoneum does not close and the hernia therefore lies in contact with and includes a testicle, the problem of effecting a radical cure is manifestly complicated. The ordinary plans are inapplicable as the sac of a hernia which surrounds a cord and testicle can neither be folded up after Macewen's plan nor ligated and excised. It is directed under these circumstances to divide the sac in the middle, and then close up the lower part by a few stitches, so that it may form a tunica vaginalis. The upper portion is then to be sealed up posteriorly, allowing the cord to escape behind it, after which it is closed up by stitching, and may then be treated by any of the ordinary methods. It has always seemed to me that this must necessarily leave a weak point in the neighborhood of the cord, and that the effacement of the hernial pouch must be more or less incomplete. For these reasons, where in a congenital hernia there is a retained and atrophied testicle, it is better to sacrifice the latter organ as in the case I have just shown.

I had expected to present a fourth case of hernia to you this evening, but have been unable to secure the attendance of the patient. The case was one of scrotal hernia, the operation was performed in March, 1888, and the result was as good as in any of these cases, though all the conditions at the time of operation were most unfavorable. Still another case, a large labial hernia in a young woman is now under treatment, the patient having completely recovered from the operation, but still keeping the recumbent position as a precaution against recurrence.

We have here, however, three excellent illustrations of the possibilities of the radical cure of widely different hernial conditions. The operation is one which is now accepted by the vast majority of surgeons all over the world as

entirely proper in all cases of herniotomy for strangulation. Conservative surgeons are not yet clear as to its advisability in those cases of hernia which present no threatening symptoms, and in which the palliative treatment by trusses seems effective. It may be stated, however, without fear of contradiction, that it is steadily gaining ground in the favor of the profession. The excellent statistics shown by careful operators everywhere have done much to popularize the procedure, and a few of those who are most cautious are now beginning to include in the list of cases in which the operation for radical cure is justifiable all those in which trusses act imperfectly, give rise to pain or irritation, or are especially unpleasant to the patient. It would seem that its early adoption as a systematic operation in the majority of cases is probable, the chances of success being favorable in direct proportion to the youth of the patient, the smallness of the hernia, and the shortness of its duration. And yet there are many important questions still unsettled which very properly exercise a restraining influence upon the profession. It may not be unprofitable briefly to enumerate a few of them :—

First, Is the "radical cure" all that its name implies, or should we withhold our final judgment for a time, until greater numbers of cases have been observed for longer periods? Certainly the proportion of relapses, taking all the reported cases up to the present time, is sufficiently large to prevent a conscientious surgeon from absolutely assuring the patient of a "cure," that is of the re-establishment of such a condition of the abdominal wall that no truss or other artificial support will be required. With the possible exception of Mr. Macewen, nearly every operator who has recorded an extensive series of cases has also recorded a return of the hernia in a certain number of them, and it is fair to suppose that the proportion of these cases of relapse will increase as time goes on and as the cicatrices of the operative wounds are exposed to further and longer continued pressure. It is equally fair, however, to note that the evidence is even now sufficient to justify the belief that in the majority of cases a permanent cure is obtainable, though we have as yet no data which will warrant a more positive statement. It does not seem to me an improvement in terms to adopt the one suggested by M. Trélat, who believes that some form of support is required for a long time, if not permanently, after all of these operations. He rejects for that reason the term "radical cure," and substitutes "surgical cure" (*cure chirurgicale*) as more accurate. It would appear, however, that the doubt, if doubt there be, relates to the substantive "cure" rather than to its qualifying adjective. Mr. Banks, after operating more than one hundred times, and with excellent results, also rejects the term radical cure, for the reason that the subject of hernia is a person with a naturally weak and yielding canal or ring, who after operation will, at the best, still have a weak condition of the abdominal wall in the hernial region. Even if this were admitted to be true (and it is by no means demonstrated), it would be merely an admission of our inability to remove the predisposition to hernia, not of our failure to cure the hernia itself. The question is obviously one which only time can settle. The lack of conclusive evidence at present is due to several causes : *a.* The comparative newness of the operation and consequently of all the figures

relating thereto; *b*. The multiplicity of methods which have been employed, necessitating the separate study of each series of cases and rendering all deductions from the whole number manifestly inaccurate and misleading; *c*. The frequent failure to take into account, even in the statistics of individual operators, the social position and the subsequent occupation of the patient, factors of prime importance in determining the liability to relapse; *d*. The vagueness of the terms often used in describing the resulting condition—"a slight bulging," "a trifling fulness," "partially successful," "benefited," etc., being among the expressions frequently employed. I do not mean to say that these are not as precise and accurate as the circumstances would permit, but I do say that, taking into consideration the natural tendency of each operator to look with leniency upon his own results, we should probably be safe in including such cases among the "failures" rather than in any doubtful group.

SECOND. What is the mortality after the operation? Here again we must be content for the present with the very general statements that in competent hands but few patients die as a result of the operation, and that those who do almost invariably succumb to some form of septic infection. And yet selecting almost at random from published statistics of English and French surgeons of the first rank (Banks, Barker, Socin, Lucas-Championniere *et al.*,) I find that there were 10 deaths among 242 non-strangulated cases. It is evident that we must not base our opinion as to the general advisability of this operation upon the reports of one operator who like Macewen can publish a series of nearly 100 cases with no deaths and no serious complications, but that we must take the average results obtained by the best men throughout the world. I know, for example, of one unreported case, fatal from septicæmia, which was operated upon by one of the most distinguished of British surgeons and teachers, and taken charge of by a highly competent surgeon here, who, however, describes the operation as "perfectly safe and justifiable," and makes no reservation. Others point to the number of deaths which annually occur from strangulation as in itself justification for general, and almost indiscriminate operation. This argument will have more weight when our first question is satisfactorily answered, and we know what proportion of hernias we can reasonably expect to cure. While that is still *sub judice*, and while the mortality from the operation itself in non-strangulated cases is still indeterminate, we cannot base any logical conclusions upon the asserted fatality of hernia in general. Neither should it be forgotten that such fatality is largely among patients with untreated and neglected hernias. The question which the practical surgeon has now to decide almost daily is not whether it is better to operate than to let a patient go without treatment, or with a badly fitting truss, or with an irreducible and frequently inflamed or incarcerated hernia, or even with an irritable hernia and a very tender easily excoriated skin making the best truss unbearable. I have already stated that in my judgment the great majority of conservative surgeons approve of the operation for radical cure, under these circumstances as well as in the presence of actual strangulation. The question which presents the greatest difficulty relates to those cases of hernia to whom a truss is an annoyance; to those cases in which it is claimed, but not demonstrated, that a truss

cannot be worn; to those cases by whom the hernia is regarded as a blemish, and who for that reason insist upon an "*operation de complaisance.*" It is here that the conscientious surgeon will hesitate while asking himself whether on the one hand the probability of *cure* is sufficiently great, and on the other, the risks of operation are sufficiently small to justify interference. I am inclined to subscribe to two statements of Mr. Keetley's, which bear upon this question: "Among reducible hernias, rebelliousness to treatment by truss is one of the rarest indications for operation. In plain language it is usually an indication of incapacity in the instrument makers and inexperience in the surgeon;" and further: "I believe operations involving mechanical interference with the sac and canal to be safe enough in the hands of a few surgeons, but only a few. If I suffered from hernia myself I would not let any one try his prentice hand on the sac of my own hernia and the walls of its canal."

THIRD. Operation having been decided upon in any given case what is the preferable method? The final answer to this question must, like the others, await the testimony of time and larger experience. At present I can but express my individual opinion, based on my own experience, in which I have tried a variety of operations, and on my observation of the cases of others. It seems to me that in complete oblique inguinal hernias the choice at present lies between the operations of Macewen and Barker, in both of which especial attention is paid to the internal ring, which is filled in the one case by the folded sac, entire and unopened, and in the other by the stump of the excised or divided sac, the pillars being brought together differently, but in both cases effectually. The details of these procedures have been so often published that it is not necessary to repeat them. The operations which, like Socin's, ignore the rings, and which are limited to the treatment of the sac, do not seem to me to be philosophical. Minor modifications, such as the manner of suturing the canal, or its open treatment as suggested by McBurney, or the attempt to secure broad fleshy surfaces for apposition by first stitching together the layers of abdominal structures in each wall of the wound, as suggested by myself, are worthy of consideration, but cannot be considered as of chief importance.

In direct hernias the same choice as to treatment of the sac exists, with but little if any difference as to the treatment of the external ring. In femoral hernias I know of no better method than the one I have described in this paper. In umbilical and in ventral hernias operation has thus far been especially unsatisfactory, and statistics are exceedingly meagre, but the same general principle as to choice of method prevails, the sac may be retained and used as a buttress, or excised, the latter method being probably preferable.

In conclusion it is perhaps safe to make a few general statements in regard to this subject, if it be distinctly remembered that, in some important respects, they are to be regarded merely as an individual expression of views liable to frequent change or revision as new evidence is presented, and based on facts which for want of space cannot be presented in this paper.

1. In all operations for strangulated hernia when the age and condition of the patient permits, an attempt at securing a radical cure should be made.

2. Among non-strangulated hernias the following may be considered

as especially justifying operation; those which are irreducible with adherent omentum frequently incarcerated or inflamed; rebellious to the use of a truss; so large or so painful as to render work impossible; distinct at four years of age, especially among the poor and ignorant where proper attention to the use of a truss cannot be secured.[1]

3. In quite young children a radical cure may be hoped for from the use of a truss or support.

4. In adults it should never lightly be assumed that a truss cannot effectually and persistently retain the hernia, making an intelligent and obedient patient practically both comfortable and safe. In the majority of cases this may certainly be taken as a starting point from which to consider the propriety of operation.

5. Whatever method is chosen absolute asepsis is an essential for success and safety. While the former may be attained in suppurative cases, the latter is undoubtedly imperilled, nearly all the fatal cases which have been reported having been attended by the formation of pus.[2]

6. Sufficient data have not been gathered together to enable us to judge finally as to certain minor points, such as the treatment of the sac and rings and canal, the use of a truss, etc., nor even of the much more important questions of mortality and permanency of cure, wide differences of opinion still existing among prominent surgeons as to all these matters.

[1] Jacobson. This is not meant to be an exhaustive list of cases requiring or justifying operation.

[2] This is only worthy of special mention because suppuration has been claimed by several surgeons to be really an advantage, a most dangerous and misleading doctrine which from the risks of pus decomposition would vastly increase the dangers of this as well as all other operative wounds.