of the distended coils of intestine through the opening. Once the volvulus has been emptied of its contents reduction of the twist is almost invariably possible, and in no instance have I then known the twist to recur. Many surgeons now advise closing the incision in the bowel and the return of the latter into the abdominal cavity. I admit freely that this is the ideal course to pursue, but I confess that I have never dared to follow it. I have always ligated the margin of the incision in the bowel to a glass tube and drained the distended and damaged bowel for several days. In most cases in which the patient has recovered, the fistulous opening in the bowel has closed spontaneously at the end of some weeks.

In the worst cases it is obvious that gangrene of the strangulated loop of bowel has occurred, and the condition of the patient is always extremely perilous. The ideal treatment would appear to be resection of the gangrenous intestine and union of the proximal and distal segments of the bowel either by end-to-end or by the far safer lateral anastomosis. This treatment I have never ventured to carry out. In every case of gangrenous volvulus that has come under my care the condition of the patient has appeared to me too desperate to warrant a prolonged operation. I have always, in such cases, been content with bringing the gangrenous bowel and a piece of healthy intestine on each side of it outside the abdominal cavity. In such cases as have recovered I have performed resection subsequently. Making two bites at a cherry may be in general a bad practice, but in surgical procedures of grave moment in which the life of the patient literally hangs in the balance, the operation *à deux temps* is, in many instances, the safer for the patient, and the one that the surgeon is therefore bound to follow.

Once the volvulus has been reduced, can any steps be taken to prevent the recurrence of the condition? In one of my recent cases, under the care of Dr. J. H. E. Brock, the patient, a man aged 31, had had his life placed in jeopardy no less than four times in thirteen months owing to recurrent volvulus of the sigmoid colon. I have endeavoured to convince you that the all-important factor in the establishment of a volvulus is undue elongation of the mesocolon or mesentery. Clearly it follows from this that the object of treatment directed to the prevention of recurrence of the volvulus is to shorten the elongated mesocolon or mesentery. Such an object I have endeavoured to obtain, I think with success, by introducing silk sutures at right angles to the bowel from the intestinal attachment of the mesentery or mesocolon to its root and then tying these. I have thus puckered the mesentery or mesocolon parallel to the axis of the intestine, with the result that the mesocolon or mesentery has been shortened and recurrence of the twist prevented. This measure is, I am convinced, far superior to that commonly adopted of suturing the coil of intestine to the abdominal parietes. It must be the experience of all surgeons that peritoneo-peritoneal adhesions almost invariably either stretch out to form long thin cords, which must constitute a constant danger of strangulation to any coil of intestine that may happen to be ensnared by them, or give way entirely, thus in the case of volvulus permitting the recurrence of the twist of the bowel.

In conclusion, may I remark that I have largely confined my remark to volvulus, but I hope that my observations may be taken as applicable to other forms of intestinal obstruction? It may be objected that I have taken a lesion of very rare occurrence as my topic: but I would urge that volvulus, certainly in its slighter degrees, is by no means so rare as is generally supposed. As to its rarity, my house-surgeon, Mr. E. H. Hugo, M.B., B.S.Lond., can bear me out in my statement that between January 5th and 12th he saw with me no fewer than 4 cases in which the intestine was twisted upon its mesocolic (three times) or mesenteric axis. I know no more delusive abdominal lesion, none more difficult of diagnosis, and none more fatal, owing chiefly to imperfect and tardy diagnosis, than volvulus. Some of you may say you have never come across a case of volvulus in practice, or you have seen but one or two. Within a few days you may encounter your first, second, or third case of volvulus. If so, pray bear in mind my warning. You will probably in such case misconstrue the symptoms. You will think of other conditions. Should vomiting be absent, as is not

uncommon in volvulus of the sigmoid, you will probably deem the case one of no urgency, and you may wait until the hour of successful intervention has passed. If what I have said prove the means of helping you to a correct diagnosis and induce you to have resort to timely operative treatment, with the result that your patient's life is saved, my object will have been attained.

An Address

ON THE

IMMEDIATE AND ULTIMATE RESULTS OF THE OPERATION OF GASTRO-ENTEROSTOMY FOR GASTRIC AND DUODENAL ULCER.*

BY LEONARD A. BIDWELL, F.R.C.S.,

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THE immediate results after gastro-enterostomy are wonderfully good when we consider the severity of the operation; still I think that those writers who give the mortality at only 1 per cent. rather underestimate the risk, and such a satisfactory result has only been obtained by good fortune and careful grouping of cases, as well as by good surgery. In a series of 132 operations which I have performed for ulcer of the stomach and duodenum (excluding cases of perforation) there have been 6 deaths, or a mortality of a little under 5 per cent. The causes of death in the fatal cases were as follows: Shock after Roux's operation in an exhausted patient, 1 case; shock after operation for repeated profuse haemorrhages, 1 case; exhaustion after secondary operation for vicious circle, 1 case; syncope after haemorrhage from ulcer ten days after operation, 1 case; rupture of the ulcer three days after operation, 1 case; and pulmonary embolism on the third day after operation, 1 case.

I consider that the last three fatalities were entirely outside the control of a surgeon, and that the case of death after operation for repeated haemorrhage must be considered as occurring in spite of rather than in consequence of the operation. In the remaining two cases death was certainly hastened by the operation, although recovery was impossible had no operation been performed. My experience makes me hesitate to assert that the risk of a gastro-enterostomy is practically *nil*.

While considering the immediate mortality of the operation we ought to bear in mind the mortality of gastric ulcer under medical treatment. There seems to be a great difficulty in estimating this, and it is stated to be from 20 to 50 per cent. by various surgical writers. I cannot but think that even the lower estimate is probably too high, and that a mortality of 10 per cent. would be more reasonable to assume when comparing the results of surgical with those of medical treatment.

So much for the immediate mortality after an operation for gastric or duodenal ulcer. In the non-fatal cases the improvement, with very few exceptions, is wonderful; the patients feel better than they have done for years, and are able to eat and digest any kind of food. This improvement is maintained so long as the patient remains in the nursing home or in hospital, and, were we only considering the condition of patients within a month or two after an operation, we could positively affirm that over 90 per cent. of the cases were completely cured.

The point I wish to discuss is, What is the condition of these apparently cured cases some years after the operation?

Before doing this, I should like to call your attention to the physiological conditions attending a gastro-enterostomy in the case of a simple ulcer. When the opening is first made, the mucous membrane at the edges of the opening becomes congested, partially blocking the opening, and consequently we may have vomiting for the first twenty-four or thirty-six hours; after this the swelling of the mucous membrane subsides and a patent opening is left. Under these conditions, dilatation of the stomach, whether caused by cicatricial contraction or by spasm of the

* Delivered before the Kensington Division of the British Medical Association, January 21st, 1909.

pylorus, is cured, and in the absence of dilatation, with the consequent stretching of its base, the ulcer readily heals. When the ulcer is healed, the spasm of the pylorus ceases and the pylorus again becomes pervious; when this is the case, it is quite certain that the food will pass through the pylorus and not through the gastro-enterostomy opening; this has been proved both by experiments on animals and by clinical experience. One reason for the food choosing the pylorus rather than the gastro-enterostomy opening is that when the stomach contracts on its contents, the muscle fibres tend to form a sphincter round the gastro-enterostomy opening; the other reason is the tendency for all secretions to pass by the natural way if this is not obstructed by a stricture. We shall therefore find, after an ulcer has healed, that the gastro-enterostomy opening, having fallen into disuse, will tend to contract, and may even become completely occluded; in fact, at best it will only act as a safety valve in the case of a fresh spasm of the pylorus.

In cases in which the gastro-enterostomy opening closes, the operation will not have been of very much more avail than successful medical treatment; indeed, it will have acted in very much the same way as a suprapubic cystostomy does in a case of cystitis. These physiological considerations will explain a certain number of cases where recurrence of the symptoms takes place after gastro-enterostomy, and we may conclude that cases of gastric ulcer, in which there is no cicatricial contraction about the pylorus, are not likely to derive permanent benefit from gastro-enterostomy alone. When the ulcer is in the neighbourhood of the pylorus a certain amount of cicatricial contraction of that orifice is bound to occur, and so the gastro-enterostomy opening is not likely to fall into disuse, and consequently the cure of the ulcer will be permanent.

In cases of duodenal ulcer it is quite certain that the cure effected by a gastro-enterostomy is only likely to be a permanent one when severe cicatricial contraction of the duodenum has previously taken place, and in cases without cicatricial contraction there is a very grave risk of recurrence of the ulcer when the gastro-enterostomy opening has ceased to be functional.

In the same way gastro-enterostomy is not a permanent cure for gastritis without ulcer, as the symptoms of gastritis, together with the spasm of the pylorus are quickly cured by the physiological rest given to the stomach, and when these symptoms are cured the gastro-enterostomy opening ceases to act.

In neurotic dyspepsia the operation is not only useless but it is often very harmful, and likely to be followed by results most distressing to both patient and surgeon. The two most pronounced failures I have had were operations on young women, whose first operations had been performed before I saw them, and in whose cases I doubt that an ulcer ever existed.

Taking the operation of gastro-enterostomy alone, I have performed 104 operations on 101 patients (63 females and 38 males); 6 patients died from causes already described, 3 patients had a complete return of their symptoms, necessitating a second gastro-enterostomy; of these, 2 were cases of duodenal ulcer, and the recurrence of the ulcer is explained by my omitting to occlude the pylorus at the time of the gastro-enterostomy. Five patients who were cured by the operation have since died, 2 of bronchopneumonia, 1 from recurrence of a duodenal ulcer after two years and a secondary operation, 1 from cause unknown, and 1 after an interval of two years from cancer of the stomach. In the last case it is of course a question whether the thickened ulcer found at the pylorus at the operation was already malignant, but the absolutely good health enjoyed by the patient for eighteen months leads me to consider that the carcinoma was of more recent origin. I have been unable to trace 17 of my cases, no replies having been received to my letters of inquiry.

Out of 81 cases which I have traced, 5 have since died, and I have divided the remaining 76 cases into 5 groups.

In the first group the result is absolutely satisfactory, the patients feel better than they ever did; the following answer to my inquiry expresses the condition of a patient four years after a gastro-enterostomy: "I have no complaint to make; no sickness, no pains; eat and drink well. Many thanks!" In this group I have put 46 cases, or 56 per cent. of the cases which could be traced.

In the second group I place patients whose general

health is almost perfect, but who are liable to attacks of vomiting (nearly always bilious) which occur at irregular intervals. The vomiting often comes on after a chill, and is not dependent on any error of diet; directly the vomiting ceases they feel quite well again, and at other times can eat or drink anything. The explanation of this condition is that it is either caused by a chill, or by a temporary twist in the jejunum just below the anastomosis. In the same group are included cases who occasionally suffer pain after food, such pain not being severe and not depending on any error of diet. In some cases I have suspected the presence of adhesions as the cause, and in others I have suspected a neurotic element. In one case in which I suspected adhesions, the pain ceased after several injections of fibrolysin. In this group I have placed 21 cases, or 26.5 per cent. of the cases which could be traced.

In the third group I place cases who consider that they have derived benefit from the operation, but who still have occasional pain and vomiting, and whose general health is not much improved. In this class I am glad to say that there are only 5 cases.

In the fourth group I place two cases in which the results have been unsatisfactory, but who are still under treatment. In both these cases the pain and vomiting recurred within a couple of months of the operation, and an occlusion of the pylorus was performed in each case six months later; in one case this completely cured the stomach symptoms, in the other the vomiting recurred as soon as the patient got up. The case in which the stomach symptoms were cured suffered severe pain over the caecum, and the ascending colon became dilated; at a subsequent operation a band was found pulling on and obstructing the transverse colon. All pain ceased after division of the band, but the case is still under treatment. In the second case, in which the pain and vomiting recurred after the occlusion of the pylorus, a subsequent operation revealed miliary tubercles scattered over the upper part of the small intestine, omentum, and parietal peritoneum.

In the fifth group I have placed two cases whose condition I consider unsatisfactory. Both cases had undergone stomach operations before coming under my care, and in both I suspect that a wrong diagnosis was made in the first instance, and that they were cases not of gastric ulcer but of nervous dyspepsia. One case has had three operations, and is as bad as ever; the other has had seven operations, after each of which she has been apparently cured for two months, and then the pain and vomiting have returned. In addition to these two last groups of unsatisfactory cases, I ought to tell you that five other cases at first were not satisfactory, but these have been cured by a secondary operation.

I have not made any attempt to conceal any of the unsatisfactory results after gastro-enterostomy, as I wish to lay the case for the operation fairly before you. The successes amount to about 85 per cent. and the failures to about 10 per cent. This is a most satisfactory position.

Some of the earlier cases of incomplete cure have undoubtedly been due to imperfection in the technique of the operation, and the results of future cases are likely to be much more satisfactory. In my early cases, a loop of jejunum was left between the duodenum and the gastro-enterostomy opening, this in 4 cases was the cause of bilious vomiting, which was cured by an entero-anastomosis, and it may account for the occasional vomiting observed in other cases. I now always perform the so-called "no loop" operation in which the jejunum is attached to the stomach as close as possible to its commencement, so that the tendency to bilious vomiting is reduced to a minimum. Again, in the early cases the pylorus was never divided or occluded at the time of the gastro-enterostomy, with the consequence that in cases where there was no cicatricial stenosis of the pylorus the gastro-enterostomy has ceased to be of any use. I now make it a practice to occlude the pylorus in every case of gastro-enterostomy where the ulcer is situated at any distance from the pylorus or in the duodenum. I have occluded the pylorus as a secondary operation in four cases, in two of which the result was completely satisfactory.

Some years ago I was inclined to consider that gastro-enterostomy was a specific for every disease of the stomach, and I performed the operation in some cases of simple long-continued gastritis with spasm of the

pylorus; these, however, I do not consider suitable cases for operation, and should be left to the physician. I now never do a gastro-enterostomy unless an ulcer or the cicatrix of an ulcer can be found in the stomach or in the duodenum, and if I undertake an operation under a mistaken diagnosis of ulcer and I fail to find an ulcer or any disease in the neighbouring organs, especially the gall bladder, I close the abdomen.

The most brilliantly successful cases undoubtedly are operations for cicatricial contraction of the pylorus, but in my opinion it is not wise to allow patients to wait for operation till well marked stenosis has occurred, with its accompanying dangers of extreme dilatation and food decomposition. Such delay may reduce the patient's strength so greatly before operation that the prospect of recovery is lessened. This was the case in 3 cases which ended fatally, and in 2 others which died within a few months of their return home.

A certain number of cases of gastric ulcer have other morbid conditions associated with the ulcer. The most frequent associated disease in my cases has been floating kidney, which existed in 6 cases: in 1 case the operation of nephrorrhaphy was done at the same time as the gastro-enterostomy, and in 3 cases it was performed on subsequent occasions; in 2 cases no operation has been done for the floating kidney. Gall stones were present in 1 case, and cholecystectomy was performed. Lastly, appendix adhesions existed in 3 cases, and in 2 cases the appendix has been removed at a subsequent operation.

With regard to the indications for the operation of gastro-enterostomy, I consider that it should be performed in every case of chronic gastric ulcer which has resisted medical treatment, or which has recurred after it. In forming the diagnosis of a gastric ulcer with a view to operation, I consider the following points are the most valuable: The existence of a tender spot at a fixed point in the epigastrium, pain after food with or without vomiting, the history of hæmatemesis or melaena, especially when this is repeated constantly; the presence of free hydrochloric acid in the stomach contents; and, lastly, evidence of some dilatation of the stomach. I make a rule of passing a stomach tube in every case and withdrawing some of the stomach contents for chemical examination; after this I distend the stomach with air through the tube. Excluding cases of gastroparesis, I consider that a stomach which extends one or two inches below the umbilicus is dilated.

The presence of dilatation is an absolute indication for gastro-enterostomy.

The operation is also indicated in every case of duodenal ulcer as soon as it can be diagnosed, as practically no case of duodenal ulcer is permanently cured by medical means, and a temporary improvement under medical treatment may be followed by fatal hæmorrhage or by perforation. The difficulty here is to make an accurate diagnosis of a duodenal ulcer. The most valuable signs are the presence of a tender spot just above and to the right of the umbilicus, sometimes accompanied by rigidity of the right rectus muscle; the existence of "hunger pain," which sometimes necessitates the patient always carrying food with him; pain following some hours after food; the presence of melaena and of unexplained anaemia.

In acute gastric ulcer the indications for operation are repeated severe hæmorrhages, which are threatening the patient's life; and, secondly, symptoms of acute pain and shock, suggesting that the ulcer is spreading deeply towards the visceral peritoneum, and that perforation is imminent.

I believe that an ulcer in any part of stomach or duodenum can be cured by gastro-enterostomy; but if the pylorus is not stenosed it must be occluded at the same time, otherwise the results are not likely to be permanent.

In estimating the value of gastro-enterostomy in gastric and duodenal ulcer, we ought to compare the results with those obtained by medical treatment. Most surgical writers are rather scornful of the results of medical treatment, and recently it has been stated that barely 25 per cent. of cases of gastric ulcer are cured by medical treatment. I think that such statements are grossly unjust and misleading, since they are compiled from records of hospital in-patients, and therefore deal only with the most severe cases of ulcer; moreover, they

include deaths from hæmorrhage and from perforation. Now the greater number of cases of gastric ulcer are treated as out-patients, and their mortality cannot be large, but there are certainly a number of relapses. I suppose that even the most sanguine physician would expect relapses in at least half his cases of gastric or duodenal ulcer, and so would not expect one-half of his cases to be permanently cured; I think that even my statistics show a great improvement over medical treatment, since 56 per cent. were absolutely cured and another 26 per cent. were in almost perfect health.

The knowledge that the greater number of patients on whom the operation has been done are delighted with their present condition and have practically been restored to complete health after years of suffering consoles one for the few cases which appear to derive little benefit, and enables a surgeon to honestly advise a patient with marked symptoms of chronic gastric or duodenal ulcer to submit to a gastro-enterostomy when medical treatment has failed to effect a cure.

A Clinical Lecture

ON

THE TREATMENT OF ACUTE APPENDICITIS.

DELIVERED TO THE 1908 POST-GRADUATE CLASS AT
ST. BARTHOLOMEW'S HOSPITAL.

By R. COZENS BAILEY, M.S. LOND.,

ASSISTANT SURGEON TO THE HOSPITAL.

I AM constantly being asked, "Do you believe in operating during the acute stage of appendicitis?" and I propose to attempt to answer this question.

I have chosen this subject partly because I shall be able to show you cases in the wards at the present time which illustrate many of the points we shall have to consider, and partly because the idea seems to have gained ground that it is old-fashioned to wait, and that the newest and most up-to-date practice in connexion with the surgery of appendicitis is to treat the case as if it were, say, a strangulated hernia, and to operate always when and where an opportunity first presents—an idea which I can only regard as most mischievous. Appendicitis seems to have become more common and more fatal of recent years, and this rightly suggests all sorts of questions as to our altered manner of life, our increased luxuriousness, the quality and quantity of our food and drink, our possibly diminished resistance to the onslaught of micro-organisms, or the increased virulence of these. It also suggests the question, Can our better diagnostic powers have anything to do with the one fact, and our methods of treatment with the other?

One of the chief difficulties in connexion with appendicitis arises from the number of different conditions included under the term. Thus not only do inflammation and ulceration find a place under this head, but also perforation, gangrene from infection or thrombosis, impaction of foreign bodies, the formation of concretions, stricture, etc.; and it need hardly be pointed out what confusion would arise if in other parts of the intestine the term "enteritis" was used to cover all these.

I can only mention this source of error but cannot suggest a remedy at present, for the appendix is such a comparatively unimportant structure physiologically, that interference with its functions in these ways gives rise to few distinctive symptoms, and its importance, from a surgical point of view, depends almost entirely upon the results it is able to produce in connexion with the surrounding peritoneum. It may be that further experience and the more accurate tabulation of symptoms will one day render it possible to diagnose more certainly the state of the appendix upon which the resulting peritonitis depends, and so enable a more exact prognosis to be given, and thus render easier the question of treatment; but at the present time the beginning of the attack affords little or no indication as to what will be its end.

Now, if the appendix be damaged the infection may remain confined to the interior of the organ and its walls,