the track of the ureter. These are not stones, they are calcified glands and are negatived by the ureteric bougie.

There is but little difficulty in the male in passing these bougies; they are introduced through a Caspar ureter cystoscope or through an ordinary prostatescope or open urethroscope tube, the pelvis being elevated. In the female, a Kelly tube is used. There is decided abdominal discomfort after the bougie has been passed, just as there is after ureteric catheterization, but this is relievable by a little opium.

If you have not the x ray to help you, of course the kidney must be explored first, and the ureter opened and a tube passed down it, but remember these two objections: The ureteric catheter passed from above can easily glide over the mucus-covered stone—for all arrested ureteric stones are embedded in thick jelly and the surgeon may be unaware that he has touched a stone. Secondly, the bougie may never reach the bladder at all, but press the ureter down in front of it just at that spot where the tube bends upwards to enter the bladder (Fig. 9).

I do not claim any credit or originality for the shadowgraph ureteric bougie. If any is due it would fall to Kelly or Nitze. I only urge it as a valuable method, and one likely to prevent needless operation in the lower ureter.

ONE HUNDRED CONSECUTIVE LAPAROTOMIES FOR INTUSSUSCEPTION IN CHILDREN.

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In this part of the world, as elsewhere, we now get more intussusceptions in hospital than in former years, because the condition is more readily recognized and the children are sent to us more promptly than heretofore. I find that up to November, 1904, I had performed 100 laparotomies for intussusception in children, with sixty-three recoveries and thirty-seven deaths.

The first 50 cases occurred from August, 1893, to April, 1901 (a period of seven years and eight months); of these, 25 lived and 25 died. The second 50 cases occurred from April, 1901, to November, 1904 (three years and six months); of these, 38 lived and 12 died. The great difference in the mortality in the second 50 cases is probably due to the fact that the children were sent into the hospital earlier.

	Cases that Lived.	Cases that Died.
Average time from onset of symptoms to operation	23 hours.	68 hours
First 50	23 "	48 "
Second 50		

The varieties were as follows:

	Cases.	Cured.	Died.
Ileo-caecal	64	43	21
Ileo-colic	12	7	5
Double	20	11	9
Colic	3	2	1
Enteric	1	—	1
	100	63	37

In my cases the relative frequency of the various forms differs considerably from those collected by Weiss, who gives as the following statistics: Ileo-caecal, 43; ileac, 23; ileo-colic, 14; colic, 26.

It appears that I have met with singularly few enteric and colic varieties. Cases I have classified as "double" were primarily enteric, generally starting a few inches from the caecum. This intussusception reaching the caecum has caused the secondary infolding of the colon. I have noticed that in the ileo-caecal, the common variety, the starting point is in the large majority of cases in the caput caeci and not at the valve. This free end of the caecum is often a little difficult to unfold. The main part of the intussusception has been reduced, the lumen is free, but this small, cup-shaped depression, with its thick, hard wall, persists, and has often to be moulded into a convexity, and held in that position for

a minute or two. The arrangement of the muscular fibres at this part of the caecum seems, in some way or other, to tend to the production of this small cup or dimple, since it appears to be so frequently the starting point in what is the commonest variety of intussusception. In intussusceptions beginning in the ileum the first unfolding seems frequently to start at the side of the bowel and always opposite the mesenteric attachment.

DIAGNOSIS.

This is not a matter of great difficulty. The signs and symptoms are now so well known that, even with an ordinary amount of care, the condition should not be overlooked. Indeed, the Sydney graduate is now nearly always able to "spot" the case at once. If there is any doubt, and the mass cannot be felt, chloroform should always be administered for the purposes of diagnosis. The condition of the child is apt to mislead the unwary, because in a large number of what may be called early cases, that is, cases seen within eighteen or twenty hours from the onset, the condition of the child is remarkably good. The pulse rate may not be raised, and they do not look ill. It is difficult to believe that they are suffering from acute intestinal obstruction. I think this is the reason why men sometimes miss these cases, if they are not on the watch for them, and have not paid attention to the story of the onset of the attack told by the mother. In some cases the children are collapsed from the very onset, and in later cases it is nearly always easy to see that the child is profoundly ill.

IRRIGATION.

In spite of the fact that nearly all surgeons now condemn irrigation as useless and unscientific, I always inject before operation. The patient is anaesthetized, everything is prepared for operation, and then oil or warm saline is injected by means of an ordinary Higginson's syringe. Why is it useless? It may complete the reduction. It always reduces the mass to a certain extent, sometimes very largely, and in a very gentle manner. Frequently a mass that was in the rectum or descending colon can, after the injection, be felt in the caecal region, and can, therefore, when the abdomen is open, be now got at and reduced with much less handling, and therefore much less risk, than before. But irrigation alone must never be considered a complete form of treatment, and when we irrigate we must always be prepared to operate. My experience has taught me that it will only do away with the necessity for operation in 10 per cent. of the cases. It is, therefore, always necessary where the mass disappears entirely, as the result of irrigation, to keep the child under careful observation. If these facts are recognized I fail to see how irrigation can be considered dangerous or unscientific.

INCISION.

In cases where the mass has been reduced to the region of the caecum, I usually make incision at the outer border of the rectus. The mass can then be easily delivered and reduced without any prolapse of the intestines and therefore with but little shock to the child. The advantages of the side incision are certainly less immediate shock, but it is more likely to be followed later on by hernia than the central incision. Where the mass is in the transverse or descending colon the incision should be in the middle line, the umbilicus being the centre, on one or other side, of the cut. I always try to keep the intestines in, but rather than waste much time I let them prolapse, and after the intussusception has been reduced I have warm saline solution poured over them as they are being replaced. If the serous coat of the intussusciens is torn I stitch it with fine catgut. I notice that the appendix is nearly always discoloured, but unless it seems to be very much damaged I rarely remove it. In this series of cases I have been obliged to resect the bowel seven times, for various reasons, with but one recovery—a case I have already recorded.

To close the abdomen I nearly always use through-and-through silkworm gut sutures with a Reverdin's needle. It saves much time. With a side incision, if there is not any great necessity for haste, I sometimes sew up in layers with catgut.

AFTER-TREATMENT.

They are always given morphine, $\frac{1}{2}$ to $\frac{3}{4}$ gr.; this is repeated if necessary. Strychnine is given hypodermically till the immediate shock passes; sometimes salines. Within twelve hours the colon is washed out with a weak solution of permanganate of potash. This nearly always produces a motion. If there is any difficulty with the bowels small doses of calomel or castor oil are given.

Food.

I think it is most important that these children, if still on the breast, should not be weaned. For the first thirty-six hours or so they are fed on small quantities of albumen water and somatose or Mellin's food and water. Brandy in albumen water. After that, if they are doing well, the mother comes to them several times during the day. They are artificially fed at night.

REFERENCE.

1 BRITISH MEDICAL JOURNAL, 1897, vol. ii, p. 1335.

THE CURABILITY OF HERNIA AT ALL AGES BY OPERATION.

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IN a previous paper in the BRITISH MEDICAL JOURNAL (June 27th, 1903) I attempted to show that the diversity of opinion on the treatment of hernia was largely due to the prevalence of an erroneous view of its etiology. Rupture, the popular name of this disease, expresses the popular view of its cause. According to this idea the hernial protrusion is the result of a hurt or strain. Following Hamilton Russel and other writers, I described the evidence which to my mind proves conclusively that this view is wrong, and that in the vast majority of hernias the essential cause is the pre-existence of a peritoneal sac of congenital origin. This statement applies to the various forms of oblique inguinal hernia and to femoral hernia, and has no reference to the hernias which follow abdominal incisions or similar lesions of which the traumatic origin is obvious.

If we accept the popular view and regard strain as the primary causal factor, we must admit that it is a factor which can be only imperfectly controlled, either by therapeutic or mechanical means. We can, it is true, restrain the expulsive forces by means of an external appliance, or we may by means of an operation remove the sac of the hernia, and obliterate or narrow the opening in the abdominal wall through which it protrudes. In the one case no attempt is made to cure, and in the other, however perfectly the end is achieved, the supposed primary cause, internal strain, remains. Recurrence under these circumstances is probable, if not certain, for the operation does not leave the patient in any better state than a normal person, in whom the same cause—repeated strain—may by hypothesis produce the same result. If, indeed, the operation is not well planned, or skilfully performed, the parts affected may be actually less capable of resisting strain than those of a normal person, and recurrence is then even more probable. From the same assumption—that strain is the primary cause—it follows also that many cases of hernia are unsuitable for operation because the hernial aperture is so large, or the muscular parietes so lax and enfeebled, that it is improbable that any operation will enable them to resist for long the action of the expulsive forces of the body; hence in all large hernias, and in most elderly people, a radical operation is considered unlikely to be successful.

If, on the other hand, strain is only the immediate cause of the protrusion, and if the real reason why hernia appears in some persons and not in others is that a congenital sac exists only in the one class and not in the other, then the possibilities of a radical cure are obviously very different, for the removal of the essential malformation—that is, the sac—removes the only condition which in the first instance permits the protrusion to occur. The patient after its removal is in all respects restored to a normal condition, and is no more liable to recurrence than any other. This statement must be qualified only to this extent—namely, that the long-continued presence of the hernia within the sac, especially if the hernia is large, may have caused an amount of distension and atrophy of the structures of the abdominal wall which no operation can completely remedy. To this extent the patient after operation may still have an abnormal weakness which conduces to recurrence. In answer to this I can only say that my own experience does not justify this expectation. I have operated on all hernias, large and small and without any regard to age or the condition of the parietes, and I have not found recurrence more frequent in large than in small hernias, nor in old persons than in young. In other words, the size of the opening and the condition of the parietes, are, in my experience, no bar whatever to a successful radical operation.

Stated briefly, then, the popular view is that hernia is the result of strain, that many cases are incapable of permanent radical cure, and that operation in even the most favourable cases is very likely to be followed sooner or later by recurrence, because the primary cause—strain—cannot be permanently eliminated.

It must be admitted that the practice and results of those who act on this view help to bear out their opinion. They restrict their operations except in cases of strangulation or irreducibility, to young persons, and to hernias of moderate size, and even then their percentage of recurrence is admitted high—in my opinion much too high.¹ Mr. Langton, a distinguished surgeon, and one of the most experienced operators, who has operated on 2,319 cases, has recently stated that out of 214 cases operated on in private, 26 had relapsed, and the other operators estimate their relapses as high as 20 per cent.

On the other hand, the view which I wish to urge and support is that hernia is essentially the result of a continued existence of a vestigial peritoneal sac, that it is as much a congenital malformation as a Meckel's diverticulum, and as readily curable by any operation which completely removes the sac without damaging other structures, and my object in the present paper is to support this view by a brief analysis of over 142 operations which I have followed up for two years or more after operation, and which show that by an operation which effectually removes the sac, a permanent radical cure can be practically guaranteed in 95 per cent. of all cases without respect to age or the size and duration of the hernia.

It may be objected that a duration of two years without recurrence is an insufficient test of permanence. It is, however, generally admitted, and my own experience confirms this, that recurrence nearly always takes place, when it occurs at all, within six months. I have not yet met with a single exception to this rule in my own practice, nor am I aware of any published observation in which a radical cure has remained sound for twelve months under the conditions of ordinary life and subsequently recurred. Moreover, in none of my cases has a truss been worn after the operation, and the patients have generally returned to their ordinary occupations within three or four weeks. I think, therefore, that the stability of the result in these cases has been tried by a test sufficient for all practical purposes.

The methods of performing the operations for the radical cure of hernia are legion, a sure sign that practical perfection has not yet been achieved. It is not my intention to add another method to the bewildering variety already in vogue. Probably most surgeons practise in this as in other operations, a wise eclecticism. In surgery, however, no more than in philosophy, is ultimate salvation found in eclecticism, and the drift of surgical opinion is already clearly settling in favour of two principal methods, those of Bassini and Kocher, at any rate as regards essential principles.

All operations devised for the radical cure of hernia have two principal aims, the removal or obliteration of the sac and the narrowing or closure of the opening in the muscular parietes, and the criterion by which the various procedures must be judged is the greater or less perfection with which they accomplish these two objects. It must be admitted at once that many of the operations devised by different surgeons and known by their names accomplish these objects with sufficient success to obtain a large percentage of cures in selected cases, especially in young persons and recent hernias. Almost all of them, however, fail in more difficult cases where the hernia is large and of old standing and the patient's tissues enfeebled by age. For such cases the method of Bassini is at present most generally practised. This operation deals thoroughly both with the sac and the canal, and in these respects leaves little to be desired. It has, however, the great drawback that it divides important structures and that the success depends on the asepticity of the wound and of the deep sutures. Failure in this respect involves with practical certainty the production of an ordinary ventral hernia in place of that which the operation was designed to cure. Bassini's operation, moreover, is frequently lengthy and difficult, and failure of asepsis, of course, is more likely to occur from these very reasons.

The operation of Kocher is, of all the operations devised, the simplest, the most rapid, and the easiest to perform. It deals perfectly with the sac, does not enlarge the canal, and its success is not compromised by suppuration of the wound should this occur. The method of treating the sac by invagination and displacement is lucidly described and figured in the last edition of Kocher's well-known textbook of opera-