other. Each operation has its sphere, and, while I prefer the streptotome for young patients, and for moderate-sized herniæ of the inguinal class, I am inclined to believe that, for other cases, it is best to cut down, and apply some form of ligature to the sac and abdominal rings. We must never lose sight of the fact that we rarely see two cases of hernia exactly alike; and, although we may lay down certain general rules for guidance, yet each case will have to be dealt with on its merits. What will apply to a large, lax, thin hernial opening, will certainly not answer for a small, tight, dense one; and it must necessarily rest with the surgeon himself to judge, from the nature of the condition with which he has to deal, what is best likely to succeed. Experience will teach far more on this head than arguments or statistics.

In all these cases, the risks, as well as the advantages, of an operation ought to be clearly stated to the friends of the patient, with whom the decision as to its performance should rest.

The foregoing remarks have reference chiefly to the inguinal forms of rupture, but other forms are likewise amenable to cure; and the same arguments which are applicable to the one form apply equally to the others. Among these, umbilical hernia ought specially to be mentioned. There are few conditions which entail greater discomfort, or lead to more constant danger, than a large exomphalos; but, happily, it is an infirmity which can in many instances be dealt with by operative measures. Although my instrument can be, and has been, used to remedy this condition, it seems to me the best method is that of ligature. It was first advocated by Mr. Barwell in 1861; and the operation he describes of opening the sac, removing any adherent or superfluous omentum or sac, ligaturing its neck, and stitching the edges of the umbilical opening, is the same as that now usually practised. Mr. Mitchell Banks and Mr. Lawson Tait, as well as my colleague, Mr. Folker, have had considerable experience of this operation, and we shall, no doubt, hear their views upon it. The last patient on whom I operated was enormously fat, as most of them are, with a very large hernia, more or less adherent to the sac. I removed a large portion of omentum, with the whole of the sac, which was securely tied with silk, and the edges of the opening, after being pared, stitched together. The result was quite satisfactory.

In femoral and ventral herniæ, too, the ligature is most valuable, and has now been employed in a sufficient number of cases to warrant its more general adoption.

Having said so much in favour of operative measures, it must not be inferred that they are advocated for universal or indiscriminate adoption. Nothing of the kind. Of course, a patient suffering from any serious chronic disease—especially tubercular—from habitual cough, or other ailment, which would contraindicate any ordinary surgical procedure, would be equally unfitted for this. The chief sources of danger are to be found in some of the forms of inflammatory action—peritonitis, diffuse cellulitis, orchitis, hæmorrhage, and septicæmia.

In some cases, sharp orchitis has taken place, with considerable œdema of the scrotum; but this, within certain limits, is not to be deprecated, as it shows that the spermatic cord has been tightly compressed by the closure of the canal; and no ultimate harm arises from it. I have met with localised cellulitis, in a few instances, which resulted in free suppuration along the line of the instrument. In one, this was caused by the restlessness of the patient, with a strumous habit. No further harm resulted than delayed convalescence, though, in one instance, the free suppuration prevented adhesive union, and caused the operation to be unsuccessful. Peritonitis ought never to happen if the neck of the sac be securely closed, so that the peritoneal cavity is at once shut off; and, to guard against septicæmia, every possible surgical precaution ought, of course, to be rigidly taken.

These are the chief dangers; but there are some inconveniences observed sometimes which deserve brief mention. One is the rather frequent occurrence of retention of urine. It usually lasts only a day or two, and is, of course, at once remedied by the use of the catheter. Pain is sometimes rather considerable; usually it is very trivial, but occasionally requires the free use of sedatives. I am disposed to attribute it to the inclusion of the ilio-inguinal nerve, for, as soon as the streptotome is removed, the pain usually ceases. In very young children, the difficulty of keeping on the dressings has led me to adopt the alternative of not attempting it, but simply to keep the wound constantly moistened with eucalyptus, or other antiseptic oil, and leave it open. Cases so treated recovered quite as well as others. One instance only I remember where the bowel descended while the instrument was in position. In this case, the child was a cross loud-crying one, and the hold on the internal pillar gave way. No harm was done; the instrument was at once removed, and a second operation subsequently performed, which resulted in success. In another case, where the operation was successful in curing the oblique inguinal rupture, so

much thinning of the abdominal wall took place, over the situation of the internal ring, that a direct inguinal hernia resulted. This appeared to be an illustration of one of the reasons advanced by some authors against all operative measures—namely, the inability of certain abdomens to find room for their contents, so that they must protrude somewhere. But even in this case, the small direct hernia was easily amenable to control by a light truss, whereas what it replaced was quite unmanageable.

These constitute, I think, the principal drawbacks to the operation; and it will be acknowledged that they are trivial, compared to many which might be named, associated with other and less important surgical proceedings; but I have been anxious not to exaggerate the advantages, on the one hand, nor to extenuate the dangers, on the other—even at the risk of being unnecessarily prolix.

ON THE RADICAL CURE OF HERNIA.

Read before the Staffordshire Branch.

By VINCENT JACKSON, F.R.C.S. Ed., M.R.C.S. Eng.,
Senior Surgeon to the Wolverhampton and Staffordshire General Hospital.

It is now twenty-five years since Wutzer recommended his well known treatment for the cure of hernia; a treatment which, although a very fair and impartial trial was given to it, signally failed to permanently accomplish what it professed to be enabled to do.

Professor Wood materially revived the attention of surgeons to the operative treatment of these cases. This operation was, and is, practised by many. Mr. Spanton simplified Wood's operation, and a large measure of success has been obtained by its employment. But the question arises, can the operation of Wood or of Spanton truthfully be called a radical cure? Have not both of these operations failed in some cases to effect a temporary cure; and, in others, has not a return of the hernia when a truss has not been worn, even in promising cases, been a cause of disappointment alike to patient and to surgeon? To me it seems a misnomer to call an operation radical, which requires the wearing of a support to prevent its becoming ineffectual; and while I admit my admiration of the ingenuity displayed by the authors of the two operations alluded to, yet I am bound to say that, in my opinion, the only operative procedure which can justly be spoken of as radical is, when the sac is either dissected away or pushed within the abdomen, and the pillars of the external ring, where possible, completely and permanently united.

If the handiwork of the operator upon the lines just indicated be rewarded by a successful recovery, I can hardly conceive the possibility of a relapse, for the closed pillars seem to me to be as much a barrier to a re-descent as the pad of any truss. How are the pillars to be maintained closed? Not by the use of silk or gut sutures, but by the employment of silver wire.

Mr. Mitchell Banks has spoken strongly upon the importance of metallic sutures, and he says that he has found a single tie sufficient to prevent separation of the two ends. I have, however, generally finished off with a twist or two.

But while I have thus expressed myself, truth, sincerity, and experience compel me to state that, in my opinion, a place will always be found for Spanton's operation. There are many cases of inguinal hernia in which it is not only applicable, but perhaps preferable to the other methods.

I will now narrate the history and notes of my last operative case for the cure of hernia.

H. C., aged 18 months, was admitted into the Wolverhampton and Staffordshire General Hospital, August 19th, 1884. The mother reported that the baby was still unweaned, and had suffered almost from birth from a right inguinal hernia; and although a truss had been applied and worn more or less, yet the hernia continually came down, and at last its size became so great that a truss was powerless to prevent its descent. This unpleasant condition was so troublesome, and at times occasioned so much pain, that the parents requested the performance of some operation to palliate or cure the defect. The child was healthy, and well nourished. The hernia was with ease replaced; the rings, easily admitting the middle finger, were large, and almost in direct apposition.

On the left side, there was no evidence of the presence of a hernia or of any weakness of the abdominal walls in the usual situation of a hernial protrusion; the external ring was thoroughly competent. To test the accuracy of the mother's statement, the truss-maker to the hospital was requested to fit a truss to the patient, but with a negative result; for, upon standing or crying, down came the bowel.

The child having been weaned, and being in every way in a suit-

able condition, on September 19th chloroform was administered; and the sac being emptied, the following operation was performed, Listerian precautions being used.

An incision was made from just above the external ring, on the right side, through the whole length of the scrotum, until it terminated immediately below the posterior wall of the sac, that is, the centre of the lower end of the testis; and, in this way, all the structures down to the sac were severally incised. The apex of the latter, which was not opened, was cleared away from the margins of the external ring and structures of the cord by means of a Brodie's director; and, being then held between the forefinger and thumb, it was pulled down as much as safety would permit, so that its highest point could be delimited by a chromicised catgut-ligature. Just below, with a pair of scissors, the sac was cut across, the upper end immediately slipping within the ring; and the lower portion, except the part attached to the testicle, was removed by dissection, due care being taken to avoid injuring either the vas deferens or the vessels accompanying it. All bleeding points having been secured or arrested, the pillars of the external ring were approximated by four points of interrupted silver wire suture, and the scrotal wound coated by gut-sutures applied and tied at very short intervals; at the extreme lower limit, and at the most dependent point, a small and short glass drainage-tube was inserted. The gauze-dressings having been carefully and systematically applied, and due convenience for micturition also afforded, the little patient was returned to his cradle.

September 13th. The report stated that, immediately after the operation, and for many hours, the child was very faint, and at times much collapsed. Restoratives were freely used, and eventually rallying commenced, and reaction was fully established. There had been no sickness, neither was there the slightest abdominal tenderness. The dressings, being in good position, were undisturbed.

September 14th. The wound was dressed, the drainage-tube being removed.

September 16th. The wound was redressed; it had a very healthy appearance.

September 19th. Lister's dressing was discontinued, as the wound was healing fast. Unguentum boracis was applied; and, in a few days, the healing was complete and sound. Three or four weeks afterwards, the child commenced to have whooping-cough; and, in spite of this severe and trying test, the radical cure continued. No truss has been worn since the operation.

This case causes reflection as regards (1) the age of the patient; (2) one or two points in connection with the operation.

1. The patient was young, and with truth I think it may be added very young—an unweaned baby carried in the arms; and probably, unless the spray had anything to do with it, this circumstance was the cause of the very prolonged shock which followed the operation. On several occasions, I have noticed the depressing effect of surgical operations upon young children; they bear the operations well, but they bear the shock of them badly.

2. The points in connection with the operation are these. *a.* The sac was ligatured before it was opened; and it was detached from above downwards, instead of, as some surgeons prefer, from below upwards. *b.* The pillars of the ring were carefully stitched together, and closed by four silver wire sutures, and so there is every reason to believe they still remain an evidence of the advantage, as well as of the necessity, of using metallic rather than catgut sutures; for with the former you are enabled permanently to place an effectual barrier against the re-formation of a fresh sac and hernia.

ON THE TREATMENT OF IRREDUCIBLE INTESTINE IN HERNIOTOMY.

By F. A. SOUTHAM, M.B. Oxon., F.R.C.S.,

Assistant-Surgeon to the Manchester Royal Infirmary, and Surgeon to the Clinical Hospital for Women and Children.

It occasionally happens that, on opening the sac in herniotomy, coils of intestine are found, so closely and so firmly bound together by dense adhesions, that it is impossible to divide or tear them through without injuring the bowel; especially in cases where the walls of the latter are extremely congested, and, consequently, more readily lacerable than in a healthy state.

This condition is only met with in hernie which are of long standing, and have previously been of an irreducible nature. Associated with these internal adhesions, others are often found running between

the walls of the sac and its contents; in rare instances, the portion of mesentery contained in the sac is so much thickened and hypertrophied that, independently of the presence of any adhesions, the bowel may be irreducible from this cause alone.

In ordinary cases, adhesions, especially if recent, may be divided or torn through without much danger, though at times it may be necessary to dissect away the portion of the sac to which they are attached.

It is to the treatment of cases where the internal adhesions (that is, those between the coils of bowel) are so extensive, so firm, and so short, that they cannot be separated in this way, or where the hypertrophied condition of the mesentery is present, that I wish to call attention.

The ordinary method is to leave the bowel, after dividing the stricture, unreduced in the sac; the result is that the bowel, especially if much congested or inflamed, not unfrequently sloughs and gives way, or, if recovery take place, the patient is still left with an irreducible hernia. In other cases, attempts to break down the adhesions are persevered with until the bowel is ruptured. An alternative to these procedures, in cases of inguinal hernia, is to enlarge the opening in the abdominal walls by an incision, carried upwards from the internal ring, large enough to admit of the reduction of the coils of intestine, still adherent together, into the cavity of the abdomen. The opening having been made, the bowel is replaced through it, as it were, *en masse*; the wound in the abdominal wall is then closed, and at the same time a radical cure may also be performed.

In illustration of this method of treatment, I may mention the following case of strangulated inguinal hernia, which was under my care at the Manchester Royal Infirmary, in February, 1884; it occurred in a man, aged 49, the hernia having been present and irreducible for upwards of twenty years. On opening the sac, there was found a mass of bowel, of the size of one's fist, the coils of which were firmly adherent together by short, dense, firm bands, evidently of long standing; there were no adhesions between the bowel and the walls, or the neck, of the sac, nor was there any omentum present. After dividing the constriction, which was high up at the internal ring, an attempt was made to separate and break down the adhesions binding together the coils of intestine; but these were so firm and short, that it was quite impossible to do so without lacerating the walls of the bowel, which, being extremely congested, were not in a condition to stand much force or pulling about.

The incision was accordingly prolonged along the inguinal canal up to the internal ring, and then carried upwards from the latter for about three inches through the whole thickness of the abdominal walls. This having been done, the coils of intestine, still adherent together, were then without any difficulty at once replaced in the abdominal cavity. The margins of the opening in the peritoneum were brought together by catgut sutures, and the internal ring was also closed in the same way, care being taken not to include the spermatic cord. The opening in the abdominal walls was then closed with silk sutures, passed deeply, so as to include the muscles, but not the peritoneum; a drainage-tube was brought out at the top of the wound, and also through a counter-opening at the lower part of the scrotum, so as to draw the sac from its bottom. The wound was then dressed according to the Listerian method, the operation having been performed under the carbolic spray. The wound readily healed, and recovery took place without a single bad symptom; the patient was up on the twelfth, and on the eighteenth day he left the hospital, wearing a truss, the pad of which was made to cover and press over the abdominal incision. When last seen, some weeks later, he was following his usual occupation, that of a labourer, and there was no evidence of any tendency to the formation of a ventral hernia.

A somewhat similar plan of treatment was adopted by my colleague, Mr. W. Whitehead, with an equally successful result, in a case in which I assisted him some months previously; in this instance, however, the irreducibility of the bowel was not due to any adhesions, but to a much rarer condition—namely, an extremely thickened and hypertrophied condition of the mesentery contained in the sac.

The advantages of this plan of treatment over the ordinary method are as follows.

1. If much congested or inflamed, the bowel is more likely to recover itself in the abdomen than in the sac, where, if left, it not unfrequently sloughs, and perforation results.
2. The patient is not left with an irreducible scrotal hernia.
3. A radical cure can be performed at the time of operation.

The chief objection to this method is that, owing to the somewhat free division of the abdominal walls sometimes necessary, a ventral hernia might afterwards form at the cicatrix; but this can, as a rule, be prevented if the patient wear a truss or an abdominal belt; even if a slight protrusion do appear, the inconvenience caused would pro-