THE TREATMENT OF IMPERFORATE ANUS.

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MALFORMATION of the anal outlet is rare, and does not occur more than once in every three thousand births. The rarity of the occurrence is doubtless the reason why these cases are often so inefficiently dealt with, practitioners lacking the experience of the best manner of treating them. Indeed, a doubt is present in the minds of some as to whether any attempt should be made to deal surgically with the condition, on the ground that, even if immediately successful, a life of subsequent suffering from a contracted anus is to be expected. In a large number of cases there is no justification for this unfavourable prognosis. By an operation, relief to the immediate symptoms can certainly be obtained, and it is possible that a complete and permanent cure may be effected.

Some years ago I published a paper on this subject in the *St. Bartholomew's Hospital Reports*, and there collected the subsequent histories of several cases that had been operated on from ten to twenty years previously. Many of these were practically cured.

Verneuil, to whom I wrote about a case that he had operated on in 1863, replied as follows: "The patient is now a fine young fellow of 17 years, bearing no trace of the operation, nor has he ever experienced the slightest functional trouble."

A, Anal cul de sac; P, Peritoneal cavity.

In another case, Berrut, of Marseilles, who had operated on an infant girl in 1860, kindly supplied me with the following information:

"The infant on whom I operated is now *une grande demoiselle*, 20 years old, very intelligent, and enjoying excellent health. She was much troubled with diarrhoea until 7 years old. Since the age of 14 the rectal functions have been normal. The bowels are opened naturally once a day, the stools being healthy."

Many other equally satisfactory accounts are recorded in my paper referred to, and I append to this communication five cases on which I have myself operated at St. Bartholomew's Hospital.

There are many varieties of imperforate anus, but I propose now to deal only with the two commoner forms; the first in the male, where there is no trace of an anus at all, or where it terminates in a *cul de sac* a short distance from the surface; the second in the female, where there is no anus, a small aperture existing in the posterior wall of the vagina communicating with the bowel.

Treatment of the First Variety.—It may so happen that the

rectum terminates close to the surface, in which case a simple incision is all that is required. Generally, however, the blind end of the bowel is some distance from the anus; in fact, well within the abdominal cavity. In these cases the position of the bowel and its relation to the peritoneum require careful consideration, the want of which is the chief cause of death after operating. I have shown specimens myself at the Pathological Society, and similar ones are to be seen in most museums demonstrating this termination of the rectum within the abdominal cavity. The peritoneum is not merely reflected over the anterior surface of the bowel, as usually but erroneously figured in diagrams, but it is continued right over the blind end of the rectum, the reflection taking place close to the sacrum. This disposition of the peritoneum explains why a fatal peritonitis so frequently follows a blind puncture with the trocar. The trocar, after perforating the superficial tissues, passes through the double layer of peritoneum reflected round the end of the rectum, as shown by the arrow in the diagram.

On the withdrawal of the trocar, meconium will almost certainly become extravasated into the abdominal cavity, with a fatal result.

To operate successfully the infant must be placed in the lithotomy position, and an incision made in the middle line over the site of the anus to the tip of the coccyx. Structures thus divided are pulled well apart by means of a silk thread passed deeply through the tissues on either side. A good view is thus obtained, and the dissection should be carried upwards, keeping close to the curve of the sacrum. In this way the bowel may often be safely reached without opening the peritoneum. In many cases, however, this would be impracticable, and the membrane would have to be opened. Little harm seems to arise from this if care be taken to draw the bowel downwards as far as possible through the peritoneal aperture, and then stitching the parietal peritoneum to its surface just above the spot where the opening is to be made. In theory, this stitching should be done before the bowel itself is incised, but in practice it may be impossible to get the bowel downwards whilst distended with meconium. In one of my cases I was able by means of pressure forceps to draw the rectal *cul de sac* firmly against the peritoneal opening, and then, after incising the distended bowel, and washing out a considerable amount of meconium I could with comparative ease draw it further downwards and stitch it to the cutaneous margin. If there is any tension the cutaneous stitches are sure to give way in a few days, and the bowel retracts, but their purpose has been served, for by this time the opened peritoneum will have adhered to the surface of the bowel, and thus the general abdominal cavity will be shut off from the wound.

The ultimate success of these cases depends largely on the after treatment, for unless the greatest care be taken, the new opening will contract to a mere sinus. The tendency to closure exists for at least a year or two, but a time appears to come when the contraction ceases, the opening remaining permanent without giving further trouble. In order to counteract this tendency to contraction, the infant should wear for some hours daily a vulcanite plug 2 inches in length, and made slightly conical. The diameter in the middle should be half an inch, and there must be a broad flange at its base to prevent it slipping in. It is not possible to say exactly how long this should be worn. In one of my cases it was attempted to leave it off at the end of a year, but marked contraction ensued. It was left off again at the end of the second year, since which time it has been discontinued without further contraction.

CASE I.—R. L., an infant, was admitted into St. Bartholomew's Hospital in August, 1887. A slight raised fold of skin passed from the scrotum to the coccyx. On the left side of this was a minute aperture just sufficient to admit a probe, through which a small quantity of faeces oozed. Using the probe as a guide, a dissection was made in the middle line, and the rectum found $\frac{1}{2}$ inch from the surface; it was drawn down, opened, and fixed to the skin with ten fine catgut ligatures. By the fourth day the ligatures had all cut through, and the rectum had contracted. At the end of a week a small conical bougie $\frac{1}{4}$ inch in diameter was passed, and kept in for some hours daily. The infant was taken from the hospital on the twelfth day, and the mother, who was a most conscientious woman, was directed to keep the dilator in for three hours daily. At the end of a year the child was very well, and the anal opening would admit the finger. The mother was then told that she could give up the bougie. However, in a few months there was a marked contraction. The bougie was then resumed, and used on alternate days till the child was two years

old; it was then given up entirely. In the summer of 1891 the child was brought to me for a slight attack of eczema. He was a well grown healthy child of 4 years old, and the mother stated that for the last two years he had never had any trouble with the bowel, could retain his motions, and was quite cleanly in his habits. On examination the anus appeared normal, and would readily admit the little finger. There did not seem, however, to be any external sphincter action, but at about $\frac{1}{2}$ -inch within the anus the finger was distinctly gripped by muscular action.

CASE II.—A male infant was admitted into Sitwell Ward, August, 1889, twelve hours old. There was a complete absence of an anus, but there was a faint impulse in the perineum when the child cried. No abdominal distension or sickness. Two days later I cut down on the bowel by a median incision. The rectum was discovered 1 inch from the surface close to the coccyx. It was opened *in situ*. The gut was not drawn down or stitched to the edge. The child was brought daily to the hospital for a bougie to be passed for some time, and was then supplied with an instrument similar to that described in Case I. The child was then doing well, and the case has not since been traced.

CASE III.—A male infant three days old was admitted on August 14th, 1890, into Lucas Ward with imperforate anus. The child had also hypospadias. There was considerable bilious vomiting. A *cul de sac* reached from the anus upwards for about $\frac{1}{2}$ -inch. There was no bulging to be felt, though the abdomen was somewhat distended. A median incision was made from the anal *cul de sac* back to the coccyx, and the bowel found after a dissection of $\frac{1}{2}$ inch upwards. The peritoneum was extensively opened, but was closed by five silk sutures after the bowel had been drawn down. The child did well, and was brought to the surgery daily for six weeks to have the bougie passed. The subsequent history has not been ascertained.

CASE IV.—August 29th, 1891. A female infant, 9 days old, was admitted. On examination there was no anus, nor any sign of depression where it should have been, the surface being level from the anus to the coccyx. At the posterior extremity of the vulva was an opening which would just admit a small probe. Through this opening small quantities of faecal matter oozed. Under chloroform, in the lithotomy position, a director was passed through this opening, and obviously entered the bowel; the handle was then raised as much as possible so as to depress the rectum downwards towards the perineum. An incision was then made in the middle line $\frac{1}{2}$ -inch behind the posterior vaginal commissure to the tip of the coccyx. Dissection was carried to about 1 inch in depth. The rectal *cul de sac* was then reached and opened, the mucous membrane being stitched to the skin by fine silk sutures. An india-rubber tube was then placed in the bowel, and the wound dressed with iodoform wool, and the fistulous opening was left untouched. At the end of a week the stitches had all given way. A bougie the size of the little finger was worn daily. The child was discharged at the end of September. The new anus would admit the little finger, and practically nothing was passed by the vagina. The mother was directed to pass the bougie daily for at least a year. May, 1892. The child is remarkably fine and healthy-looking. The new anus will admit the $\frac{1}{2}$ -inch bougie with ease. A tiny fistula still remains in the posterior vagina wall.

CASE V.—A female infant was sent to the hospital in the summer of 1891. She was well developed in every way with the exception that there was no anus, the site being represented by a tubercle the size of a 6d. piece, slightly depressed in the centre. One inch up the vagina was an opening about the size of a No. 5 catheter, leading into the rectum. The child appeared to get sufficient relief through this opening, so that operative interference was postponed till the child grew stronger. In January, 1892, I passed a strong bent probe through the vaginal fistula, and by drawing on this, the perineum was made as prominent as possible. An incision was then made in the middle line back to the tip of the coccyx. A dissection was carefully carried for $\frac{1}{2}$ inch upwards, when the blind *cul de sac* of the rectum was found. It was opened, drawn down as much as possible, and sutured to the skin, which was tucked in to meet it. A drainage tube the size of the little finger was passed into the bowel. In five days all the stitches had given way. A small conical bougie was passed daily for a month, and kept in some time. When the child was last seen the new anus was working satisfactorily, and would admit the little finger. A stout india-rubber tube was kept in most of the day to prevent the opening from contracting.

I have not yet operated on a case in which the bowel could not be found *in situ*. Should such a case occur, I would open the abdominal cavity as if for inguinal colotomy, and if after introducing my finger the rectum was discovered too high to be reached from below, I would complete the operation of colotomy.

Treatment of the Second Variety.—Two of the above cases are examples of the bowel terminating by a fistulous opening in the posterior wall of the vagina, there being no anal *cul de sac*. This is generally the condition of malformation found in the female. If the opening be sufficiently large to give relief to the meconium, the operation may be deferred till by the growth of the child the parts are more developed. The operation here consists in passing a strong bent probe from the vagina through the fistula into the rectum. There is generally a pouch of the rectum extending below the opening, and it can in this manner be made prominent and cut down upon by an incision between the vagina and coccyx, and then opened and stitched to the skin. It seems advisable at this stage to make no attempt to close the fistula. At a subsequent period, when the natural outlet is well established, should the fistula give trouble it might be closed. I am indebted to my house-surgeon, Mr. Wright, for arranging the notes.

CONGENITAL MALFORMATIONS OF HANDS AND FEET.

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A. B., a Chinese lad, aged 19 years, is apparently well developed except in his hands and feet, which are symmetrically malformed (Fig. 1). The hands (Fig. 1) look as though am-

Fig. 1.

putation had been skilfully performed years ago through the two outer carpo-metacarpal joints and the third metacarpophalangeal joint. There remain the carpus, the three inner metacarpals, and the ring and little fingers; these fingers are webbed as far as the bases of the terminal phalanges; both fingers, especially the ring, are more or less flexed at the middle and terminal joints. The patient is right-handed, uses his "chopsticks" deftly, has no difficulty with his toilet, and, as a boatman, manages ropes, oars, etc., very cleverly.

The feet (Figs. 1 and 2) are cleft to the bases of the metatarsals. The inner division of the cleft portion comprises the big toe and its metatarsal; the outer division includes the