rhage. In my case no attempt was made to enucleate the cyst. It was simply incised and drained, and this treatment in a large number of similar cases has proved very successful. In 1897 Mr. Alban Doran stated that he had collected seventy cases treated in this way, and that of this number sixty-five had recovered.

Many retroperitoneal cysts with deep and central connections have been successfully removed, but I do not think there are many cases in which this operation can be undertaken without considerable danger to life. In any case, however, where very little enucleation is required, and a well-defined pedicle is present, which can be transfixed with a needle, leaving only a small cut surface after the separation of the tumour, the operation may be undertaken with a good prospect of success. Sir Spencer Wells recorded a case, diagnosed as an ovarian tumour, which was operated on by Bozeman. Twenty pints of fluid were drawn off, the pedicle tied, and the cyst cut away. But there are other cases in which the serious connections of the tumour prevented the completion of the operation. The difficulty of extirpation arises from the deep and almost inaccessible position of the base of the growth, and the important nervous and vascular structures with which it is connected. Portions of the pancreas have sometimes been excised with the cyst and the splenic artery ligatured. These operations are occasionally followed by very troublesome fistulae.

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STRANGULATED FEMORAL HERNIA : SUCCESSFUL PRIMARY RESECTION OF THE DAMAGED GUT.

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Up to the present time it may be considered a still debatable point as to the best course to pursue when the state of the bowel indicates that its recovery is beyond hope. In many cases our course is decided by the condition of the patient; there is no alternative to leaving the diseased gut *in situ* and allowing an artificial anus to form, this lesion to be repaired later by some method of secondary operation. If the patient's condition is good, a primary operation may be done with a very good prospect of success, and certainly a great saving of time. As to how the resected bowel should be joined, whether by mechanical aids or by simple suturing, this depends on the opinion of the surgeon. Mr. Jonathan Hutchinson junior's statistical paper on the subject in vol. xxxii *Transactions of the Clinical Society* shows a marked superiority of suturing, 46 per cent. of recoveries against 7 per cent. for those where Murphy's button was used, which 46 per cent. might have been improved by the inclusion of another successful case of my own.¹ These figures, however, point forcibly to the conclusion already held by most surgeons that simple suturing, if expeditiously carried out, is more certain of accurate apposition, and has the great advantage of removing all anxiety as to the ultimate fate of the button.

From the technique employed in the following case three points may be drawn attention to: (1) The accurate apposition of the mesenteric border of the cut ends was attained by the stitch similarly used by Maunsell in his method of resection. (2) The adoption of a continuous Lembert's suture whereby the sutured edges are more evenly supported and much time is saved. This method I adopted in my other case. (3) The resection *in situ*, instead of making an abdominal incision, withdrawing the damaged gut and running the risk of fouling the peritoneal cavity. Should any difficulty be met with in replacing the bowel, the opening can be enlarged and then resutured without causing any weakening in the lower part of the abdominal wall.

S. S., 45, married, was admitted into St. Thomas's Hospital under my care on June 6th, 1899, with a strangulated femoral hernia.

History.

The hernia, which was on the right side, was first noticed some seven weeks before, coming on after a severe attack of vomiting (cause). She was fitted with a truss, and suffered no further inconvenience until June 4th, when she was suddenly taken ill in church with pain and vomiting. The hernia was found to be irreducible. The constant vomiting with severe abdominal pain continued for forty-eight hours, when she sought admission into the hospital.

Condition on Admission.

She was found to have a small tense right femoral hernia without any impulse, and with some oedema of skin over it. Her pulse was 84, respirations 20, and temperature 99°. The vomit was bilious, and no flatus could be passed. There was some hiccough.

Operation.

Immediate operation was advised and proceeded with. After opening the hernial sac in the usual manner and setting free some turbid fluid, it was found that only a small knuckle of gut occupied the sac. This gut was very black, thickened, and covered with lymph in patches, and after relieving the constriction and drawing down the gut, it was seen that the upper end was ulcerated through down to the serous layer, and the lower point of constriction was also thinned. From the state of the intermediate gut and the age and condition of the patient being favourable, it was determined to do immediate resection rather than allow an artificial anus to be formed.

The resection was able to be done *in situ*. Makins's clamps were applied above and below the lines of constriction, and three inches of bowel were removed with scissors, with the corresponding portion of mesentery. All bleeding points were ligatured with fine silk and the cut mesenteric edges united. A fixation stitch, as in Maunsell's method, was then passed between the mesenteric edges of the cut ends of the bowel, and they were brought close together with the serous layers apposed and the mucous edges inverted. A continuous catgut stitch then brought the mucous edges together without any constriction, and a continuous Lembert's suture of fine silkworm gut was then passed through the sero-muscular coat. With slight enlargement of the wound upwards into Poupart's ligament the gut was easily replaced in the abdomen, after sponging it with normal saline solution. The sac was separated, ligatured, and removed. The pectineal fascia was dissected up, and stitched over the femoral opening to Poupart's ligament, which was itself resutured up where it had been divided. After suturing the wound with horsehair it was dressed with cyanide gauze. The whole operation took about forty-five minutes, and the patient's condition was most satisfactory, her pulse maintaining its former rate of 84 per minute.

After-History.

On the evening of the operation she was given a simple enema, and then one of a pint of normal saline solution. Temperature 99.4°. Put on rectal feeding.

June 7th. Condition very comfortable. Temperature 98.8°; pulse 80. Allowed a teaspoonful of warm water by mouth every hour. In the evening temperature 100.2°, respirations 24, pulse 84.

June 8th. Flatus passed during the night. Temperature 99°, pulse 60. Given teaspoonfuls of egg albumen and brandy.

June 9th. Temperature 99°. Milk and water ordered; given simple enema.

June 10th. Temperature normal, and continued so; calvesfoot jelly.

June 11th. Raw meat juice given.

June 12th. Very comfortable. Taking now beef-tea Oj, milk Ojss, and eggs.

June 13th. Wound dressed, stitches removed, one small stitch now suppurating.

June 15th. Bowels opened naturally; given milk puddings.

June 18th. Fancy diet; wound quite healed.

June 21st. Allowed to get up.

June 27th. Left the hospital quite well.

REFERENCE.

¹ *Lancet*, 1897, vol. i, p. 1614.

SOME REMARKS ON THE RADICAL CURE OF HERNIA; BASED ON 190 CASES OF OPERA- TION FOR THE CURE OF OBLIQUE INGUINAL HERNIA.*

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I HAVE chosen this as the subject of my address for two reasons—first, because it is one of which I have had a fair amount of experience, and secondly, because there is perhaps no other operation in surgery about which so much difference of opinion exists, and none about which more has been said or written during recent times. Early in 1899 I read before the Nottingham Medico-Chirurgical Society a paper detailing 117 cases of operation for radical cure, and since then I have operated on 73 cases, bringing the total number of operations

* An abstract of the Presidential Address to the Midland Branch of the British Medical Association.

for the cure of oblique inguinal hernia only, to 190. It is to this variety that my remarks are confined.

I will discuss briefly the following points: (1) The mortality of the operation; (2) the choice of operation with reference to the permanence of the cure; (3) the suturing material; (4) the necessity of wearing a truss afterwards; and lastly, the question of operating in young children.

MORTALITY OF THE OPERATION.

It is generally admitted that the operation is attended with a very low death-rate. The figures published by Barker, Coley, Lockwood, and Macewen, among others, show that the mortality is about 1 per cent. I have had four deaths, but in two of them strangulation existed. In one gangrenous bowel was resected, the ends being joined with Murphy's button. This case died with persistence of symptoms after operation. In the other the patient, who was aged and feeble, did not rally. Of the two non-strangulated cases, one died from broncho-pneumonia due to the anæsthetic, which happened to be ether. The remaining case became septic, and died from cellulitis of the abdominal wall. The patient was a stout man, aged 57, with an irreducible scrotal hernia containing both large and small intestine; the former was adherent to the sac, from which it was dissected off with considerable difficulty. The wound became septic, probably from interference with the bowel wall, and he died in ten days from cellulitis. This gives a mortality of about 2 per cent., but in comparing the figures with those quoted it must be remembered that in none of them are included operations on strangulated herniæ, and that this condition accounted for half of my fatal cases, reducing the mortality for non-strangulated cases to a small fraction over 1 per cent. The ages of the patients varied from 1 to over 70 years.

CHOICE OF OPERATION AND PERMANENCY OF CURE.

These two points, being intimately related, may be considered together. In my earlier operations I employed various recognised methods, in all of which the cord was left occupying its position in the inguinal canal, but I have for some time discarded them in favour of what is practically the Bassini-Halsted, which I regard as the best operation of to-day. The recurrences that have come to my knowledge all occurred after the performance of one or the other of the first-named operations, but under the Bassini-Halsted method I have not had a single relapse that I know of. It will be remembered that Bassini's differs from all previously described operations in this, that instead of trying to patch up the old canal, it is done away with, and a new passage made for the spermatic cord to the scrotum. Herein lies the reason for the success of this operation. In the other methods you have the disadvantage that the spermatic cord, a somewhat bulky structure, still occupies the inguinal canal and really invites a relapse, as the closure of the canal, as long as it is thus occupied, is a mere figure of speech and not a reality. The Bassini-Halsted operation not only closes the inguinal canal but obliterates it—both canal and external ring cease to exist, the whole anatomy of the part is altered. It has to a great extent removed the doubt which existed in my mind up to the time of its introduction as to the probability of radical cure being effected by operative means. I believe one is now justified in assuring patients that after its performance they will be permanently cured. No doubt some authorities would regard such statements respecting the permanence of the cure as too sanguine in consequence of insufficient time having elapsed between the operations and the reports, and would contend that as relapses have been known to occur as late as five or eight years after operation, that this period must be allowed before they can be correctly described as cures. As it is only ten years since Bassini's operation was introduced, and as it is only still more recently that it has been extensively practised, it is obvious that such opinions would be accepted with reserve by surgeons who adopt these views.

It seems to me, however, that the scepticism regarding the permanence of the cure has been largely based on other operations than Bassini's. No doubt the permanent success of any operation which does not obliterate the inguinal canal is doubtful, but I think it hardly necessary that five years and upwards should elapse before one can accept a Bassini operation as

having effected a radical cure. The operation from the first bears the stamp of success upon it; and if a critical examination of the parts, say a year after return to work, shows that the external ring and the canal have ceased to exist, that no effort you can call on the patient to make will produce the slightest bulging, and that the site of the hernia has been replaced by a firm unyielding scar, I believe we are justified in pronouncing this patient cured.

With respect to my own experience of this operation, I am aware that exception may be taken to the statement that there have been no relapses. Indeed, I am not in a position to go further than to say there are none that I know of. It is about six years since I began to operate by this method, and during that time I have performed it in over 130 cases. A number of these are at present under observation, others I have already lost sight of. The results have exceeded my expectations, and are much superior to those obtained by any other method I have employed.

THE MODIFIED BASSINI-HALSTED OPERATION.

The operation which I now perform is the Bassini-Halsted with some slight modifications. The first point to which I would draw attention is the preliminary cleansing and disinfection of the skin. The area of the operation is a dirty part, and want of care in this detail will prove a fruitful cause of suppuration in the wound. An incision is made from just below the external to just above the internal abdominal ring, exposing the aponeurosis of the external oblique throughout its length. A small branch of the superficial epigastric and superficial external pudic arteries are usually divided, and should be tied, although insignificant, together with any superficial veins, as neglect of this may cause troublesome bleeding after closure of the wound. The inguinal canal is then slit up to the internal ring. Next the sac is defined at the external ring and dissected out of the scrotum. It is then separated from the cord up to the internal ring, ligatured, and cut off.

The spermatic cord has then to be dealt with, and this is one of the important steps of the operation. The chief objection which has been urged against Halsted's operation is that it may be followed by atrophy of the testicle. He removes the spermatic veins freely, and it will no doubt be generally conceded that it is an advantage to reduce the cord to the smallest bulk consistent with safety, so that quite a small opening may suffice for its passage through the abdominal wall. The treatment of the cord can only be determined by the experience and judgment of the individual operator, and by a consideration of the conditions found at the time. The coverings should be first dissected off, which materially reduces its bulk, and enables the operator to obtain a clear view of the constituents. In cases in which the cord is small it may be left, in others, where the veins are large, they should be removed without hesitation. In the average case I have found it unnecessary to remove the spermatic veins, but whenever this is done, care should be taken to leave a sufficient number of the deeper veins in contact with the vas to ensure the return of blood from the testis, and to preserve the integrity of the spermatic artery. If this plan is followed little or nothing will be heard of subsequent testicular atrophy. In children the cord should always be left intact.

It is then raised out of the wound and the sutures introduced through the fibrous and muscular walls of the canal at intervals of one-third of an inch. Seven or eight are required to close it in the adult. Two or three of these should be passed through the muscular walls above the spot at which the cord emerges. The site of the inner ring is the only spot at which weakness is likely to occur after Bassini's operation. If, however, a few sutures are placed just above the cord, preventing any further separation of the fibres of the internal oblique, this region is still further strengthened. The cord being held out of the way, the sutures are tied and the canal closed behind it, so that it then lies beneath the skin on the aponeurosis of the external oblique.

THE SUTURING MATERIAL.

Is it best to use absorbable or nonabsorbable sutures? Considerable difference of opinion exists on this point. The American surgeons especially strongly condemn the use of

nonabsorbable material, on the ground that they are nearly always extruded. They use kangaroo tendon almost exclusively, and their reports of cases in which silk was used show that a number of them suppurated. My experience with silk has been quite different. I now use nothing else. I tried kangaroo tendon, but was not satisfied with it. The individual tendons vary a good deal in breadth, the knot does not bite like silk, and one always has the impression that it may yield, neither has it the lasting power of the latter, although it is said it will remain two months before becoming absorbed.

During the past year I have performed in all 60 operations for the radical cure in the Nottingham General Hospital, using silk in every instance, and have not had one of them suppurate. It is said, however, that suppuration may occur in connection with buried silk sutures months, or even years, after their introduction, and those who hold this opinion would not be prepared to accept its non-occurrence in these cases as finally established. To this I would reply that the great bulk of these cases belong to the city and district, that they are all told to attend afterwards as out-patients, and that the majority of them do so, and, finally, they are requested to return at once if the rupture reappears or if anything goes wrong with the wound.

I have never had a case return with late suppuration, nor have I ever seen it occur in a case of radical cure after the sixth week. I consider silk to be the best material for the purpose of the operation if carefully sterilised.

THE USE OF A TRUSS AFTER OPERATION.

I never order a truss after this operation; on the contrary, patients are always advised not to wear one. So far from being productive of good, the continuous pressure of even a light truss would only tend to produce absorption of the firm scar on which the safety of the case depends, and so do more harm than good; and in addition, its pressure on the cord, lying as it does between the skin and muscles, might cause serious inconvenience.

THE QUESTION OF OPERATING ON YOUNG CHILDREN.

This is another debated point. The objections raised to the performance of the radical cure in young children are founded on the belief that almost every case can be cured by means of a truss or other form of support, and that the operation at this period of life is attended with greater risk, and is less certain in its results. My own experience is not quite in accordance with these views. I have seen at the Nottingham General Hospital a great deal of the truss treatment in infancy and childhood, the numbers of patients being no doubt due to the institution supplying them with trusses free of charge from the proceeds of a truss fund, the calls on which are now rapidly diminishing year by year. I have found it very difficult, in cases of scrotal hernia with a large ring, to cure hospital children of their herniæ by such means. I have seen case after case come time after time to be fitted with fresh instruments. This continues, although on a much smaller scale, for in well-marked examples, the children of all but timid mothers are now operated on and cured in a fortnight. The results in quite young children have been most encouraging. Suppuration of the wound and stitch abscess are practically unknown, contrary to what might have been expected, as the wound is often soiled with urine. I am now speaking of operation in children under 4 years of age.

What percentage of ruptured persons having had herniæ in childhood remain uncured after they reach adult life? This is an interesting question, and I think the percentage would turn out to be larger than many of us expect, but I do not know that any figures have been brought before the profession which enable us to answer it with accuracy. Coley collected the cases occurring at the New York Hospital for the ruptured during a period of four years that had a history of hernia in early life treated by instrumental support without success, and met with upwards of 400 cases. Respecting the death-rate, the same observer has collected 832 cases of operation on young children, which in the hands of various surgeons showed a mortality of less than the half of 1 per cent.¹

It may be said, "Your failures were due to ill-fitting and improperly-applied trusses," and possibly such a suggestion would be correct for the greater part of the time during which

they are worn. To begin with, there is the constantly-increasing growth of the child to be taken into account, and the circumstance that neither the patient nor his attendants can tell from hour to hour or from day to day whether the hernia is properly reduced, or whether the pad is in proper position over the inguinal canal. It is no doubt more difficult to ensure accurate truss-fitting than is generally supposed, especially among the children of the poor. Let it be freely conceded, however, that the period of childhood is the most favourable for Nature to effect a cure by the aid of a truss. But in relying on it to accomplish this object every case must be treated on its merits. Thus the child of a well-to-do person, who can receive due attention, and in whom the local condition shows a tendency to rupture only, or a bubonocoele, will probably be cured by external pressure. Even in these surroundings, if there be a complete scrotal hernia and a large ring, cure by means of a truss is quite doubtful. In such cases, and in the children of the poor where cleanliness and good truss management cannot be obtained, I should not hesitate to advise operation in children under 4 years of age who are otherwise healthy. One may give this advice fearlessly on account of the absence of risk to life and the certainty of the cure, for childhood is undoubtedly the period that furnishes the most favourable conditions for success in operations for the radical cure of hernia.

REFERENCE.

¹ *Annals of Surgery*, vol. XXV.

CARCINOMA OF THE LIVER AT THE AGE OF 24 YEARS.

By DAN MCKENZIE, M.D.,
Leytonstone.

THE remarkable feature of the following case is the youth of the patient—24 years, when the illness commenced. The diagnosis of carcinoma as opposed to sarcoma was arrived at upon consideration of the chronic afebrile character of the illness and the bony, hard, and general enlargement of the liver.

A. E., a married woman, consulted me in November, 1890, for severe persistent pain in the epigastrium and right hypochondrium, associated with almost continuous sickness and vomiting, obstinate constipation, and some emaciation. A uterine tumour of the sixth or seventh month of pregnancy prevented satisfactory physical examination of the abdomen, but considerable tenderness on pressure over the hepatic area could be made out. Her condition remained unaltered until the birth of the child on March 4th, 1900, when in the act of compressing the uterus after the expulsion of the placenta I touched what I took at first to be the lower margin of the costal arch somewhat unduly depressed. Further examination revealed the fact that this hard edge was the lower margin of the liver, greatly enlarged, irregular in outline, nodulated, and tender to the touch. A hasty search over the rest of the abdomen failed to reveal any other abnormality. During the week immediately following the delivery the bowels were unloaded by purgatives and enemata, of a great collection of hard scybala masses, and disappearance of nausea and vomiting followed, with the result that during the next three or four weeks the patient gained flesh and strength so rapidly as to throw doubt upon the conclusion formed that this was a case of cancer of the liver. The possibility of syphilis was met by treatment with mercury perchloride and potassium iodide. On March 28th Dr. C. O. Hawthorne saw the patient with me, and was distinctly of opinion that the enlargement was malignant. The antisyphilitic treatment was however, *faute de mieux*, persevered in for the next two months. By April 12th emaciation was again distinct, and in addition to the enlargement of the liver a hard nodular mass, tender on pressure, about the size of a small orange, was discovered in the left lumbar region. A further swelling, suggesting enlarged glands to the touch, was perceptible in the right iliac fossa, close to Poupart's ligament. The temperature, normal until April 3rd, rose on that date, and continued from 99° to 99.6° F. On April 17th Dr. Kingston Fowler saw the patient with me, and agreed with the diagnosis of malignant disease. From April 20th to April 27th there were symptoms of peritonitis centering round the lump in the left lumbar region—acute abdominal pain and tenderness, tympanites, thready pulse, and temperature running from 102° to 103.8°. On April 27th the temperature fell to 99° F., and the acute symptoms vanished. The dimensions of the hepatic dullness on May 20th were—in the middle line 7 ins., in the nipple line 8½ ins., in the mid-axillary line 8½ ins. Several of the larger nodules in the liver were visible through the skin, moving up and down with respiration. In July the pain in the right hypochondrium, hitherto most distressing and constant, requiring the daily use of morphine and atropine hypodermically, gradually diminished and ultimately disappeared, while the temperatures sank to normal again. Emaciation was proceeding rapidly.

On August 1st a slight icteric tinge of the skin and conjunctivæ was observed for the first time. On August 6th evidence of "curling up" of the omentum was found in a nodular elongated tumour lying across the abdomen, immediately below the umbilicus, and separated from the liver dullness by a clear area. The right arm had become exceedingly