note of the boy only says that "the coils of small intestine had a tendency to adhere together."

The difficulties, then, with which the surgeon has to contend in dealing with the greatly distended small intestine are many. If he only makes an external opening, the kinked and (?) paralysed bowel may not empty itself; and if he empties it at the time of the operation, his manipulations may lead to fatal shock; or, if they do not, the intestine may soon fill up with gas and the obstruction continue. In the face of all this discouragement, what is the lesson to be learnt? I think it is the absolute importance of operating early before great distension can set in, and of operating in acute appendicitis before mechanical obstruction from matting around the diseased appendix can occur. One surgeon of large experience in abdominal surgery has recently written: "The surgery of acute obstruction is disheartening work," and that the mortality is far larger than it ought to be owing to delay in operation.

I have been speaking about greatly distended small intestine in mechanical obstruction. If due to peritonitis, I think the treatment must be the same and the risks will be the same. The uselessness of simply making an opening in a distended coil and expecting all the other over-distended coils to empty themselves through it, seems, if anything, more evident when the whole bowel is inflamed than when it is not.

I do not wish you to think that I consider that it is useless to open distended small intestine without oneself emptying the bowel by a manipulation in every case. It depends on the degree of the distension. There are some cases of mechanical obstruction in which this is the right thing to do. Not long ago I had to do colotomy for a large, fixed, irremovable cancer of the lower colon, and a few months later the man got further obstruction from fixation of small intestine to the mass. In this case, knowing I could not deal with the cause of the obstruction, I brought out a coil of small intestine and fixed a very small Paul's tube in it, and relieved the obstruction in this way. But, if this man's small intestines had been enormously distended and kinked, I do not believe they would have discharged their contents through the opening.

There is just one other matter to which I should like to call your attention. Some surgeons have recommended that we should empty the distended coils by pushing a long rubber tube into them, through the incision made for drainage (I am not now speaking of the method advocated by one surgeon of drawing many feet of small intestine on to a glass tube at the time the intestines are all exposed during the operation); but how can he expect to succeed in passing such a tube through coil after coil of kinked, overlaid small intestine? It is interesting that the recommendation has been made, because it implies the recognition of the fact that simply to open distended small intestine may not be sufficient to drain it. But I have proved in the *post-mortem* room how, instead of passing from coil to coil, the rubber tube simply coils up when it meets with the obstruction of the bend, as one might expect. You may think it curious that, if I have no faith in the use of a rubber tube, I should actually have used it in one of the cases I have recorded. I only used it to clear the coil just beyond the opening and had no hope of its doing more.

REFERENCES.

¹ Hernia into the Foramen of Winslow: Laparotomy; Recovery. A. Neave, *Lancet*, May 28th, 1892. ² *Beiträge zur klinischen Chirurgie*, lvii, No. 3, 644.

THE AFTER-RESULTS IN A SERIES OF OPERATIONS FOR THE RADICAL CURE OF HERNIA.

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FOR some years I have paid particular attention to the subject of hernia, especially in regard to its etiology, and the more I study the question the stronger is my belief that the essential cause of all ordinary abdominal herniae is a congenital defect, the presence of a peritoneal diverticulum.

In several communications I have advanced evidence in favour of the sacular theory of hernia. I have pointed out how the same types of sac are met with in the infant and in

the adult, how clear the distinction is between the sac of a congenital and that of a traumatic abdominal hernia, and how impossible it is in the case of an inguinal hernia in an adult to distinguish between the so-called "acquired" and the congenital sac.

I have also considered the question from the point of view of comparative surgery; but perhaps the strongest point I have hitherto made in favour of the sacular theory was that, in 200 consecutive *post-mortem* examinations made upon persons in whom during life there was no history or evidence of hernia, in 47 bodies 68 peritoneal diverticula were found either in the inguinal, femoral, or umbilical regions. In many cases the diverticula were bilateral, and in one case occupied both femoral and both inguinal canals.

I now propose to bring forward clinical evidence in favour of the congenital origin of hernia by directing attention to the after-results in a series of operations performed for the radical cure of hernia upon persons whose ages varied from 1 month to 72 years. I have selected the years 1905-6-7 because during that time I adopted the same principle in operating, and also because the cases have now undergone a fair time test. I do not say all these cases are certainly cured, but as over 80 per cent. of recurrences take place during the first twelve months following operation, it is reasonable to believe that the vast majority of these persons have been permanently cured.

The figures include every case of hernia I operated upon during that period, whether in hospital or in private practice, except cases in which the bowel was strangulated.

I have been at considerable pains to ascertain the after-results, and as this is the chief point in the present communication I may say that any bulging at the site of operation was regarded as a recurrence; and, further, that in almost every instance the examination of the patient was made in the presence of other medical men.

In the accompanying tables (p. 645) I have grouped the cases according to the age of the patients at the date of the operation, and it is at once seen that up to middle life the probabilities of a complete and permanent cure are considerable.

As to children under 10 years of age, it is now so generally recognized that a radical cure follows complete removal of the sac that it is unnecessary for me to dwell upon the results obtained in this series, except to draw attention to the mortality, which, I regret to say, has been far too high.

One child, 4 months old, was operated upon in the summer of 1905, and died a week later from diarrhoea.

Another child, 2 years old, died two days after operation from delayed chloroform poisoning.

The third case, a child of 3 months, died suddenly and altogether unexpectedly two days after operation. No definite cause for the child's death could be discovered at the necropsy.

Although these deaths should certainly be attributed to the operation, still I am glad to be able to say that in no case was there anything wrong with the wound.

METHOD OF OPERATING.

As in the case of the adult patients the operations performed for inguinal, femoral, and umbilical hernia differ in some important respects from those generally adopted, I will describe them under the several varieties of hernia.

Inguinal Hernia.

Everybody is agreed, and for a great many years everybody has been agreed, that it is very important to completely remove the sac, and I have not the least doubt that any and every surgeon who has ever operated for the radical cure of inguinal hernia is perfectly satisfied that he did completely remove the sac. I very much doubt it. This is a matter of very great importance, for I am quite sure that the chief cause of failure after operation is incomplete removal of the sac. In examining patients in whom hernia has recurred I have been at once impressed by the position of the scar. The skin incision had been made far too low—in fact, it encroached upon the scrotum, and did not extend upwards further than the external abdominal ring. Through such an incision it is impossible to excise the sac completely. The lower end of the skin incision should not extend more than $\frac{1}{2}$ in. below the

The After-Results in a Series of Operations for the Radical Cure of Hernia Performed during the Years 1905, 1906, and 1907, considered according to the Age of the Patients at the Date of Operation.

Hernia.	Cases.	Satisfactory 12 Months and More after Operation.	Unaccounted for.	Relapsed.	Died.
Boys and girls under 10 years of age:					
Right inguinal	*71	69	—	—	2
Left inguinal	17	17	—	—	—
Double inguinal	8	7	—	—	1
Umbilical	4	4	—	—	—
Linea alba	2	2	—	—	—
Females under 40 years of age:					
Right inguinal	4	3	1	—	—
Left inguinal	3	3	—	—	—
Double inguinal	1	1	—	—	—
Right femoral	3	3	—	—	—
Left femoral	2	1	1	—	—
Umbilical	1	1	—	—	—
Females over 40 years of age:					
Right inguinal	1	—	1	—	—
Left inguinal	1	1	—	—	—
Right femoral	2	2	—	—	—
Left femoral	2	2	—	—	—
Umbilical	6	6	—	—	—
Males under 40 years of age:					
Right inguinal	33	30	3	—	—
Left inguinal	17	15	2	—	—
Double inguinal	3	3	—	—	—
Right femoral	1	1	—	—	—
Left femoral	2	1	1	—	—
Direct inguinal... ..	1	1	—	—	—
Males over 40 years of age:					
Right inguinal	15	10	2	2	1
Left inguinal	10	8	1	1	—
Double inguinal	4	4	—	—	—
Left femoral	1	1	—	—	—
Direct inguinal... ..	2	2	—	—	—

external abdominal ring. I always open up the inguinal canal for about 1½ in., and, having found and isolated the sac, make a point of pulling it vertically upwards, and at the same time brushing back with gauze the vas and other structures clinging to the neck of the sac. I continue to pull the sac upwards and push back the surrounding structures until I bring into view a marked thickening of the peritoneum. This thickening is to be found on the pubic side. I always look for it, and when it appears know I have reached the limits of the sac. By transfixing and tying the peritoneum through this thickened portion the limits of the sac have been passed, and when it is cut away the ligatured stump at once disappears from view beneath the internal oblique. This thickening of the peritoneum is physiological. It is present during infancy as well as during adult life, and when operating for inguinal hernia [should always be looked for, as it is the only true indication the limits of the sac have been reached.

The sac being thus completely removed, I unite the divided aponeurosis of the inguinal canal. Formerly, I did this by overlapping, but more recently I have taken a double hold of the aponeurosis on either side with the needle, and so with four or five stitches narrowed and

lengthened the inguinal canal. The cord is not interfered with, and, after tying several small blood vessels, the skin incision is closed.

On the seventh day the subcutaneous wire or stitches are removed, and, as a general rule, the patient is allowed to get up on the tenth day, and leaves the hospital on the fourteenth day, after the operation, not wearing a truss or support of any kind. He is advised not to return to work until at least two more weeks have elapsed. I formerly kept patients in bed for two weeks after operation, but by getting them up sooner I have added to their comfort and in no way retarded their recovery.

Such has been the routine treatment for inguinal hernia, and when it is remembered that my list includes all sorts and conditions of men—some young, healthy, and favourable subjects, others weather-beaten, beer-worn creatures, who for years had a large scrotal hernia containing omentum, it is extremely gratifying to me to find results so satisfactory following upon such a simple method of operating.

I would draw particular attention to the list of men under 40 years of age. Most of them were dock labourers, carters, or sailors, and many had been ruptured for years. From the time of operation they were off duty about six or eight weeks, and since resuming work have remained sound and well, not wearing a truss or support of any kind. It is really very encouraging not to have had a recurrence in any man or woman under 40 years of age; and the fact that this result has been obtained by an operation which aims at little more than the complete removal of the sac, is additional and substantial evidence in favour of the view that the presence of the sac is the essential cause of the hernia. It also emphasizes the point that, provided the whole sac is removed, it is not necessary to spend time and trouble in what is called "strengthening" the abdominal wall by transplanting the cord, or by adopting other more or less complicated measures. In the case of men over 40 years of age exactly the same method of operating was practised, but in such persons a permanent cure cannot be looked for with the same confidence as when the operation is performed earlier in life.

Many of these cases were men over 50 years of age, and would have been considered unfavourable for operation by any surgeon, some of them perhaps altogether unsuitable, owing to the age of the patient, the size of the hernia, and the length of time it had been present. However, the results are, on the whole, satisfactory, in spite of the fact that in three cases the hernia relapsed, and in one case death followed upon the operation.

Of the three cases that relapsed, two were 58 years of age at the time of operation, one suffered from a double scrotal hernia of some years' duration, the other man had a large inguinal hernia, for which he had worn a truss for twenty-nine years. Both these patients now have a distinct bulging at the site of operation, but a truss is worn with much greater comfort than before operation. The third case of failure occurred in a man aged 41, operated upon in 1906. Some months after he left the hospital I heard indirectly that he was in hospital in Singapore on account of a rupture, but I am not quite sure whether it was a relapse or a hernia on the other side.

The case of the man who died was somewhat remarkable:

He was 58 years of age, and operated upon for inguinal hernia. All went well, the wound healed, and the man got up at the end of two weeks, but returned to bed owing to an attack of bronchitis. Four weeks after operation he was to leave the hospital, and was dressing himself when he had a sudden and remarkable seizure and died in a few minutes. At the necropsy no definite cause could be discovered to account for his sudden death.

Though I cannot directly attribute the man's death to the operation, still, as he died in hospital after operation, it is better to consider his death as in some way due to the operation.

Femoral Hernia.

All the cases of femoral hernia were operated upon in the same manner. A skin incision made over the sac and parallel to the fold of the groin exposes almost at once a structure frequently mistaken for the sac. It is not the sac, but a layer of fat concealing it, intimately attached to it, and, being enclosed by a thin fibrous membrane, closely resembles a thin hernia sac containing omentum. It should be thoroughly exposed

and isolated well up to the femoral ring; then, grasping it with one hand, I pull it outwards, at the same time brushing back with gauze the structures surrounding its neck. As a result of this firm but gentle pulling and pushing a marked alteration in the appearance of the fat surrounding the neck or mouth of the sac is noticed. At first it was of a reddish-yellow colour, but now it is pale yellow. This is due to the sac and surrounding fat being pulled outwards and the subperitoneal fat beyond the mouth of the sac exposed to view. I always continue to pull outwards and push backwards until the pale yellow subperitoneal fat is exposed, for the limits of the sac have thus been determined and a suitable level for applying the ligature reached. The fat surrounding the sac is now removed and a ligature applied at as high a level as possible. Nothing further is done except to close the skin incision. Complete removal of the sac, together with the fat surrounding it, is the essential feature of the operation.

I have never practised any of the more elaborate methods recommended for the radical cure of femoral hernia, and if, as would appear to be the case, a permanent cure can be brought about by little more than complete removal of the sac, surely this is strong testimony in favour of the view that in femoral as in inguinal hernia the presence of the sac is the essential cause of the hernia. Dr. A. J. Ochsner has used this method during a period of fourteen years, and is convinced that, barring unusual accidents, recurrence is out of the question provided the operation is properly performed. He has been able to get definite reports and to examine 30 cases of femoral hernia. In no case was there a recurrence.

Umbilical Hernia.

In every case the method of operating first described by W. J. Mayo was adopted. The hernial protrusion is included in two transverse elliptical incisions, clearly exposing the neck of the sac and the aponeurotic structures above and below it for several inches. The sac is then opened at its mouth, and any intestine which may lie in it returned into the abdomen. The contained omentum, usually adherent, is ligatured in sections and returned into the peritoneal cavity. The sac with all the adherent momentum, including the skin, is cut away. The entire thickness of the aponeurotic and peritoneal surfaces are then united by overlapping from above downwards. By adopting this plan the operation for the radical cure of umbilical hernia is much more simple than it used to be when the vertical incision and side to side union was practised and the after-results far more satisfactory than they ever were or could have been after the older methods. The operation is often formidable owing to the size of the hernia and the enormous abdominal girth of the patient. My six cases in women over 40 years of age were all very stout, one patient weighing 18 st.

CONCLUSION.

It has often struck me as being somewhat discreditable to the science and art of surgery that for the cure of such a common complaint as inguinal or femoral hernia there should be so many operative procedures differing widely in principle. Clearness of purpose and simplicity in method should be our aim, and if results such as I have the pleasure in recording can be obtained by an operation which essentially and almost entirely consists in the complete removal of the sac, this surely is strong evidence in favour of the sac being the essential cause of the hernia, and is also an encouragement to surgeons to simplify their methods when operating, to pay less attention to repairing the abdominal wall, and more attention to the complete removal of the sac.

THE *Polislinico* has published a first list of members of the medical profession who perished in the earthquake at Messina. Among them are the following: Dr. Gaspare D'Urso, professor of clinical surgery; Dr. Antonio Zincone, professor of anatomy; Dr. Agatino Giovanni Barbera, professor of physiology; Dr. Giovanni Melle, professor of dermatology and syphilis; Dr. Antonio Cambria, lecturer on clinical pathology; Dr. Francesca Ponzio, lecturer on materia medica; and Dr. Carmelo Calderone, lecturer on dermatology and syphilis—all of the University of Messina; Dr. Tullio Mazzei, director of the Antirabic Institute; and Dr. Lorenzo Mandalari, lecturer on mental diseases in the Medical Faculty of Naples.

STRANGULATED HERNIA THROUGH THE FORAMEN OF WINSLOW: OPERATION: RECOVERY.

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THE occurrence of this form of internal hernia is sufficiently rare to justify the publication of the details of a recent successful operation. About 20 cases have hitherto been recorded since the first described by Blandin in 1823. Many of these were only recognized after death, and are therefore of interest mainly in reference to the morbid anatomy of the parts concerned. Seldom has the diagnosis been determined in life before operation as in the present instance, and it may therefore be of interest to state briefly the leading symptoms in this case.

In the example here described the diagnosis of this obscure form of internal hernia was made by Dr. Tate, Surgeon to the County Infirmary, Downpatrick, to whom I am indebted for the description of the earlier symptoms, as well as for his skilful assistance during the operation involved.

The patient was a gentleman aged 58 years, in excellent general health, who had been out shooting the previous day. No other intestinal trouble had ever been experienced, and he was accustomed to have a regular daily evacuation from the bowels.

History of Illness.

He had a sharp turn of coughing on rising on the morning of December 13th, and when shaving shortly afterwards was seized with violent pain in the upper part of the abdomen, the lower part of the chest, and the back. It was colicky and gripping in character and radiated into the interscapular region, and there was some retching. An action of the bowels followed at once upon this seizure. This emptied the lower bowel, but without relief to the pain. The patient then took Hunyadi Janos water, without result. Copious turpentine injections and further aperients, including calomel, failed. The constipation was absolute for faeces and flatus. His pulse was 70, and the temperature normal. Vomiting was neither frequent nor severe, being wholly absent on the third day of the illness, but hiccough supervened on that day. There was no rigidity of the abdominal wall and no distension for the first two days, and it could not be said that any definite epigastric swelling existed. On the morning of the operation an ill-defined fullness, free from tenderness, began to show itself in this region. The temperature and pulse at this stage did not exceed 99.50° and 76 respectively. During the paroxysmal exacerbations of the pain, which was referred to the interscapular region and to the lower part of the thorax and epigastrium, the patient found most relief by turning on his face and pressing with his hand on the upper part of the abdomen. There was no pain in the umbilical region or below it at any time.

Operation.

Coeliotomy was performed on the third day, the abdomen being opened by an incision above the umbilicus in the middle line. The margin of the foramen of Winslow tightly constricted the gut, and was treated by gentle dilatation sufficiently to allow the constricted portion to be withdrawn. Two and a half feet of jejunum were withdrawn from the smaller sac of the peritoneum with comparative ease. The annular constriction was sharply defined and almost gangrenous, and the gut felt as if only the outer tunic of the gut remained. It was decided not to excise the damaged portion, but it was brought to the parietal wound and ultimately fixed behind it by two catgut sutures. The free border of the great omentum was carried round it, and fixed by sutures to it, and to the mesentery by several points of suture on either side, thus forming a loose protective sleeve, in order that, if perforation or rupture occurred, the extravasation might happily be retained in an omental compartment opposite the parietal wound. No abdominal complications arose, and the patient was about again within three weeks.

It may be remarked that of the 18 cases collected by Jeanbrau and Riche, coeliotomy was performed in 11 cases, with 4 cures. The same observers, after a series of experiments upon the cadaver, state their belief that the foramen of Winslow can be safely enlarged by an incision made through the peritoneum forming the anterior lamina of the gastro-hepatic omentum at the upper border of the first part of the duodenum (*Keen's Surgery*).

In this case, however, no incision was made, but a cautious dilatation of the foramen was practised with the tip of the little finger.

Certain points seem worthy of emphasis: (1) Notwithstanding the tight constriction, reflex vomiting was not an urgent symptom—which is all the more remarkable, when only $\frac{1}{2}$ grain of morphine was given hypodermically throughout the three days that the strangulation lasted; (2) the pain