attached by its tip to the sigmoid colon; a knuckle of ileum had become adherent to the posterior and upper surfaces of the displaced appendix; whilst beneath the whole, and tightly held down and constricted, lay a coil of jejunum, black with congestion. The adhesions were readily separated by the finger without the occurrence of any appreciable lesion in the gut; and the neighbouring peritoneum, though congested, was not marked by any inflammatory products. Who can doubt that, had it been possible on Mr. Newstead's first visit correctly to diagnose the state of things discovered in this case after death, the operation of gastrotomy would have offered a very probable means of cure? Are such cases as this and the others I have mentioned more frequent than is generally supposed? I have myself seen several others; my medical friends have related to me many examples. What is the general experience of the profession? If it be in accordance with my own and many of my colleagues and friends, and if I am right in concluding that, under circumstances unfavourable for operation, the exploratory incision, by enabling the surgeon to relieve tension and to cleanse away harmful inflammatory products, is found, on the whole, to prolong life without adding to the sum of suffering, the exploratory incision ought to be more frequently resorted to than heretofore. At any rate, I protest against the term "unjustifiable" which has been by some applied to the operation, and apparently upon theoretical grounds only.

A CASE OF INTESTINAL OBSTRUCTION SUCCESSFULLY TREATED BY PUNCTURE OF THE SMALL INTESTINE.

By W. H. BROADBENT, M.D., F.R.C.P.,
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THE following case may be related as one of the series now being published illustrating various methods of treatment of intestinal obstruction.

In February 1877, I was called by Mr. Rayner to a maiden lady, aged about 60, who presented the usual symptoms of intestinal obstruction—severe tormina, vomiting, and great distension of the abdomen. The seat of the obstruction was made out to be in the neighbourhood of the cæcum, the transverse and descending colon being empty. Opium and belladonna were given, food withheld, and enemata administered; and, the pain and vomiting being quieted, an examination of the rectum was made at a subsequent consultation, when a solid mass was felt pressing down into the pelvis on the right side. It was pushed up as far as possible, and very shortly flatus and fæces began to pass. It was ascertained, on inquiry after the examination, that about nine or ten years previously, the patient had been tapped, and that the contents of a suppurating ovarian cyst had been withdrawn. The shrivelled cyst had formed a tumour in the right inguinal region, where she had been accustomed to feel it, and where it was found after the attack. The obstruction was attributed to displacement of this tumour downwards, giving rise either to pressure upon the bowel, or more probably to dragging by adhesions.

There was a slight return of obstruction in March, and again in June, brought on by imprudent exertion; in the autumn, she had a more severe and prolonged attack while at the seaside.

On May 14th, 1878, I was again called to this lady by Mr. Rayner. She had then been suffering from complete obstruction of the bowel for several days, which persisted in spite of the treatment which had on the several previous occasions been successful. The tumour formed by the old cyst could now be indistinctly felt in the right inguinal region notwithstanding the great distension of the abdomen, and was only just reached by the rectum; the rectum was held open by adhesions, so that on passing the sphincter ani the finger moved freely in all directions in a large cavity. A vaginal examination was impracticable, on account of the contracted state of this passage.

The treatment was continued: in addition to the opium (gr. j) and belladonna (gr. $\frac{1}{3}$) pill taken every three or four hours, and poultices with opium and belladonna over the abdomen, morphia was injected hypodermically. No food was given by the mouth, but enemata of beef-tea and brandy were administered every three or four hours, while once a day a copious enema of water or gruel was employed, for the double purpose of contributing to the relief of the obstruction and of washing out the rectum and removing particles deposited from the beef-tea, these being liable to become acid and set up irritation which causes the nutrient injections to be expelled.

No good result was obtained; and at length, after nearly a fortnight of anxious watching, and when complete obstruction had lasted three

weeks, the intestine was punctured by a long aspirator-needle. The aspirator was used at first, but was found to be unnecessary; an enormous amount of gas gradually escaped, the tension of the abdominal walls, which had seemed ready to split, was relieved, and two days later (May 20th) fæces and flatus began to pass naturally.

Another attack came on in January 1879, and when I saw the patient with Mr. Bridges on January 4th, complete obstruction had existed for several days. The attempt was made to procure relief by enemata, opium, hypodermic injections of morphia, external applications of opium and belladonna on poultices, and in effect by treatment similar to that already described, but in vain. Ice also was applied over the right iliac region; it gave relief from suffering, but did not set the bowels free. The patient begged from the first that the gas might be drawn off, as in the previous attack; and, as there was no improvement, this was done, without waiting for the same length of time, on January 8th. The distension was removed, and during the following night a copious evacuation from the bowels put an end to the danger.

At this time, indistinct fluid vibration was detected in the right inguinal region instead of the solid-feeling tumour, and, on the subsidence of the abdominal distension, it was well marked. It was accordingly determined that on any recurrence of obstruction an attempt should be made to remove the cause by aspiration of the cyst, which was evidently refilling after an unusually long interval. The recurrence happened in May of this year, and I was called to the patient on the 7th by Mr. Gawith, to whose care she had been transferred. She had been suffering from bronchitis, and still had a severe cough. There were all the indications of obstruction; the signs of fluid in the right inguinal region were more distinct; and, on examination *per rectum*, an elastic tumour could be felt high in the pelvis, from the surface of which projected two or three small secondary cysts. On the 9th, a moderate sized aspirator-needle was plunged into the cyst, and about six pints of dark brown fluid were drawn off without any unfavourable results. At first, it seemed as if the desired effect were about to follow: a little flatus was said to escape when the enemata were used, and a small quantity of fecal matter was felt in the rectum on examination. This promise was, however, illusory; and, as the distress increased, the intestine was once more punctured on May 20th. A considerable amount of gas had escaped; and the extreme distension was relieved, though not to the degree required, when, in the act of coughing, the coil in which the needle was planted was suddenly displaced to the left and slightly downwards, carrying with it the needle, which now lay flat on the abdominal wall. It was immediately withdrawn; but this was followed by a free escape of gas, which first issued with a hissing sound from the aperture in the skin, but soon rushed into the subcutaneous cellular tissue, and produced emphysema, which rapidly spread. This was circumscribed by pressure made by the hands, which also had the effect of directing any gas which had escaped into the peritoneal cavity to the internal opening in the abdominal wall. Another needle was at once plunged into a neighbouring coil of intestine, to take off pressure and prevent gas from passing into the coil from which it had escaped after withdrawal of the needle. Finally, when all issue of gas from the intestine appeared to have ceased, the subcutaneous emphysema was removed by squeezing towards and out of a puncture made by a lancet.

Strange to say, no bad effects of any kind followed; but the pressure had not been sufficiently reduced to permit of the removal of the obstruction. The distension soon became as great as ever; and, with considerable hesitation, the operation was repeated four days later. More gas escaped; the abdomen became soft and yielding, almost flaccid; when exactly the same accident occurred again, the patient coughed and displaced the intestine, the needle had to be hastily withdrawn, it was followed, as before, by gas which escaped from the puncture and rapidly diffused itself under the skin, where its progress could be both seen and felt. Similar precautions were taken, and happily no inflammation followed, but, on the contrary, a copious stool, and the bowels have since continued to act.

Since the above was written the patient has again suffered from obstruction, which was not relieved till the intestine had been punctured. This was done on August 1st with the same fortunate result as before.

I have recommended and practised puncture of the intestine several times in intestinal obstruction, and have never seen injurious effects. The precautions which I consider necessary are the following:

1. To secure, if possible, absolute freedom from peristaltic action of the bowel. This is done by giving an extra dose of opium by the mouth, or a considerable hypodermic injection of morphia, or both, three or four hours beforehand. No food of any kind should have been taken for some time.

2. To select, if possible, a coil of intestine which shall contain only gas, and not liquid. This will be in the jejunum, and is to be found above the umbilicus rather than below it. An indispensable condition

is, that scarcely any food shall have been taken during the entire attack.

3. To pierce the coil exactly at its most convex part. The abdomen should be carefully watched for some time at every visit, and especially before the operation. In some cases, where the walls are thin, the outlines of various coils may be traced even in repose; but this will be more distinct when peristalsis is provoked by pressure, friction, or manipulation of one kind or another; it will be seen also which coils shift and which keep the same position when contracting. The spot chosen for the puncture should be as nearly as possible over the centre of a coil which does not roll about, and by preference in the *linea alba*. If the needle happen to hit the line of contact between two coils, it may tear both.

4. To exercise great care and patience during the escape of the gas. The needle should be held lightly, but rather firmly, perpendicular to the abdominal wall, and should not be allowed to follow too readily any movement of the intestine. Under the circumstances of obstruction, the respiratory movements are not great. As the gas escapes from the coil selected for puncture, it will collapse under pressure from neighbouring coils, and the flow through the needle will cease; very soon, however, the air in the intestine will distribute itself and enter the empty portion, when it will again escape. This may be aided by gentle manipulation and pressure; but they should not be hastily resorted to: nothing is gained by hurry. Should the tube get blocked, aspiration may free it; but it is safer to drive a little air through the tube into the bowel than to exert powerful suction, which may draw the mucous membrane against the sharp needle.

It is better not to put on a bandage after the operation.

Puncture of the intestine can relieve obstruction only very rarely, and under exceptional circumstances. In the case related, in which there was reason to suppose that the cause of obstruction was external to the bowel, and was due to pressure by the tumour, or by adhesion, or to displacement and dragging of a portion of intestine, it was hoped that removal of distension might permit the parts to return to their previous condition and situation; and other conditions may be imagined in which this might occur, but it could have no effect on a stricture or intussusception. My own experience, however, would lead me to recommend puncture as a palliative; and, though I have no experience to guide me, I should think it might be an useful preliminary to inflation, manipulation, suspension head downwards, or other procedures in intussusception, twisting, or imprisonment of the bowel by adhesions.

A CASE OF ACUTE INTESTINAL OBSTRUCTION BY A BAND: OPERATION: DEATH TEN DAYS AFTER.

WITH REMARKS ON THE TREATMENT OF SUCH CASES.*

By W. H. A. JACOBSON, M.B., F.R.C.S.,
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J. M., AGED 46, was admitted into Guy's Hospital, under Dr. Mahomed (for Dr. Fagge), August 17th, 1878. On rising this morning, he was suddenly seized with colicky pains in the abdomen; these rapidly became most acute. Vomiting began soon after the onset of the pain. The bowels were open on the morning of the attack; the motion was scanty. He stated that he was perfectly well up to this morning. There was no previous "abdominal" history, save an occasional "liver attack" while in India some years ago. His work was recently very heavy.

During the first six days after admission, the pain gradually grew less and less; and the vomiting being stopped, but the bowels not open, a tentative dose of castor-oil and laudanum was ordered by Dr. Mahomed, on the supposition that the acute symptoms having passed away, the case would clear up as one of colic. On the morning after this gentle aperient, the bowels were open once, the motion hard and scanty; the severe pain and vomiting now at once returned. The case was then treated with opium and belladonna, but without real relief; and on August 25th, or on the ninth day, I was asked to see the patient by Dr. Mahomed, who considered that surgical interference would be ultimately required, and that, to be successful, it should be made use of early. I found the patient with very severe distress expressed upon his face; the abdomen but little distended; the abdominal-walls somewhat rigid; severe pain, localised just to the right of the umbilicus; frequent vomiting of greenish, not stercoraceous, fluid; evidence of slight, but distinct, swelling in the right iliac region, where there was a patch of dulness on percussion, just above the centre of Poupart's ligament; there was no œdema here, and there had been no shivering throughout, nor any rise

of temperature save once (99.8°). Two utensils were shown to me, partly filled with faecal matter, which had come away a few hours previously after a soap injection, ordered by Dr. Mahomed; the motion was not unlike in character to a typhoid stool, ochrey yellow in colour, liquid, with a few small lumps in it. From the fact that part of it contained recently discharged bile, it was clear that some at least had come from high up in the digestive tract, and in all probability had passed through the point of strangulation. There was no external hernia, and the rectum to the finger was empty and normal. I gave, as my diagnosis: "The symptoms point to some form of acute, but incomplete, intestinal obstruction, possibly a band or some partial nipping, but not complete strangulation of the small intestine."

During the next three days (the ninth to the twelfth of the attack), the bowels were open at least six times, three or four of these motions being copious, loose, and light-brown in colour. But at this time, or on the twelfth day, the vomiting returned, and now rapidly became stercoraceous; paroxysms of terribly severe epigastric pain again set in, and the patient's strength began to fail rapidly. On the 30th (thirteenth day), I found the following condition of the abdomen. Swelling in the right iliac fossa was rather more marked; there was no distinct tenderness here, redness, or œdema. The abdomen was not much distended; tympanites was slightly and equally marked in every part. No peristalsis nor distended coils were visible on looking at the abdomen; but, on lightly irritating the surface by scratching, a distended coil could be distinctly seen to rise up from the right iliac region; this coil reached upwards into the umbilical and left lumbar, and then curved down again into the right iliac region, where it disappeared. The visible up-springing of this coil, together with the very slight amount of tympanites present, made it probable that as yet there was very little peritonitis.

The question of operation was now finally discussed; and, as the answer to this question must depend on our being able to determine correctly two points—(a) What kind of obstruction is it? (β) Where is it situated?—I will now mention the grounds on which I had given the diagnosis of two days before, and those which now made me willing to operate.

There were not, and there never had been, any material swellings. The entire absence of any premonitory stage negated the probability of the obstruction being due to a gall-stone, or to any growth involving the intestine either *ab intra* or *ab extra*. The absence of any local redness or œdema, the fact that there had been no shivering or rise of temperature, made it unlikely that the attack was due to inflammation about the cæcum or its appendix, though the symptoms pointed so distinctly to the right iliac fossa. Intussusception was put aside, from the absence of any characteristic symptoms—such as passage of bloody mucus, tenesmus, or sausage-like tumour. By this process of exclusion, the cause of the obstruction was brought down most likely to one of three conditions: 1. A band; 2. A twist or volvulus; 3. Some form of internal hernia, either retroperitoneal or through some gap in the mesentery or omenta. Any of these might have caused a partial nipping of the intestine, and so brought about the apparent relief of symptoms which was noticed at one time in this case. Of the three, strangulation by a band was the likeliest in point of frequency; and the presence of a band was made more likely by the localisation of some of the most marked symptoms to the right iliac fossa; for, putting aside those cases in which the band is connected with the vermiform appendix, or that relic of the umbilical vesicle the diverticulum from the ileum, where one extremity of the valve will always be found within two feet of the ileo-cæcal valve, it is impossible to look through recorded cases of obstruction by bands, due to other causes, without being struck with the frequency with which the intestine involved is from within a few inches to two or three feet of the ileo-cæcal valve. On this point, I should lay more stress; because, if an operation be performed, the surgeon will do well, on the introduction of his hand, in order to search for the band, to pass it down into the right iliac region, and find the cæcum, and, if possible, the ileum, entering into it, and then trace upwards the small intestine to the point of obstruction.

Such being the diagnosis, the advisability of an operation was laid before the patient on the following grounds. The attack had now lasted thirteen days; the improvement of a few days before had quite passed away, leaving the patient decidedly weaker; the pain returning in more severe and frequent paroxysms, and with vomiting now persistent and stercoraceous; and the feet and hands were now becoming cold. On the other hand, his pulse was fair, the temperature not raised, and the abdomen still but little distended, and showing very little evidence of peritonitis.

The patient having readily given his consent, the following operation was performed antiseptically. Ether being given, the chest and limbs covered with warm blankets, and the knees elevated over a pillow, a vertical incision (about three inches and a half long) was made in the centre of the

* An abstract of a paper read before the Hunterian Society.