

principle that prevention is better—and easier—than cure but especially because of the notoriously high mortality that follows operative measures even in early and still eradicable cancer of this organ—a point that is emphasised by the present series wherein of 11 patients with carcinoma who were submitted to operation no less than nine succumbed.

**Conclusions.**—1. The association between carcinoma of the gall-bladder and gall-stones is very close. 2. Gall-stones may be looked upon as the determining cause of cancer of the gall-bladder. 3. Thickening of the wall of the gall-bladder is presumptive evidence of carcinomatous change. 4. Cholecystectomy should be performed whenever possible if any thickening of the wall of the gall-bladder be found at the time of operation.

Abstracts of eight cases of carcinoma of the gall-bladder which were examined by the writer, micro-photographs being appended in six of the cases.

**CASE 1 (Fig. 1).**—Female, aged 54 years. She had had several attacks of colic, each followed by transient jaundice, during the last nine months of life. At the operation three large stones were removed from the common duct. The gall-bladder was opened and drained. Death ensued in a few hours. At the post-mortem examination there was dilatation of the common and the cystic ducts. The cavity of the gall-bladder was diminished and its wall was thick and fibrous.

**CASE 2 (Fig. 2).**—Female, aged 64 years. A history of vomiting, increasing constipation, and pain in the right hypochondriac region for six weeks was obtained. No operation was performed. At the post-mortem examination 45 stones were found in the gall-bladder and one in the cystic duct. Near the neck of the gall-bladder was a nodule of firm growth which had begun to invade the liver.

**CASE 3 (Fig. 3).**—Male, aged 43 years. There was a history of acute onset of colic, with jaundice and enlargement of the gall-bladder. Cholecystotomy was performed and numerous stones were removed. Intractable vomiting supervened and death followed speedily. At the post-mortem examination the gall-bladder was dilated and its wall was fibrosed.

**CASE 4 (Fig. 4).**—Female, aged 61 years. She had had attacks of colic at intervals for five years. At the operation the gall-bladder was opened and many stones were removed. Death ensued five days afterwards. At the post-mortem examination a mass of growth was found projecting into the cavity of the gall-bladder at the fundus, and the greater part of the wall was infiltrated.

**CASE 5.**—Male, aged 60 years. There was a history of a transient attack of jaundice two years before death, with subsequent passage of a gall-stone by the anus. Severe colic and vomiting occurred 20 months later, followed by jaundice, which persisted. At the operation a stone was removed from the common duct. At the necropsy the gall-bladder was represented by a small cavity with greatly thickened fibrous wall, closely adherent to the surrounding structures. The microscopic section showed early cancerous change.

**CASE 6.**—Female, aged 43 years. A history of illness of one year's duration, with symptoms suggesting pyloric obstruction, was obtained. At the operation the stomach was found to be greatly dilated and there were dense cicatricial adhesions just beyond the pyloric ring. Posterior gastro-jejunostomy was performed. At the necropsy the gall-bladder contained several large gall-stones and its wall was indurated and enormously thickened. The mass was adherent to the first part of the duodenum and caused great narrowing of its lumen. The microscopic section showed early cancerous change.

**CASE 7 (Fig. 5).**—Female, aged 51 years. A history of attacks of colic and vomiting for six months was given. There was a palpable mass in the region of the gall-bladder. Exploratory abdominal section showed that operative treatment was impossible. At the necropsy the gall-bladder was replaced by a large mass of indubitable new growth in which were several gall-stones.

**CASE 8 (Fig. 6).**—Female, aged 46 years. There was a history of attacks of abdominal pain and vomiting for several months, followed by irregular fever and enlargement of the gall-bladder. At the operation the gall-bladder was found to contain pus and numerous gall-stones and projecting from the upper wall at the fundus was a fungating mass of carcinoma. Cholecystectomy was performed. Death was due to acute bronchitis.

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### THREE CASES ILLUSTRATING THE CONDITION OF THE SMALL INTESTINE SOME YEARS AFTER EXTENSIVE ENTERECTOMIES.<sup>1</sup>

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THERE must be few surgeons now who do not recognise the peculiarly disastrous effects of paralysis of the bowel in advanced intestinal obstruction. These make themselves evident to the operator in many ways before, during, and after the relief of the obstruction, and are unfortunately so often seen that they require no comment here. But few of us are likely to have many opportunities of seeing the effects of this paresis on the *living gut years* after the relief of

severe obstruction. Three such opportunities have fallen to my lot quite recently and it seems desirable that they should be put on record, emphasising, as they do, some points of fundamental importance in the treatment of acute intestinal obstruction.

The two first patients concerned were both women. They were admitted some years ago for gangrenous femoral herniæ and in both I was obliged to resect long tracts of small intestine in order to obtain relatively sound tissue for the anastomosis. Both made a satisfactory recovery from these operations but were readmitted in October, 1904, for operations in the course of which it was possible to examine the original seat of the enterectomies. In both it was most interesting and instructive to observe that, though the communication between the two portions of the bowel was perfect and as wide as possible, the afferent or proximal portion still showed unmistakeable signs that it had not yet recovered its former tone as contrasted with the efferent or distal portion which was normal. The significance of this observation appears to me very great both from a medical and a surgical point of view and so far as I know has not yet attracted attention at home or abroad.

A description of the first operation in each case has already been published and it is only necessary here to state that, in the first, 18 inches of small gut were removed in June, 1899, on account of a gangrenous femoral hernia. This was done through the femoral ring, Poupart's ligament being divided to permit of the reduction of the anastomosed bowel and ligatured mesentery into the abdomen. The junction was "end-to-end." In the second case, also of gangrenous femoral hernia but in a much graver condition, the gangrenous loop was on Feb. 23rd, 1903, cut away below the femoral ring and then the ligatured ends were passed into the abdomen and brought out through a median incision where six and a half feet of damaged small intestine were taken away from the proximal portion and a *lateral* anastomosis was made.

Case 1 was readmitted on Oct. 24th, 1904, for the radical cure of double hernia—i.e., five and a half years after the enterectomy. A large femoral hernia was found to exist on the left side in the seat of the first operation and a moderate-sized inguinal hernia on the right. The patient was very stout. The left hernia contained much intestine the movements of which could be seen through the thin coverings and was obviously due to the weakening of Poupart's ligament by its division in the earlier operation. On Oct. 27th the usual operation was done for the radical cure of this hernia.

When the sac was opened I took the opportunity of examining the contained bowel before it was reduced in the hope of finding the anastomosis. Fortunately, it was there and its condition could be demonstrated to a large number of those present in the operating theatre. When drawn forward and laid on a layer of white gauze we could see that the two portions lay accurately in line and that the junction was as smooth as the rest of the bowel and without a trace of adhesion to any other structure. It was marked by faint white streaks indicating the seat of the sutures all of which had completely disappeared. There was not the slightest sign of contraction or narrowing. But what struck us all most forcibly was that all the bowel distal to the anastomosis was in a state of very active vermicular movement and was contracted to a small size while that above the junction was smooth, sluggish, somewhat thinner, and of considerably larger lumen than that below. I drew the coil forward and stretched it gently but this made no difference in the relative sizes of the two portions. It was, in short, evident that the original paralysis of the bowel above the obstruction had left behind it a certain want of tone in the muscular wall of the proximal portion or blunted nervous irritability. The only other trace of the original operation was a tiny adhesion of an adjacent coil to the mesentery close by which I did not think it worth while to divide. After clearing up these points of interest the bowel was reduced and the radical cure was completed. The other inguinal hernia was operated on a week later on which occasion the first was found blamelessly healed per primam. The patient left hospital well on Nov. 26th.

Case 2 was readmitted on Oct. 14th, 1904, suffering from intestinal obstruction of some days' standing. Suspecting a band of adhesion from the former operation in February, 1903, I opened the abdomen above the median scar and found several very firm adhesions between the stump of the mesentery and the lower end of the scar. Round these

<sup>1</sup> A paper read at the Clinical Society of London on March 24th, 1905.

adhesions some coils were kinked. These were released and I drew out the intestine and obtained a good view of the old lateral anastomosis of 21 months before. Here, too, it was extremely interesting to note that though the opening between the two portions was widely patent the proximal, as far up as it was exposed, was of considerably larger size than the distal. Both were contractile but the lower more so than the upper. Several adhesions were left undisturbed and the abdomen was closed. Convalescence was uneventful and the patient left hospital quite well on Nov. 7th.

These two observations made *intra vitam* on patients suffering from no general disease and quite healthy at the time except for the local condition, fill up to a certain extent a gap in our knowledge as to the changes which take place in an intestine above an acute obstruction, and as to the period during which these effects may remain after the latter has been relieved. It might at first sight appear almost incredible that evidence of want of tone in the bowel should exist several years after the cause had been removed. But we see the same thing elsewhere frequently. For instance, who does not know the cold congested appearance of a limb which perhaps months or even years before has been the seat of some inflammatory septic condition such as erysipelas. In this case the tissues have been saturated with toxins just as the walls of the intestines have been and the result has been atony of the coats of the vessels of the part and deficient local nerve energy or even paræsthesia.

In Case 1 it was most striking to see the distal portion of the gut wriggling and contracting energetically under the stimulus of exposure to the air while the proximal part up to the line of anastomosis was sluggish and almost quite indifferent to the same stimulus. And when we come to reflect upon what actually takes place in the walls of the intestine above an acute strangulation we must admit that there is little cause for wonder if the effects should last for a long time. Should the obstruction remain unrelieved for long we all know the dilatation of the gut above which follows, accompanied at first by increased peristalsis but terminating before long in paresis or complete paralysis. This paralysis is probably not entirely due to exhaustion of the muscular coats from overstrain but is the result of the saturation of all the tunics of the bowel with toxins developed in the fermenting contents. That this is so seems to me proven by the fact which every surgeon must have observed over and over again—i.e., that when a bowel is examined above a bad obstruction it will be found in many cases œdematous for several feet on the proximal side of the strangulation. This need not be due to the presence of ulceration at the point. This condition, which is so common in the bowel just above an obstruction and for a foot or two upwards, might explain the œdema locally. But far above this the œdema extends where no breach of surface can be detected, at all events with the naked eye.

In Case 2 I found œdema more than six feet above the strangulation when I was making the anastomosis at that point. We see, also, further evidence in a submucous ecchymosis associated with the œdema. In another case, where I removed five and a half feet of small intestine for acute strangulation, the œdema was so marked in the proximal portion while the "end-to-end" anastomosis was being made that I was in serious doubt as to whether the vitality of the bowel was sufficient for repair. Happily it proved to be so and the patient made an excellent and uninterrupted recovery. That such toxins are intensely irritating on other surfaces is well seen on the skin soon after an artificial anus has been made to relieve a bowel damaged by acute obstruction. In a case recently operated on for this condition the ulceration of nearly the whole of the abdominal surface was the most formidable complication in the subsequent treatment of the case. Again, the œdema is not seen in the earlier stages of acute obstruction before the ferment toxins are developed in the retained contents but it is found in neglected cases in increased intensity and extent in proportion to the duration of the obstruction and possibly also in relation to the quality of the aliment previously given to the patient. But though I have been for years alive to these changes in the bowel wall and have planned my resections and "short-circuit" operations with due regard to them I confess I was hardly prepared to find evidence of more or less paresis of the proximal part some years after the obstruction had been relieved.

This has all to be taken into account also in cases where we elect to perform a short circuit round an obstruction, as

Case 3 shows, which has come under notice since this paper was sent in to the society. This was a case of a man, aged 29 years, who was admitted into hospital two years ago for acute obstruction grafted on a chronic condition which we diagnosed to be probably cancerous in the hepatic flexure of the colon. He had stercoraceous vomiting and much distension, &c. I opened the abdomen below the navel and found greatly distended small bowel. This was slit open over a basin and gave exit to large quantities of gas and fluid fæces. It was then possible to explore further and I found the cæcum and ascending colon distended and the descending colon and sigmoid flexure empty and shrunken. The obstruction, therefore, was obviously between the two regions. I then united the lower part of the ileum to the sigmoid flexure side to side and closed the evacuation opening. Recovery followed but the man would not stop in hospital for the resection of the growth but promised to return as soon as he had arranged his business affairs. However, he did not appear until about three weeks ago. When I opened the abdomen last Thursday week the growth was found too extensive and fixed under the liver to justify removal and I closed the wound. But before doing so the "side-to-side" junction was examined and the place where the evacuation opening had been made and closed. Both were in perfect condition, no traces of the black thread sutures being seen and not the smallest suspicion of adhesions to surrounding parts where the bowel had been stitched and manipulated; all was smooth over the white-lined cicatrices. Nevertheless, as in the other cases, the proximal and in this case the distal portion between the anastomosis and the cæcum, about eight or ten inches, were still in a state of atony and contrasted markedly with the upper part of the ileum and jejunum, which could be seen contracting in active vermicular action. The man's health had been excellent since the first operation and his bowels quite regular and motions normal. Incidentally I may express the regret that this poor fellow did not redeem his promise of returning for the removal of the growth before it grew too extensive and fixed for excision. For he is still in good condition, though now losing colour and strength from generalisation and complains of nothing else.

When we find such changes in the intestines as those just described even years after the cases have been relieved we are more than ever driven to the conclusion that in acute strangulation we must operate before they can have had time to develop. And if this be impossible we must not hesitate where resection is necessary to remove large tracts of bowel in order to get well above the paralysed portion, saturated as it is with toxins and so devitalised. In another respect the first two cases offer us a valuable hint by contrast. In Case 1 the resection was performed through the femoral ring and the difficulty of doing so was well exemplified. It was not so much the "end-to-end" suture which gave trouble, though this is much easier through an abdominal wound. But when the mesentery corresponding to the 18 inches of resected bowel had been tied off and sutured side to side a mass was formed of such a size that it was impossible without the exertion of more force than the sutured bowel would stand to reduce it through the femoral ring. I was therefore obliged to enlarge the opening by dividing Poupart's ligament in order to get it back. The result of this was a large femoral hernia in course of time. Taught by this I determined in the next case to cut away the gangrenous loop after tying the bowel above and below and then to pass the stumps carefully covered with gauze into the abdomen and then out again through a median incision in the abdominal wall for the performance of the extensive enterectomy (six and a half feet), which was necessary. Here, of course, there was no trouble with the mesentery in slipping it under Poupart's ligament and the femoral opening could be closed by a few stitches. The result is that up to the present, now more than two years, there is no trace of hernia which was so marked in Case 1. This procedure of suturing the stumps and returning the bowel after removal of the gangrenous loop and performance of the rest of the enterectomy through a median incision appears to me the typical method of dealing with the condition.

This paper is a natural sequel to some papers on Enterectomy for Gangrenous Hernia published in THE LANCET in 1903.<sup>2</sup>

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<sup>2</sup> THE LANCET, May 30th (p. 1495) and June 6th (p. 1576), 1903.  
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