A CASE
OF
RESECTION AND IMMEDIATE SUTURE
OF INTESTINE
WHICH HAD BEEN
STRANGULATED EIGHTY-ONE HOURS; RECOVERY.

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IN March, 1891, I had the honour to communicate to the Royal Medical and Chirurgical Society a paper on the treatment of strangulated hernia when the intestine is gangrenous or ulcerated.¹ I now venture to present the result of the first opportunity I have had of practising what I then advocated, namely, resection and immediate suture of the damaged intestine. This can be briefly done because the literature of the subject has been so recently collated by myself and Mr. Franks.

The case itself has a claim to attention because I believe that this operation has not hitherto been successful after such a prolonged period of strangulation as eighty-one hours. Mr. Kendal Franks, in the exhaustive paper which he read last year,² and in which he recorded

¹ 'Medico-Chirurgical Transactions,' vol. lxxiv, p. 199.

² "On Resection of the Intestine and Immediate Suture in the Treatment of Gangrenous Hernia," 'Medico-Chirurgical Transactions,' vol. lxxvi, p. 222.

the results of two hundred and twenty-two similar operations, says "the duration of strangulation did not exceed three days in any of the cases which recovered after resection and suture, with one exception, a remarkable case of Littre's hernia, in which the strangulation had lasted for seventeen days." Nor can I ascertain that Zeidler,¹ who has recently collated five hundred and seventy-six cases, mentions a recovery after such protracted strangulation.

The details of my case are briefly as follows:—The patient was a robust youth, æt. 17 years, who was a greengrocer. He had always enjoyed good health, and until the present occurrence had had no symptoms of hernia. On July 24th, 1893, he had his midday meal at twelve o'clock, but afterwards began to vomit and have pains and dragging sensations in the right hypogastric and inguinal regions. During the afternoon he vomited four or five times and consulted a medical man, who gave him some medicine and some lotion to apply to a swelling which there was in the right side of the scrotum. After the sickness had begun he ceased to pass either flatus or fæces *per anum*. On Tuesday, June 25th, and Wednesday, July 26th, there was no amelioration of these symptoms. Taxis was applied unsuccessfully upon the Wednesday, and again on Thursday, July 27th. Upon the evening of this last day I was called to the Great Northern Hospital to see the patient. The symptoms of intestinal obstruction were typical and very acute. There was no passage of flatus or of fæces; there was continuous stercoraceous vomiting; and the abdomen was distended. The right side of the scrotum and the right inguinal canal were occupied by an acutely strangulated, complete inguinal hernia. The left testis was undescended, with an interstitial hernia, which could be easily reduced. The skin over the tumour was hot and dusky, and the hernial sac was very tense. The general condition of the

¹ "Ueber Darmresektion bei gangrän in eingeklemmten Brüchen.," 'Cent. für Chirurgie,' January 21st, 1893, p. 62.

patient was serious. He was restless ; pale and anxious ; his cheeks were hollow and his eyes sunken, with black rims around them ; and his pulse rapid and thready. It was inferred that the case was one in which intestine had descended suddenly into a congenitally patent processus vaginalis, and undergone acute strangulation. Also, reasoning from similar cases which I had seen, I expected to find an annular constriction high in the inguinal canal. As eighty-one hours had elapsed since the strangulation had begun, a gloomy view was taken of the condition of the bowel. The operation, which was begun at 9 p.m. on Thursday, July 27th, confirmed our anticipations. The sac contained about two ounces of turbid fluid, mixed with altered blood, and emitting a faint stercoral odour. In the midst of this fluid was a piece of omentum which was almost gangrenous, and a loop of bowel, probably ileum, about six inches long. This bowel was acutely strangulated by an annular constriction, so high up the inguinal canal that the aponeurosis of the external oblique and the lower muscular fibres of the internal oblique and transversalis muscles had to be divided to bring it into view and permit the bowel to be inspected at the seat of constriction. The loop of intestine was rough, macerated, and deeply engorged and infiltrated with blood, but not all, I am inclined to think, irrecoverably injured. At the seat of constriction, however, one end of the loop, presumably the proximal, had undergone irreparable injury. Throughout two thirds of its circumference its coats had gangrened and become converted into an ashen grey, bloodless, and friable patch. This formed a crescent, the widest part of which was furthest from the mesentery, and in contact with the constriction. Here there was a small perforation, but elsewhere the peritoneal and areolar coats seemed to be still unbroken.

Although the condition of the patient was critical, I determined to perform enterectomy and immediate suture. Dr. Malcolm ceased the anæsthetic, which he had been administering with great care and judgment, and the

patient was surrounded with hot-water bottles. The damaged omentum was first removed and the sac thoroughly disinfected, then about four inches of damaged intestine were cut away. The incision through the bowel passed at least half an inch beyond the gangrenous area into healthy tissues, and the whole of the doubtful part of the loop below was also cut away. The escape of fæces from the divided ends was controlled with an elastic band carried round the bowel through a small hole made in the mesentery, and the peritoneal sac was guarded with sponges. None of the mesentery required excision, and the gap left in it by the removal of the bowel was closed with a few points of suture. The ends of the bowel were next united by Czerny-Lembert's method, with an additional row of continuous suture over part of the circumference of the bowel. About twenty interrupted silk sutures were inserted, and an inch of continuous. It required altogether about twenty-five minutes for the excision and suture of the intestine. Afterwards the bowel was disinfected, dusted with iodoform, and returned into the abdomen. Then the whole area of operation was thoroughly sluiced with hot perchloride of mercury lotion (1 part in 1000 parts), and the wound in the abdominal wall, which had been slightly enlarged for the purpose of resection, rapidly closed with a series of deep silk sutures, the lowest of which obliterated the neck of the sac. As the fluid in the sac was obviously septic, a drainage-tube was inserted. During the operation there was considerable shock, but the patient rallied with subcutaneous injections of ether and brandy, and after his return to bed the latter was repeated by Mr. J. Cooper, the house surgeon (to whom I am greatly indebted for his care of this case). During reaction there was some restlessness, for which morphia was given subcutaneously and this was all of that dangerous drug which was given, for I feel sure that it and opium frequently aggravate the intestinal paralysis, which is so frequently fatal in these cases.

During the reaction the temperature began to rise, and on July 29th, thirty-six hours after the operation, had reached 102.6° F.; it then began to fall, and was normal on July 31st. Flatus was passed the morning after the operation, and a natural action of the bowels occurred on the sixth day. During the first two days the patient was fed by the rectum, afterwards with fluids by the mouth. The drainage-tube was removed on July 31st, and the wound healed rapidly after some altered blood had flowed away. On August 21st he was out of bed, and two days later went to a convalescent home. He was seen four months after the operation quite well, and without any relapse of his hernia.¹

There can, I think, be no doubt that the bowel in this case was unfit to be returned within the abdomen. Assured of this, I felt no hesitation whatever in excising it. The case was exactly similar to one in which I had seen the gangrenous intestine opened and stitched to the edges of the wound, with a fatal result.² Also, further experience has only served to confirm and strengthen the conclusions I arrived at in my previous communication upon this subject. I then argued that the old operation of forming an artificial anus ought to be abandoned because it leaves the patient exposed to the following imminent perils:—(1) non-relief of the intestinal obstruction; (2) spread of the gangrene or ulceration; (3) spread of the septic peritonitis; (4) death from inanition; (5) a further operation for the closure of the artificial anus.

Zeidler, in his recent monograph, to which I have referred, confirms these assertions. He also concludes, as Mr. Kendal Franks and myself had already done, that the mortality after resection and immediate suture is decidedly less (17 per cent.) than that after the older method.

I adopted the Czerny-Lembert suture because it is that

¹ There is now a slight bulging of the upper part of the inguinal canal, but the patient does not care to wear a truss for it. Otherwise he is in perfect health (July, 1894).

² "On the Treatment of Strangulated Hernia, &c.," 'Med.-Chir. Trans.,' vol. lxxiv, Case 5, p. 218.

to which I have become accustomed, and which I can apply most quickly. It has also the advantage of not requiring any unusual or elaborate apparatus. A needle without a cutting edge, such as Hagedorn's, is all that is required, together with the instruments ordinarily used for kelotomy. My own experience of bone plates is as follows. Intending to try them upon a suitable occasion, a bottle-full was obtained from the instrument maker. These dried up and became hard and horny. Others were procured, but they disintegrated and formed a kind of mud at the bottom of the jar. Sometimes, too, when bone plates have been used for immediate suture, especially after gangrene of femoral herniæ, almost insuperable difficulty has been experienced in returning them with the bowel into the abdomen. Cysts have, I believe, also formed in the occluded ends of the bowel beyond the anastomosis. On the other hand, the Czerny-Lembert method has none of these disadvantages, and is safe, provided that plenty of peritoneum is included in the sutures, and provided they are placed in healthy tissues.

Perhaps I may be allowed to refer briefly to the other factors which seemed to conduce to success in this case. One of the chief was the care which was taken to prevent shock, by the cessation of the anæsthetic, the application of warmth and stimulants, and speed in operating. But there can be no doubt that the youth and vitality of the patient aided these efforts. The next was the care which was taken to avoid infection of the peritoneum during the operation, either with the fluid in the sac or with the intestinal contents. But these would have been unavailing were it not that the intestines had not undergone that paralysis which is the most fatal complication of intestinal obstruction. Although not mentioned before, it should be stated that during the operation the small intestines were not very tightly distended, and underwent vigorous peristaltic movements.

(For report of the discussion on this paper, see 'Proceedings of the Royal Medical and Chirurgical Society,' New Series, vol. vi, p. 78.)