Remarks

ON

HERNIA—PARTICULARLY IN CHILDREN.

ABSTRACT OF A PAPER READ BEFORE THE GLOUCESTERSHIRE BRANCH OF THE BRITISH MEDICAL ASSOCIATION, MAY 16TH, 1907,

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I AM going to begin by asking you to turn over with me some of the leaves of the "Chirurgical Works" of the illustrious Percivall Pott, John Hunter's teacher and professional rival. A man who, as a practical surgeon, was as illustrious as Hunter was as a scientific one. You cannot have time, of course, to read much of this old-world literature; all the same, it is very interesting reading, especially if one is not in a hurry; but hurry is inseparable from professional life at the present day—telegraphs, motor cars, and telephones break in upon one's leisure, and scarcely give one time even to burst the wrapper of his Saturday's BRITISH MEDICAL JOURNAL. And if we do manage to look through the JOURNAL, our attention is likely to be caught by the report of some extraordinarily rare case in which a surgeon short-circuited the duodenum to the sigmoid colon. Every detail is explained with such enthusiasm and satisfaction that it comes as no surprise that, when, on the third day, the *post-mortem* examination was made, there was not a trace of any leakage at the splice. The fact of there being a reference to a *post-mortem* examination showed that the surgeon was anxious that one should not draw an entirely wrong conclusion as to the final issue of his successful work. The diligent reader of his Saturday's JOURNAL can hardly have failed to be struck by the slight association which now exists between the performance of surgical operations and the report of *post-mortem* examinations. One reason for this may be that the operating surgeon must, in the cause of asepticity, keep as far as possible from the mortuary, and a second may be that his patients do not die—or, if they do, that the operation was so thoroughly carried out that an autopsy could not make any fresh revelations—so it was neither reported nor made; and if there still is meaning in the words *nec silet mors* it applies almost entirely to medical cases. The physician does not pretend to have but a nodding acquaintance with the high priest of the mortuary. He continues to make his regular visit to the *post-mortem* room, forcing Death himself to give up his secrets, and delighting to unravel them before the students whom he has brought down from the side of the empty bed. The mortuary has for the physician charms which the present-day surgeon either fails to find or is disinclined to seek.

Man is the highest type of animal, and an individual with his testes still within the abdominal cavity would be a poor creature. And when we look at that enormous, hulking beast the elephant, we think that he, with permanently undescended testes, and without even an apologetic scrotum, is, as an animal, of not much account. It is because of the arrangements made for the descent of the testes in man that a "weakness" persists in the inguinal regions. If the testicle is free to pass from abdomen to scrotum, to and fro, what is there to prevent a tail of omentum or an empty knuckle of intestine doing the same? Before birth that tubular passage of peritoneum, down which the omentum so easily slips, ought to have undergone obliteration; but development is often delayed, so that an inguinal hernia is of common occurrence, particularly in boys, for the round ligament is but a poor structure compared with the spermatic cord, and arrangements for its passage to the outside of the abdomen are inconsiderable. If the body of the ruptured child could be kept hanging head downwards like a torpid bat, or even in the horizontal position like a calf or a foal, the hernia would soon cease to come down. When Pott is speaking of this communication between the tunica vaginalis and the belly cavity, he goes on to allude to the occurrence of congenital or, as he calls it, a "congenial" hernia.

In young children this descent happens most frequently when the child strains in crying or in expelling faeces; as soon

as the effort ceases, and the child is quiet, the part generally returns up again. The nurses call it "wind," and it is at first most frequently neglected, as the child is not apparently injured by it, and few people are sufficiently aware of its possible consequences.

His opinion was that almost always the hernia of children is down into this open process. He makes no guess, and he does not insist that it is so:—

I will not say positively that all those ruptures which appear in the scrotum of very young children are "congenial," but all those which I have had an opportunity of examining have proved so.

And the experience of every anatomist and operating surgeon confirms this view. But after Pott had made the statement he gently thrusts his sword into the opinion of "the late Mr. Cheselden" that the hernial sac "was not an elongation of the peritoneum, but was produced by mere pressure of the common cellular membrane." Cheselden, Pott, and Hunter, whose names I have thus mentioned, were three illustrious contemporaries, and their portraits hang to-day side by side in the Council Room of the Royal College of Surgeons. Joshua Reynolds's glorious portrait of Hunter is in the middle of the wall; on his right is the charming presentment of Pott, by Romney ("the man in Cavendish Square," as Reynolds rather impolitely called him), and next to him is the delightful picture of Cheselden.

If a newly-born child were found to have an inguinal rupture, and the surgeon could manage absolutely to prevent the omentum coming into the funicular process for a few weeks, the natural obliteration of the sac would duly take place and the cure of the hernia would be effected. And if the obliteration is not brought about, and the child has any cause for straining, hernia is almost certain to occur and recur.

When Pott is speaking of the treatment of a case in which the bowel has not only come down into the passage, but is so swollen and big—strangulated, in fact—that it cannot be got back again, he says:

The posture of the body and the disposition of the lower limbs may be made very assistant when the difficulty is considerable; the nearer the posture approaches to what is commonly called standing on the head the better, as it causes the whole packet of small intestines to hang, as it were, by the strangulated portion, and may thereby disengage it.

Now, kindly carry your eye to the funicular process of peritoneum whilst the infant is slung up by its feet; omentum can no more drop into it than the fluid can run up the spout of the coffee-pot as it stands upon the breakfast table. You will tell me, perhaps, that in practice this cannot be carried out; that the mother would deem the position of her inverted infant unnatural or even cruel, and that she would scarcely permit it; that it is too dreadful for her to see her baby upside down. But if it does not distress or disturb the child, I really do not think it need alarm the mother. Having the infant in that position and the hernia being returned, a pad may be firmly fixed over the inguinal canal by means of a domette roller bandage or by a broad band of adhesive (waterproof) strapping, which may be brought round the thighs. If a well-fitting truss is at hand, so much the better. Probably the infant had a truss before, and it did not do what was expected of it; now it may have a fair chance if the child is kept inverted. But I will go back to the strapping, and will say that if a band of it, a couple of inches wide, is firmly drawn round the pelvic zone of the child and over a firm pad laid upon the empty inguinal canal, it is almost impossible for the hernia to come out of the abdomen; and if, after this, the child's legs are tied together, and he is hung up with his head or shoulders just resting upon the pillow, the surgeon is absolutely master of the situation. The child thus slung and made comfortable will probably enjoy a peaceful slumber.

The worst thing that the mother or nurse can do for a ruptured child is to take it up and nurse it each time it cries, because this causes the omentum or bowel at once to fall against the top end of the funicular process, and if she has the sense simply to turn the infant over in its cot and to give it a pat of encouragement, she will spare herself much needless worry, and save her husband from many a wretched night. Every infant should be taught the elements of discipline even in early cradle-life. It is

surprising what a clever mother or nurse can do in this respect. But, in my experience, comparatively few women are either willing or able to undertake this early disciplinary education. Too many of them seem to be under the impression that indulgence is the same thing as kindness.

If, for one reason or another, it is found impracticable to have the child hanging up by his legs, at any rate he can be kept more or less in the inverted position. He can be fixed, for instance, on a small stretcher, which can be tilted so that his head is always low. In some way or another arrangement can be made which will have the effect of keeping his pelvis higher than his chest, and the higher the better. This is, in fact, the adoption of the Trendelenburg position, which in operative work upon the interior of the pelvis proves so useful. This being done, and the inguinal canal being blockaded by a firm pad beneath strapping, attention must be directed to lessening the intra-abdominal pressure. The intra-abdominal tension may be continuously or intermittently excessive, and it is above all things necessary to diminish it. One might speak of it after the manner in which the ophthalmic surgeon speaks of the tension in the eyeball in glaucoma, and call it $T + 1$, or $T + 2$. Some of these children with inguinal hernia, indeed, have a belly tension which might be described as $T + 3$, or even 4.

There is one matter in which the subject of hernia has undergone an agreeable change in the last half-century. Surgery has now made it her special business to look after, operate upon, and cure the ruptured individual, but not long since a large proportion of these cases drifted hopelessly over to the quacks. Pott said, in the preface to his "Chirurgical Works," when speaking of rupture: "It has in all times, from the most ancient down to the present, rendered those who labour under it subject to the most iniquitous frauds and impositions." And as he writes he takes it upon himself to be the champion for the medical profession of his day. He says that though its members were often most unjustly accused when they were doing their best—and doing it very well—still there was plenty of room for further improvements in connexion with the treatment of hernia, and that this would in due course be obtained "by a sedulous application to anatomy, by the frequent examination of dead morbid bodies, and by making such experiments on the living as they had reason to think would prove beneficial." And Pott's forecast has been found correct. Surgery of to-day has rescued most of the ruptured individuals from the claws of the impostor, but there are evidently plenty of people left who are under the belief that the quack, because of his very ignorance, is better able to deal with a hernia than is a man who has worked at the anatomy and studied the surgery of the inguinal region. The advertisement columns of most of our papers show that the rupture curer still exists—the man who promises to cure rupture without operating, either by means of some "electric" truss or belt, or by the application of some apparatus, the marvellous secret of which rests only with himself. These quacks ought to be got rid of once and for all, and without further delay; no man should be allowed to hold himself forth as willing and able to treat people for gain, unless by study and by examinations he has duly qualified himself for that work. And I think that we should also agree in insisting that if the General Medical Council, to whom we have paid a considerable fee for registration, has not the power to stop irregular medical practice, it ought to do its best to obtain such power, and to put it into execution with vigour and determination. The members of the profession to which we have the honour to belong are far too patient and long-suffering. I wonder what would be the exact procedure adopted by the lawyers if an unqualified and unauthorized man advertised the fact that he was ready to advise for gain in legal matters. There would be a short way for impostors in law, we may be sure, because every one recognizes the fact that it is a serious matter to deal without due circumspection, care, and authority when the *property* of the individual is at stake—though if it is only a question of his *life* or *health* anything will do—a rupture curer, a cancer curer, a faith healer, a Christian Scientist—any quackery will serve!

In the way of investigation of the case, the first thing to do is to inquire as to the feeding of the child. Very likely he is being reared on some vaunted patent food—

something which the mother or grandmother has seen advertised upon a hoarding, or puffed by reproductions of specious photographs in her daily paper, or within the cover of some magazine, or recommended in a haphazard way by some interfering friend. Perhaps, even, some injudicious medical acquaintance has been indiscreet enough to interfere in somebody else's territory by making a suggestion to the mother when he happened to meet her in the street. Irresponsible advice of that sort is called in America "kerbstone prescribing." It is not unknown in this country; people do not always mind their own business as they should. The kerbstone prescription is very apt to relate to some patent food or proprietary medicine.

There never was a time when quackery in diets, foods, drinks, and drugs was as rampant as now. And I believe that it would be a marvellously good thing if every patent food, meat essence, tabloid, "natural" purgative, capsule, and cachet could be swept clean off the face of the earth, and we could go back to the foods and the drugs that were used in Pott's time.

The enterprising drug-man appoints a business-minded physiologist and a commercial chemist to work in his laboratory, and instructs them to prepare foods and medicines (or the two combined) such as he can advertise as being necessary for the preservation of health and happiness. And he keeps on advertising them until the public begin to believe that they must really be necessary. And the doctor sometimes thinks it better to imply that he does not dissent from this belief than to express objection to it. It is always easier to say "Yes" than "No."

One of the characteristics of our times is the habit which people have acquired of prescribing for themselves and taking medicines. Go into a friend's dressing room and look at his washstand; it is covered with bottles, boxes, and pots containing drugs. And, in addition to the pharmaceutical display upon his washstand, there are, I warrant, stock bottles upon his mantelpiece or in the cupboard.

As regards foods for invalids—if you were ill, would you wish to have soup, beef-tea, or chicken jelly made under the supervision of your wife in her own kitchen, or would you ask that a messenger should be sent to the nearest stores for a bottle, pot, or tin of the stuff or essence which the proprietor had in stock? If *fresh food* is needful for a person when he is well, still more so is it wanted when he is ill. This question of foods for the sick room is now left too much to the nurse. The doctor has, perhaps, no particular interest in the matter, so the nurse says, "Shall we send out for some of the 'Liquid Leather' brand, or shall I get a tin of fresh-made creatinine?" Some practitioners, I repeat, take very little interest in it, and the nurse knows all about it, having attended lectures on the subject given by the matron or house-surgeon; so she is allowed to send out for certain small pots or tins, the contents of which she can mix as skilfully as she can take a temperature or arrange a draw-sheet. But as regards good, fresh, wholesome sick-room cooking, she is apt to know very little. She has been brought up in this dietetic faith, and she sticks to it. I think that one reason for her getting in a store of preserved shop food, as opposed to fresh kitchen food, is that she may be independent of the cook and the kitchen. She may have had in other cases sad experience of diets sent up to the sick-room from the kitchen, of greasy beef-tea, of burnt milk, of unstiff jelly, of over-salted soup, and what not, and she wishes to give the *best* to her patient without creating domestic disturbance and without delay. I should think that some of those essences or extracts are little less than excrementitious substances which the death of the animal saved from being wasted. It is all very well for the commercial or physiological chemists to tell us that they are "invaluable"; I refuse to accept their not impartial statement. And I cannot help turning in wistful memory to the times of Pott, when people did not take medicine when they were well, and who, when they were ill, lived on fresh, wholesome food, prepared by a clean-handed cook with the help of a tidy stillroom maid in a white apron and in an atmosphere of lavender.

I have the good fortune to be surgeon at a place where the delicate art of cooking is understood, respected, and practised—the French Hospita!—where the nursing and

the cooking are done by French Nuns, and where good women think that they can serve God as well in the careful preparation of a consommé, of snow eggs, of a ragoût or of an omelette, as in any other occupation of life. And would that every woman were imbued with similar principles! What a pity it is that English women do not take greater interest in matters culinary! I am sure that good cooking and civilization go hand in hand, and that, at least as regards cooking, the general run of English women are hopelessly uncivilized.

The child's intra-abdominal pressure must be reduced if we are to arrange for the permanent return of the prolapsed bowel without operation—and operation at the present is out of the question. If we were to operate on that distended boy we should be very apt to be disappointed. The distension is chiefly caused by the presence of a large amount of gas in the bowel, due to the decomposition of improper food. The nurse, therefore, had some justification in calling the hernia a "wind rupture." I do not suggest, of course, that a present-day nurse would use such an unclassical expression, or that she would call it a "congenial" hernia, as Pott did; she would have the names right. The old-fashioned nurse had noticed, I dare say, that the child had been a good deal troubled with wind; that his belly was blown out, and that when he cried the hernia came down; and I do not think that her name for it was a bad one. Jenner told us that each time we see a sick child we are not at once to think of grey powder; there is something better than that for the condition in question—namely, the old-fashioned mixture of rhubarb and soda, with a few drops of syrup of ginger and oil of peppermint. Two or three times a day a teaspoonful of this mixture should be given, and in a short while, after a judicious amount of purging, there will be a great improvement in the motions; the child will be happier, and there will be much less distension. Then, having diminished the quantity of the mixture, and, perhaps, having increased the amount of the soda, the medicine may with advantage be continued for two or three weeks. How, it may be asked, are the evacuations to be managed if the child is, more or less, upside down? There is really no difficulty about this; a clever nurse can easily arrange it, and there is no objection to the child being occasionally laid flat, if need be, the nurse keeping her fingers pressed over the inguinal canal.

As regards the child's dietary, there may be at first a good deal of difficulty. At any rate, all patent foods are to be stopped, and in their place are to be given cow's milk and water (with or without lime water); bread jelly; pounded, underdone meat; fresh vegetables in pulp or *purée*; breadcrumbs and gravy; clear soup, or something else from the kitchen, fresh and nicely cooked, according to age and needs. As the child grows he may be given a hard crust, the drumstick of a chicken to amuse himself with and suck, or something else of that sort.

We need not follow the details of the treatment of this ruptured child; I have suggested enough to show on what lines the treatment is to be carried out. And here may I say that a child with anal prolapse is also to be treated much in the same way, only for him the strapping is to be brought across the buttocks, so as to keep the gluteal folds close together and to prevent all chance of straining. For, in these cases, straining acts and reacts; the more the child strains the more he wants to strain. The thing is not to stop straining, but to prevent it altogether—never to let it begin.

There is another matter to which I must here refer, though it does not come under the heading of drug or diet; it is to that pernicious habit of sucking at an india-rubber teat, the so-called "comforter." I do not know where the teat came from originally; very likely it was an importation with toys from Germany. The habit of sucking this wretched, septic object is bad for the child's gums, for his plastic maxillae, for his salivary glands, and for his digestive apparatus in general. The horse which is constantly gnawing at his manger, the "crib-biter," fills itself with wind and is never in proper condition. And so it is apt to be with these teat-sucking children. The young mother allows the teat because it is supplied in the infant's "outfit," and she thinks it to be as necessary as the flannel belly-band or the feeding bottle. And the medical man is apt to raise no objection to it because the custom is now widely established; he ought to wage a

ceaseless war against it because, though but a little thing, it is very harmful.

THE RADICAL OPERATION.

When once a piece of omentum or bowel has found a passage into the scrotum, it is difficult to prevent its constant descent. There is the well-lubricated funicular process, and there, against its open, upper end, is a piece of moist, semi fluid omentum ready to drop into it. If, however, a well-fitting truss be constantly worn, night and day, there is a great likelihood that the help thus given may suffice to finish off the developmental deficiency. There must be no hurry, however; the truss will have to be worn for at least a couple of years so as to make things safe.

In days gone by there used to be two complicated operations, which were occasionally employed with the view of producing the radical cure, Würtzer's and Wood's. In each of them a strong needle on a handle was made to carry a thick suture in such a way as to fence-in the inguinal canal. But in each method the operator was working more or less in the dark; when the point of his needle had left the guidance of the finger and had entered the tissues of the abdominal wall, he could not be certain that it would not damage some important structure. And the story used to go that when Wood was practising his operation at King's College Hospital and his colleague, Fergusson, wished to try it, on his first attempt the appearance of the needle and of the suture gave undoubted evidence of the fact that a piece of bowel had been transfixed high up in the inguinal region.

In the pre-Listerian days surgeons were shy of making an incision lest suppuration—or, rather, lest erysipelas or pyaemia—should ensue. Of mere suppuration they had no dread—of good, honest suppuration with its "laudable" pus. Discharge of that sort from a wound they regarded with no unfriendly eye, but of certain thin, ill-smelling discharges associated with the formation of blebs upon the skin, or with the evolution of gas beneath it, they stood in mortal dread; so they declined to make a direct incision if they could fairly accomplish what they desired by a prick, a nick, or a puncture. Thus, they sutured the weak inguinal canal through a mere puncture of the skin; they removed a loose cartilage from the knee-joint—if at all—by a subcutaneous incision, and in two stages; a contracted tendon was divided only through a punctured wound, and the boldest treatment which was practised for a recurrent hydrocele was through a slender cannula. And if the principle of Banks's or Bassini's operation had been revealed to Pott, he could scarce have practised it, for fear of inviting calamitous results. It has been said that the time produces the man; with equal truth it may be affirmed that the time produces the method. And it is almost certain that the methods of Banks and Bassini would not have been heard of even at the present day if Lister had not lived. So that when one is trying to set forth to some lay mind how it is that Lister's work is of such priceless value to mankind, he may truly say that to his teaching is due almost every advance that has been made in recent years in operative surgery. That, but for him, operative surgery would still be what it was when Pott left it, and when Liston and Fergusson practised it. I mention Liston and Fergusson as worthy successors to Pott—they were truly the men of their day; and it is not unlikely that if they had come a half a century later, giants though they were, their work might not have attracted as much attention and respect as it did.

Let us suppose that the palliative treatment of the ruptured child has had a full and fair trial. That the dyspepsia has been cured, and that in every respect there is a great improvement, but that, notwithstanding this, the hernia still comes down now and then, that there is sometimes difficulty in reducing it, that, in short, things are not yet quite satisfactory. I am going to suggest that the hernia is upon the *right* side. When it is down let the surgeon feel it carefully between his fingers and thumb, trying to make out the presence in the scrotum of the vermiform appendix. This can sometimes be done. It is a hernia of the caecum and appendix, and it is often very unmanageable. It comes down rather "in a lump," and is not easily got back again, as a hernia of the small intestine or omentum generally is. Pott knew all about that sort of hernia, and this is what he says:

That a protrusion of a part of the caecum is rare is not true, for it happens very frequently. From what has fallen within my observation in frequently performing the operation for a strangulated rupture, it has appeared to me that the greater number of those in whom it has become necessary have consisted of the caecum with its appendicula.

And then he remarks that the irregular figure of this part of the intestinal canal seems a likely reason for the difficulty which is often met with in the attempt to reduce it without operation. It is often difficult to keep up, and, when down, it is often a difficult matter to get it up. It is strange how widely different the personal experience of different surgeons in general work may be, one seeing one class of cases and another the other. I confess that I have not found the caecum and appendix in the sac in a large proportion of the cases on which I have operated for strangulation. Still, they are by no means uncommonly met with in the most troublesome forms of reducible hernia of the right side in children. And their obstinacy renders these cases very fit ones for operative treatment.

The association of an imperfectly-developed and undescended testis with an inguinal hernia makes the line of treatment clear. An undescended testis is very often an undeveloped one. For sentimental reasons the individual or his parents may be anxious to have it preserved, but the better course is to make a clean sweep of the peritoneal pouch and the testis, and to sew up the inguinal canal completely. The most anxious and difficult cases are those in which the hernial sac is associated with a testicle of fair size but of imperfect descent. In these circumstances the surgeon, having removed the sac and loosened the connexions of the cord, may try to bring down the testis into the scrotum, fixing it by a strong suture to the depths of the scrotum, or even bringing the suture through the scrotum to attach it to the inner side of the thigh. I must confess, however, that my experience with effecting the artificial descent of the testis has not been highly satisfactory. I have found that a testis which has been thus brought down very rarely continues to occupy a normal, scrotal position; and, seeing how remarkably successful the case turns out in which the testis has been removed and the canal blocked, I deem it to be more than doubtful if it is worth while adopting the conservative line of treatment unless the testis is of fair size, and unless it is content to lie at the bottom of the scrotum with little or no drag upon the cord. To cure a boy of his hernia but to leave his testicle only just outside the external abdominal ring, where it is fully exposed to injury, is not perfect surgery.

Pott begins one section of his work on hernia with these words:

The cure of a rupture is either perfect (called also radical) or imperfect, which is called palliative.

But surgeons are sometimes inclined no longer to make this very proper distinction, and are apt to say, "I will do a radical cure for it." What they really mean is that they will do a radical operation upon the hernia, which they had every reason to hope would prove a radical cure. It matters not who the operator is, or what method of procedure he adopts, he cannot guarantee that the hernia will not afterwards come down again. And thus it sometimes happens that serious disappointment follows free promises. Skillful as he may be as an operator, and careful as he may be with detail, he must not, he cannot, guarantee that his operation shall prove a radical cure. When Shylock was discussing with Bassanio the probability of the safe arrival home of the argosies of Antonio, he suggestively alluded to the perils of waters, winds, and rocks. "Ships are but boards, and sailors are but men," said he. And although there could be little doubt as to their welcome return to the Venetian port and of the security of Antonio's bond, still absolute certainty was lacking. Pott takes Antonio's line, and says "this uncertainty of event being dependent on causes which a surgeon can neither foresee nor direct with any tolerable degree of certainty, should warn him against being too forward in making a promise." Yes, even in the year of grace 1907 "surgeons are but men," and when they talk of a radical operation as if it were just the same thing as a cure they are presuming.

I will go back to the inguinal hernia which, for one reason or another, had not been cured by the truss treatment. After due preparation, the surgeon proceeds to

operate, making his incision in the inguinal, rather than in the scrotal, region, as it is easier to keep the higher wound aseptic, scrotal incisions being apt to prove unfortunate. Having traversed the superficial structures he exposes the aponeurosis of the external oblique muscle, the lower fibres of which he separates at the external abdominal ring. Then, still working with a pair of dissecting forceps and a stiff probe, he traverses the cremaster muscle and the transversalis fascia. And so he arrives at the spermatic cord, with, perhaps, the funicular process of peritoneum, or the sac, in front of it, without having cut any muscular or aponeurotic tissue. If he contented himself with isolating this peritoneal sac and tying its neck (pulling it down the better to effect its high occlusion), and then with merely closing the wound, there would be no further recurrence of hernia in nine cases out of ten, or in nineteen out of twenty. By this I mean that the secure obliteration of the lubricated peritoneal canal would generally suffice to cure the patient of his hernia. There are various ways of dealing with it, but there is one essential feature in the procedure: it must be obliterated quite high up, so as not to leave any depression or dimple upon its intra-abdominal aspect. I do not think that it matters what is done with the piece of the sac below the ligature. It may be cut off, or brought up and used for plugging the canal, or what not. Personally, I prefer to cut it off. Some surgeons insist on laying open this sac before securing its neck. They like to pass their finger up into the abdomen to make absolutely certain that the highest part of the sac is empty. Well, let it be done if desired, but if the neck of the sac is caught between the finger and thumb, and thus held whilst the ligature is being tightened, there is no fear of anything being damaged within the sac. Other surgeons like to pass up a finger to find the slippery tail of omentum which has been in the habit of running down into the sac. They believe that if they can tie and remove this tail they can make their operation the more perfect. I do not think that there is much in this, for if the neck of the sac is securely tied there is no chance of the omental tag coming down. Lastly, some operators like to transfix the neck of the sac with a needle, and perhaps to carry the ends of the suture somewhere up above Poupart's ligament. All these things are individual peculiarities; they are not essentials. The one essential, as I said just now, is to tie the neck of the sac quite high up; to tie it so that the ligature does not slip off the stump (if the sac is cut away), and to be certain that the neck of the sac is empty when the tie is made.

The second part of the operation consists in bringing together the sides of the inguinal canal. And may I say a few words about the anatomy of this canal? When the ureter is finding its way into the bladder it runs for a certain distance between the muscular and mucous walls, so that when the bladder is full the sides of the ureter may be pressed closely together, and there may be no chance of urine finding its way up into the ureter. The fuller the bladder the more tightly is the ureter compressed. Thus, the entrance of the ureter into the bladder is valve-like. There is a similar arrangement in connexion with the passage of the spermatic cord through the abdominal wall. If the cord ran straight from behind forwards the risk of hernia would be very great; it is, therefore, made to pass out obliquely under the arched border of the transversalis muscle, beneath the cremasteric fibres of the internal oblique, in front of the conjoined tendon of internal oblique and transversalis, and behind the aponeurotic fibres which connect the two pillars of the external abdominal ring. Each time, therefore, that strain is put upon the abdominal muscles, as when the child cries or vomits, the muscular fibres about the canal crowd together, and, compressing the cord, do their best to block the passage against the descent of omentum or bowel. But if a hernia has once found its way down the funicular process, the valve-like arrangement of the canal is ruined. The arched border of the transversalis muscle is thrust rudely upwards, the cremaster is pushed forwards, the conjoined tendon inwards, and the intercolumar fascia forwards; the canal has lost its virginity. For the surgeon, then, simply to close the top of the funicular process may not be sufficient; the passage through the abdominal wall must also be tightened up. And this, in my opinion, is best done by lacing the parts together by one, two, three, or four strong stitches. To do this the

surgeon thrusts the tip of his left index finger up the canal, and by it he guides the end of a blunt aneurysm needle, which he makes to traverse all three muscles on the inner, and then on the outer, side of the canal. One suture may sometimes suffice; but, if on pulling upon its ends, it is found that there is still more than enough room left along the canal for the passage of the cord, the surgeon withdraws his finger a little, and passes a second, or perhaps a third, suture, by which he transfixes the conjoined tendon on the inner side, and the strong tissues just above Poupart's ligament on the outer side. All these pass, of course, in front of the cord, and, having tied them, the surgeon satisfies himself that there is enough room left at the external ring for the easy passage of the elements of the spermatic cord. After this, nothing remains but to close the surface wound and apply the dressings.

As regards the material for suturing the canal, I have yet to learn that there is anything better than silk, and so also for the skin wound.

The alternative to palliative treatment being, then, an operation by an open incision, the ligation and removal of the sac, and the closing of the inguinal canal by suturing, three questions may be asked:

1. What are the risks of the operation?
2. What chances are there that the radical operation may prove a failure?
3. What are the time limits as regards its early performance?

The first is easily answered: The risks inseparable from the operation are so small that they may be almost disregarded. At any rate, they are less than those which the child would run if no operation is done, for, in an unmanageable or troublesome case, the chances of the occurrence of sudden strangulation are considerable, if not serious.

I have no actual statistics to give in connexion with the risks of the operation. Indeed, I have so often made apparently disrespectful remarks about statistic-working surgeons, of their short memory for unsatisfactory cases, and of their aptness to deal rather with good results, that even if I had a spotless sheet of tables of operation for the cure of reducible hernias (which I have not), I should be afraid to show it. But recently I was at Newcastle-on-Tyne, and was talking to Professor Page about operative results in general and of "radical cures" of hernia in particular; and he told me that last year his colleagues at the General Hospital had performed the radical operation in 241 cases of inguinal hernia without a death. That is enough for my purpose; if 241 operations can be done without a fatality, the risks of that procedure must surely be small enough to be disregarded.

Second, as regards the chance of the radical operation being a failure. If a surgeon said that he did not remember a single failure in all his cases, he might be speaking absolute truth, for "surgeons are but men," and their memories are thus sometimes strangely cribriform. But I have had interesting conversation on the subject of failures with one of the surgeons to the Truss Society, and his experience of the after-results of operations for "radical cure" are not such as operators might altogether have expected. It is a thousand pities that the operation is called the *radical cure*; it is not always a cure.

Lastly, as to the time limit. One surgeon may say that he would not operate before this age and another before that. Each patient should be considered on its own merits, and the admission of an age-limit might be the cause of the benefits of the operation being refused to a most proper case for the simple but inadequate reason that the child was still very young.

ANTIVIVISECTION IN AMERICA.—We learn from the *Medical Record* that an Act to prevent vivisection and animal experimentation of any kind, either for demonstration in physiology, for scientific research, or for any purpose whatever, which had been quietly introduced into the Pennsylvania Legislature and had already passed the second reading, was summarily withdrawn from the calendar on the personal appeal of a group of distinguished medical men headed by Dr. Weir Mitchell of Philadelphia. Dr. Mitchell pointed out, among other things, that by the provisions of the proposed Act it would be impossible to prepare in the State virus for vaccination and also diphtheria antitoxin, as well as to perform various operations on animals common in the farming industry.

An Address

ON THE

OPERATION FOR REMOVAL OF THE ENTIRE RECTUM AND NEIGHBOURING LYMPHATIC AREA FOR CARCINOMA.*

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THE results of the treatment for carcinoma of the rectum are in many ways far from satisfactory, more especially when we compare them with the results obtained from operations upon cancer in some other parts of the body, notably in cancer of the breast and uterus.

The chief reasons for this are: That the condition of the patient after the operation for excision of a rectal growth is in many cases unsatisfactory as regards the function of defaecation, and that sepsis with all its attendant consequences occurs in the wound.

I am leaving out of account the very large proportion of cases which are seen too late to be operated upon at all, which is certainly not the least unsatisfactory side of the treatment of rectal cancer, and can only be cured by earlier diagnosis.

Fig. 1.—The dotted line shows how the incision may be extended forwards if there is not room enough.

From the patient's point of view, the restoration of the parts so as to obtain good functional control is of the greatest importance. Whether the patient be left after operation with a colotomy aperture or a perineal anus, he expects to have good control over his evacuations, and he will never be contented with any result, however successful as regards freedom from recurrence of the growth, which falls short of this.

To turn to the second point, it is quite obvious that the operation for excision of the rectum can never be satisfactory until we can obtain aseptic healing of the wound after operation. This has been the great difficulty all along, and at the present time most operators look upon excision of the rectum as an operation which must necessarily result in a septic wound.

Sepsis in the wound is accountable for nearly 80 per cent. of the mortality from excision of the rectum; and, apart from this, it necessarily means healing by granulation; and if the bowel is restored, a great deal of fibrous tissue will be left to contract and interfere with the new rectal passage.

PRELIMINARY COLOTOMY.

The great object, therefore, to be aimed at in the technique of the operation is aseptic healing. There are

* Paper read before the Leicester Medical Society.