The Lloyd Roberts Lecture

ON

SOME PROBLEMS IN GASTRIC SURGERY.

DELIVERED IN MANCHESTER, OCTOBER 23RD, 1928,

BY

SIR BERKELEY MOYNIHAN, Bt., M.S.,

PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THIS present year has seen a great revival of interest in the subject of gastric and duodenal ulceration. Methods of medical treatment neither new in manner nor new in kind have received a new impulse under new names from those who

... "labouring for invention bear amiss
The second burthen of a former child."

Bold adventures in surgical procedure have received fresh, unexpected, and even stronger advocacy and support. Experience, it is said, is the name we give to our mistakes, and it is in the hope that my experience of the last thirty years may do something to check newcomers in the field from repeating the errors of their predecessors that I am confirmed in my choice of the subject of this address to-day.

The year began with a paper by MacLean, Jones, and Fildes upon the "Cure of gastric and duodenal ulcers by intensive alkaline treatment." The page heading of this article and in the subsequent lively correspondence is "gastro-duodenal ulcers." There are gastric ulcers and there are duodenal ulcers. The differences between them are not merely geographical. I recall the time when our French colleagues, among others, were profoundly sceptical as to the frequency of duodenal ulcer, and under my own eyes were certainly confusing these two conditions in the operation theatre no less than at the bedside. When that useful landmark the pyloric vein was described, and its value attested by Latarjet and many others, a term of compromise and confusion, "juxtapyloric," was introduced. The use of this term deprives much recent literature, including a laborious investigation by Dr. Lucy Wills,² of some of its value, for it is clearly not recognized that pyloric ulcer exists in only one case in a hundred, and that gastric ulcer close to the pylorus is very unusual. In my series of over two thousand cases, less than 3 per cent. of chronic gastric ulcers were at the pylorus or within an inch and a half of it.

In my opinion no real advance in our knowledge of the etiology, clinical manifestations, or treatment of these two diseases, gastric ulcer and duodenal ulcer, will be made if we speak of them as one. The time may come when, more fully equipped with knowledge, we may speak of them in synthesis, but for the moment the closest analysis of every particular attribute surely continues to be necessary. These two forms of ulcer occur, as a rule, as Hurst has emphasized, in opposed types of individual. There are, so far as we can judge, some similar factors and some dissimilar factors at work in their production; the chemical condition of the stomach contents in the two conditions is almost always very different; their symptoms enable a clinical and anatomical discrimination to be very frequently, though not invariably, made; their behaviour in respect of haemorrhage and of perforation is not the same; the pylorus forms between them a barrier very rarely overstepped; and finally, a gastric ulcer becomes malignant in a formidable proportion of cases, whereas malignancy in a duodenal ulcer is an event so rare that few pathologists have seen it. The use of such terms as "gastro-duodenal ulceration" and "juxtapyloric ulcer" is, therefore, slipshod and misleading, an evidence of intellectual untidiness, and should be dropped.

It is true that both gastric and duodenal ulcers may be acute or chronic; that when acute they cause a sudden haemorrhage and, very rarely, suffer perforation. Acute

ulcers, as Bolton³ and M. J. Stewart⁴ have shown, are multiple, heal quickly, and often leave little or no trace behind; yet one patch of acute ulceration may persist and lead to the development of a chronic ulcer. Haemorrhage and perforation, though themselves acute, are, with few exceptions, the evidence not of acute but of chronic ulceration which has assumed fresh activity. In a series of gastric ulcers observed by Professor Stewart and myself over a period of twelve years, we found that in 61 cases where death occurred from perforation the ulcer was of the chronic type in 60; in 14 cases where death occurred from haemorrhage the ulcer was of the chronic type in 13. In the acute case the ulcer was a terminal condition associated with advanced disease, and haemorrhage was not the determining cause of death. In a similar series of cases of duodenal ulcer during the same period this truth also holds good; twelve deaths from haemorrhage all occurred in cases of chronic ulcer; in 117 deaths from perforation there were 109 cases in which the chronic ulcer had given way; in 12 cases acute ulcer was present; so that there were 4 cases in which both acute and chronic ulcers were found—in every one it was the chronic ulcer which had perforated.

I have fully discussed the relative values of medical and surgical treatment in my little work [*Two Lectures*, Wright and Co.], but certain points require, perhaps, a further statement. It is, in the first place, indubitable that both gastric and duodenal ulcers heal, and remain healed. In their sound healing they may produce conditions requiring relief by surgery. "Pyloric stenosis" is virtually always duodenal stenosis; contractures in the stomach are usually in the body of the organ and cause the condition known as "hour-glass." Professor Stewart finds evidence of open or healed ulcers in about 5 per cent. of the bodies examined on the *post-mortem* tables in Leeds. Often no history of any period in which symptoms were present is found in the clinical notes, or is to be obtained from relatives. The fact that healing does occur affords, however, a strong, indeed an undeniable, plea in favour of an adequate trial of medical treatment. No surgeon upon whose judgement I would rely suggests operative measures for anything but the rebellious cases or those in which the ulcer is large and incoercible, emergencies, of course, excepted.

In the next place, we must be convinced that an ulcer is in truth present before embarking upon treatment, or building up statistics, and disseminating views based thereupon, as to the efficacy of any specific therapeutic method. Much of the literature on this subject of medical treatment is encumbered with error and with half-truths. In discussing the matter with the protagonists of eponymous methods in other countries I have been distressed to find how slender may be the accepted evidence as to the existence of an ulcer. Unless we know that an ulcer is indubitably present how can we assess the value of treatment which has been supposed to "cure" it? Even radiological evidence must sometimes be criticized. Let me quote Case I from MacLean's paper:

"A married woman, aged 30, was admitted on Oct. 28th, 1927, and discharged on Nov. 19th. She gave a history of very severe upper abdominal pain radiating through to the back. This pain had been present off and on for over three years. In 1925 she was under treatment for some months and again in 1926 for six weeks. During the present year she had never been free from pain and discomfort of some kind. On examination she was well nourished, showing very acute tenderness over the right epigastric region; otherwise nothing gross was detected. From the time she was put on alkalis and diet the pain disappeared and she made an uninterrupted recovery. Whereas on Oct. 28th she had a 'very large penetrating ulcer of lesser curvature,' on Nov. 17th the report was no ulcer seen and no tenderness. The patient is now in good health and there are no symptoms of dyspepsia. The epigastric tenderness has also disappeared entirely."

Here is a patient "well nourished," and therefore requiring care in investigation, examined on the day of admission to hospital, when a "very large" ulcer is found. I confess that I should be loath to accept such evidence. What time was given for the due and most needful preparation of the stomach? Does anyone with any experience or of good judgement suppose that a "very large penetrating" ulcer, such as is supposed to be shown in the figure, can disappear in three weeks? Sometimes I am confronted

with a "very large" gastric ulcer too high in the stomach to be resected; in such cases I perform jejunostomy, with or without cholecyst-gastrostomy, or gastro-enterostomy combined with jejunostomy. The healing of the ulcer is watched under x-ray examinations. I have never seen an ulcer of the size depicted in this instance heal completely in less than four months, even when the stomach was in a condition most favourable for healing, being at rest, receiving often the four carbonates or bismuth carbonate alone, all sources of infection having been removed, rest for some weeks being enforced, and all ancillary methods, including blood transfusion, used to advance and encourage healing. It is not enough to see "a disappearance of the crater" of an ulcer to conclude that the ulcer is healed. In the process of healing the first stage is the "flattening out" of the crater; a deep crater becomes shallow; this does not mean that the ulcer is healed; only that the first stage is accomplished.

We must therefore make certain that, in all cases used to establish principles and to inculcate the value of methods, an ulcer is in truth present; that we are walking by sight and not by faith alone. The words "uninterrupted recovery" used in the above report within three months of the beginning of treatment betray an optimism which must excite our envy, but never, I hope, our emulation.

It is not the physician alone who accepts a diagnosis of gastric or duodenal ulcer upon wholly insufficient evidence. As I shall presently mention, the surgeon, whose error is far more serious, may carry out a short-circuiting procedure in cases (unfortunately in many cases) where no trace of an ulcer exists, where indeed other pathological states are present, have caused a mimicry of the symptoms of ulcer, and are completely overlooked. The high repute of medical treatment, no less than the strictures passed upon surgical treatment, are earned in no small degree by a process of make-believe. By drugs and diet no harm is done to an ulcer which exists only in the mind of the healer. Grievous and irreparable harm may be done by the act of the surgeon, and his art brought thereby into disrepute. It is not only the patient who is sacrificed; our cause is wounded in the house of our friends.

Furthermore we must remember that medical treatment is a dangerous, a prolonged, and, I fear, a very tedious business. Our object is not temporarily to abolish symptoms, but to secure the firm healing of the ulcer. To banish symptoms is so very easy, as I have over and over again asserted. To suppose that this implies an "uninterrupted recovery" is to deceive ourselves, and to accept false values.

"One most important point," writes MacLean, "is to warn the patient that if any symptoms return he must go back to milk or light diet for a day or two and take the powder four or five times a day." If symptoms return, what has happened? The unhealed ulcer has probably taken on a new activity; the edge is spreading, there is infection all around, and a local spasm is excited, and if x rays do not always show this, operation most certainly does. Is the suggestion of a "day or two" of dietary restriction really the best that can be offered? The word "cure" is used almost frivolously by MacLean, for in his paper published in January, 1928, the dates on which treatment began in the cases recorded are November 1926, April 1927, July 1927, April 1927, February 1927, 1927 (no month), July 1927, April 1927, October and November 1927, February 1927, April 1927. Is there anyone who is so beguiled as to feel satisfied that in such cases ulcers are healed and are to remain healed? No account is taken of the seasonal variations, the cyclical character in the symptoms, to which I called attention a quarter of a century ago, nor of the difference between "relief" and "cure." We are, moreover, in ignorance of the frequency of these supposititious "cures" (or of their duration) to the total number of cases treated.

It may be urged that in many cases of gastric ulcer the treatment by intensive administration of alkalis, with the purpose of neutralizing excessive or normal acid, is theoretically unsound. If there is hyperchlorhydria, as in most cases of duodenal ulcer, their value may be understood. But when the acid content is low or absent, what reasons

are there for such large and repeated doses of alkali? I expect we are not so much concerned—at least I am sure that patients are not—with reasons as with results. I am by no means confident, as many are, that good results must be attributed to the neutralizing power of alkalis, but I am content to use these until some wiser investigator discovers the clue, if other clue there be, to their power. Kinsella⁵ suggests that the potent effect of alkalis is not so much to neutralize acid as to dilate the pylorus; spasm being overcome, the stomach empties and that degree of rest is allowed which encourages the ulcer to heal.

Because of my leaning to medicine rather than to surgery, I have referred as many early cases as possible of gastric or duodenal ulceration to my medical colleagues for treatment. I may therefore speak with experience of the procedure. All due care must be taken to remove the sources of infection—in the mouth, accessory sinuses, tonsils, and so forth. The commonest origin of infection, the appendix, is inaccessible apart from surgery, for drugs here are useless. Not the least of the advantages of surgical treatment, as I have formerly pointed out, is that it enables this source, and other associated lesions in the gall-bladder, or elsewhere, to be eradicated.

At the beginning of medical treatment rest for a few weeks is absolutely essential. Food in the meagre quantities and at the frequent times laid down as essential by Sippy, Spriggs, Hurst, and Izod Bennett is given, and the triple or quadruple carbonates administered when the acid content is normal or high. Medical treatment should be a matter of as great devotion and surrender on the part of the patient as is surgical treatment. The perfunctory and haphazard procedures which leave too much, leave in fact almost everything, to the patient are the cause of disappointment, and of the "recurrences" or real disasters with which the surgeon has reluctantly and so frequently to deal. The healing of an ulcer is, as a rule with negligible exceptions, a difficult and tedious business; it does perhaps sometimes occur easily, and possibly in recent acute cases even quickly, as *post-mortem* experience suggests; but if we wish to make sure of it, no pains can be too great, for if failure occurs in the first instance it is hardly likely to be so easily accomplished at a second or later trial. My advice to patients is to exercise the greatest possible loyalty to advice in the matter of diet, alcohol, drugs, rest, warmth, and clothing for at least a year; and to avoid foolish risks for ever. My very wise friend Dr. Hurst is far too optimistic when he says that "very large chronic ulcers which have penetrated the pancreas or the liver may require as long as three months" to heal. I have known them take over three years. After all it can be no advantage to a callous ulcer, in respect of its power of healing, that it should lie in the stomach rather than elsewhere, let us say upon the surface of a limb. And we do not even there expect to find such rapid cicatrization as MacLean and others suppose.

The patient who has experienced many recurrences, in whom one or more chronic ulcers have existed or are still present, is only wasting time and risking his life, by continuing medical treatment. Though almost all the patients who come to the surgeon for help either in their acute emergencies, or because of protracted disability, have undergone medical treatment on many occasions, it is rare indeed to hear of one who has unfalteringly submitted to the full prolonged ritual. So far as the poorer people are concerned the hospitals of the country are powerless to deal with them; accommodation is quite inadequate. We are driven to cope with catastrophes, but do little to prevent their occurrence. The treatment of gastric and duodenal ulcers in the mass is now an economic rather than a medical problem.

Medical treatment in the past has failed very badly. It fails far too often to-day. Certainly almost all the fatalities in these diseases occur in those who have been submitted to medical treatment, and must accordingly be attributed to the failure of that treatment. This form of treatment, beyond all reckoning more dangerous than surgical treatment, will be even less successful if a free and easy method, acclaimed as adequate by high authority, should ever become popular. If surgery is to meet a smaller demand it will only be when general practitioners

and physicians realize that medical treatment, at present so very unsatisfactory, can only become safe when it is made more rigorous, and when loyalty thereto is continued for longer periods. The ambulatory and perfunctory treatment of gastric and duodenal ulcers by triple carbonates, and an inadequate dietary restriction, has added much to my surgical anxieties in the past few months; and I am by no means alone in this unhappy experience.

It is personally interesting to me to recall that on the last occasion on which I referred to the "triple carbonates" I repeated a suggestion I had often made before.⁶ It has since been widely acted upon abroad, and at home chiefly by my colleague Mr. L. R. Braithwaite. It was this: that if the success of gastro-enterostomy is to be ascribed to the alkalinizing properties of the bile which enters the stomach through the new opening (if, that is to say, my friend Mr. H. J. Paterson is right in believing the operation to have a "physiological" action), it would surely be better to anastomose the gall-bladder to the stomach, so that the supply of alkali should be continuous and automatic. I have performed this operation in cases of inaccessible large ulcer in the stomach with a normal or high acidity, and in cases of jejunal ulcer; it is too early yet to speak of permanence in the good results. For details of this method I may refer to the paper of Mr. Braithwaite.⁷

In spite of the most careful and protracted medical treatment a certain proportion of cases of gastric and of duodenal ulcer is found irremediable except by surgery. The proportion will vary according to a number of factors: the age and general condition of the patient, the duration of the ulcer, the care exercised over intensive medical treatment and its duration, the subsequent attention paid to diet and other matters, the occurrence of haemorrhage, of stenosis, or of chronic perforation with adhesion to neighbouring parts; and, in the case of the stomach, the tendency to carcinoma. All ulcers, or almost all, should at first be so diligently treated as to encourage healing; but not all ulcers are capable of healing. I have no means of knowing the number of recalcitrant cases, and all estimates are open to objection. Donald Balfour⁸ asserts that in the aggregate these complications occur in 67.3 per cent. of cases of gastric ulcer. In the Mayo Clinic, however, as in all large hospitals, it is chiefly the rebellious cases which seek relief; the earlier cases are dealt with nearer home, and if treatment proves successful do not reach the consultant or the hospital. Forman,⁹ in a small number of cases carefully followed and examined, found 57 per cent. of failures after medical treatment. David Smith¹⁰ gives the results of medical treatment in 214 cases observed between 1913 and 1922. If immediate results are accepted it is found that 67 per cent. of males are "cured," and 2 per cent. die; of females 76 per cent. are "cured" and 5 per cent. die. Of cases observed between five and fifteen years after treatment 29 per cent. of males were cured, and 19 per cent. died; of females 40 per cent. were cured, and 15 per cent. died.

So far as duodenal ulcer is concerned I think it is very rare for any patient who has given a quite definite history of two or more attacks to recover permanently and completely. Subsidence of symptoms and freedom from recurrence for months, or even for years, may often be observed, as I pointed out long ago; but in the end there is a fresh outbreak of trouble.

This recrudescence of symptoms is due to various causes. An indolent unhealed ulcer, clinically unobtrusive in its callous state, may have assumed a new activity of destruction at some part of its edge; or an old ulcer lightly healed may have broken down afresh; or an infection in the mucosa near the chronic ulcer may have led to the appearance of an acute ulcer; or, rarely, an entirely new chronic ulcer may be developing. We cannot always decide which of these events has happened; but we may safely say that, as a rule, it is an incompletely healed callous ulcer which breaks down. I have seen this repeated recrudescence in literally hundreds of cases; indeed, a very large proportion of patients upon whom eventually I am compelled to operate give a history of repeated attacks followed by intervals of repose. The permanent "cure"

of the patients after the most praiseworthy devotion to treatment is indeed a rare event; when the ulcer is in the duodenum and has suffered relapse.

The main indications for surgical treatment in cases of duodenal ulcer are recurrence of symptoms, stenosis, and haemorrhage. During the last few years surgeons in some parts of the world have been in revolt against short-circuiting operations. My friend Professor Pannett¹¹ in this country is, to my regret and surprise, among the irreconcilables. My own opinion of these operations (gastro-enterostomy and gastro-duodenostomy), based upon a longer experience than that of any surgeon now in active practice in this country (for I was the first surgeon to operate upon a duodenal ulcer which had been previously diagnosed), is that they have very strong claims to be considered as among the most successful of all abdominal operations. Wherein lies the cause of so grave discrepancies in opinion?

In the treatment of a duodenal ulcer by operation gastro-enterostomy alone should never be performed. In all cases the ulcer must be dealt with directly by one device or another. Over twenty years ago I learnt this lesson; for I found, after "successful" gastro-enterostomy, that one patient died three years later from perforation of the original untreated ulcer; and that one patient (whose second operation was witnessed by Dr. J. B. Murphy) had a recurrence of symptoms, with haemorrhage, and the original ulcer, or an ulcer in the same position, was found in a state of great activity. I have operated for haemorrhage in several cases where other surgeons have performed gastro-enterostomy, and have found the original ulcer, untouched at the first operation, in an acutely active condition with large vessels entering it. I have therefore urged that in all cases of duodenal ulcer the ulcer itself must be treated directly, whether gastro-enterostomy or gastro-duodenostomy is performed; the appendix must then be removed, and the gall-bladder, spleen, and liver examined. Treatment of the anterior ulcers is not difficult. If the ulcer is on the posterior surface, with or without an anterior ulcer, the duodenum may be opened, the ulcer cauterized, and the pylorus temporarily closed by an encircling suture.¹² It is possible that on *post-mortem* examination a lesion of the posterior wall may be found more often than my operation figures indicate. The fact remains that in the cases requiring surgical treatment the anterior ulcer is more often present, and that when two are present the anterior is the older. The exceptions to this are less than 20 per cent. in number.

The necessity for direct treatment of the ulcer is not recognized even by the latest writer,¹³ and no doubt his dissatisfaction with the operation of gastro-enterostomy is based, in part at least, upon the inadequacy of his attack, if indeed there has been any, upon the ulcer itself. But both before and after operation something more requires to be done. The patient must be carefully prepared, and regard must afterwards be paid both to diet and to drugs; care must be exercised for months. The healing of the edge of an anastomosis does not occur by first intention. Until healing is complete bismuth carbonate or the "triple carbonates" should be given, and a special diet advised. In competent hands, and with the care before and after operation that are required, the mortality is now not more than 1 per cent. Pannett¹⁴ assesses the mortality at 4 to 5 per cent., and adds that it is "bound to be higher in the statistics of those surgeons who reserve it for the worse risks." Dr. I. Bennett¹⁵ in referring to my work spoke of my "selection of cases." The suggestions here implied are that the mortality is low because of a choice exercised among the cases submitted to operation, that cases with high risks are omitted, and that in consequence the mortality is small. This is not the true position. I never make any selection of cases, except among early ones which are referred to the physician or to the general practitioner: all cases in need of surgery receive it. There is, however, a selection of the day for operation. Patients may be kept waiting for two or three weeks to receive transfusion of blood, and other most necessary preparation. The immediate slap-dash attack is foolish; a selection of cases for the reason implied

would be criminal. The truth is that patients suffering from chronic duodenal ulcer are "good surgical risks" unless there has been a recent haemorrhage. This is indicated by insurance statistics, which show a prospect of life above the average for those surviving operation.¹⁶

What are the ultimate results of gastro-enterostomy? The differences given by various operators, from parts of the world far apart, are inexplicable. The causes of complaint after gastro-enterostomy should now be due to no technical detail directly concerned with the operation itself, but only to conditions which develop subsequently. Mr. Lake¹⁷ gives a disturbing account of 36 per cent. of "unsatisfactory" cases. A review of my cases shows that indifferent results, which are in the gross about 6 to 8 per cent., include complaints of "indigestion," haemorrhage, "recurrence of symptoms." A review of unsatisfactory cases submitted to me after operation by others shows that the commonest cause of disappointment is the wrongful performance of the operation. In my book on *Abdominal Operations* I have dealt with the conditions for which I have known this operation to be practised. They include lead poisoning, the vomiting of pregnancy, visceropitosis, cholelithiasis, tabes dorsalis, achlorhydria, and so on.

The very success of gastro-enterostomy in the appropriate case has led to its unjustifiable performance in the cases not requiring it—in cases where the symptoms mimic those of organic disease of the stomach or duodenum. The operation is blamed; the fault lies wholly with the operators. In such cases the anastomosis must often be undone, and the treatment of the patient begun afresh. If the operation is adequately performed in the case fully requiring it, and if reasonable care is subsequently exercised, two conditions only in my experience cause anxiety—haemorrhage and gastro-jejunal ulcer. Haemorrhage occurs, as a rule, from an ulcer at or near the anastomosis, which may declare itself in no other way. It occurs also in cases where less than adequate attention has been paid to the teeth. Removal of infection from the mouth will sometimes prevent recurrence of haemorrhage, as Eusterman¹⁸ also has shown. Bleeding is found sometimes in those whose blood coagulation time, for some reason, is longer than the normal, and in those whose spleen is enlarged. I have twice operated upon cases of duodenal ulcer in patients suffering from early splenic anaemia. Haemorrhage recurred after the performance of gastro-enterostomy, and the spleen had subsequently to be removed. Haemorrhage may occur from an acute ulcer, not recognizable on the operation table, and with difficulty discovered, or discovered when recently healed, upon the *post-mortem* table. I think I have rarely if ever read any statement so opposed to my own experience as that of Pannett¹⁹ when he says: "The liability to haemorrhage from a gastric, but particularly a duodenal ulcer, is about as great after an operation as before." The only possible explanation seems to be that gastro-enterostomy is performed in cases of gastric ulcer for which it is unsuitable, and that where an ulcer lies in the duodenum it is left untouched; that, in short, little has been accomplished by the operation either to affect the healing of the ulcer, or to remove it.

The real drawback—indeed, in my experience the only serious one—to the operation of gastro-enterostomy is the occurrence of a gastro-jejunal ulcer. The frequency of this appears to be extremely variable. Mr. Digby Chamberlain searched the records of my cases over a period of twelve years, ending more than two years ago. He found that 1.84 per cent. of cases had developed a secondary ulcer. As a rule this form of ulcer, if it comes at all, comes within two years of the operation; some few cases begin while the patient is still in hospital, no relief whatever following the operation, but I have known cases develop as much as nineteen years later. Let me, therefore, to be safe, assess the frequency of this ulcer in my own series at 4 per cent. In such cases a further operation, detachment of the jejunum, followed sometimes by gastro-duodenostomy, gastrectomy, or jejunostomy with which I am well pleased, may be performed. The immediate results of these operations are good; the remote results

leave still much to desire. The ultimate results of the operation of gastro-enterostomy are spoiled by this complication in probably 4 to 5 per cent. of cases. Much lower and far higher estimates than this are given. Mr. A. H. Burgess, a most accomplished artist in surgery, has rarely, if indeed ever, observed jejunal ulcer among cases operated upon by himself. The highest is that of Dr. R. Lewisohn,²⁰ who, in a series of 68 cases, found 23 (34 per cent.) who had developed gastro-jejunal ulcer. In consequence of this unhappy experience Dr. Lewisohn and many other surgeons follow the lead of Haberer²¹ and advocate the routine performance of partial gastrectomy for duodenal ulcer. Before I entertain so repugnant a proposal I should like to feel that gastro-enterostomy is given, what it certainly has not yet received, a fair chance. I suggest the following procedure as an invariable routine:

1. A careful examination and preparation of the patient in respect of blood condition, teeth, sinuses, etc., so that the operation may be performed at the time the patient is most adequately prepared to undergo the ordeal.
2. Confirmation of the clinical diagnosis: the ulcer being seen, felt, and shown.
3. Destruction of the ulcer or ulcers by the cautery or otherwise; repair of the duodenum followed by a short-circuiting operation, gastro-enterostomy or gastro-duodenostomy, the opening being of large size.
4. Removal of the appendix, examination of the liver, gall-bladder, spleen, and other abdominal organs.
5. Care in the diet (a printed diet chart being given), abstinence from tobacco, alcohol, and salt; the administration of the triple carbonates; regard to rest and warmth for a few months at least.

With these precautions fully observed we shall hear very little either of the mortality or of disappointments after gastro-enterostomy. The advocacy of gastrectomy for duodenal ulcer because of the supposed ill effects of gastro-enterostomy leaves me in consequence quite unmoved. As I have said, the defect in relation to the short-circuiting method lies more often with the operator than with the operation. The recommendation of other and more extensive procedures lacks, therefore, in my most deliberate judgement, any initial justification. What, then, is to be said in regard to gastrectomy when performed for duodenal ulcer? There is no doubt that, even in the most skilful hands, it is a more serious operation. The cases which are supposed more especially to require it are those with deep excavating ulcers on the posterior surface of the duodenum. In these cases, and to a certain degree in many others, the removal of the duodenum may, and indeed does, present difficulties, and closure of the stump of the bowel may be so arduous and uncertain a task as to suggest to one if its warm advocates the need for drainage. But what if the duodenum leaks? The mortality in the hands of its supporters is from 5 to 10 per cent. Mr. N. Lake²² gives 9 per cent.; Okinczye²³ gives 13.6 per cent. Less practised operators will show an even higher mortality. The unanswerable deduction is, therefore, that if after gastro-enterostomy every case eventually unsatisfactory were to die from the operation, the survivors in whom the result is good would be equal in number to the survivors after gastrectomy. Those who die after gastrectomy, that is to say, are equal in number to those who in my own practice die after gastro-enterostomy *plus* all those who ultimately prove unfavourable cases. But are the survivors after gastrectomy in any better case than the survivors after gastro-enterostomy? The answer is as yet uncertain, because of the recent date of many operations, and of the absence of any series of cases from competent operators in which a late history is available. The facts that are accessible appear to show that gastrectomy for ulcer in the duodenum has the same defect as gastro-enterostomy—whether in the same proportion or not is unknown. Those who advocate gastrectomy assert that secondary ulcers will be unlikely to follow because of the anacidity which results. But anacidity does not result even when two-thirds of the stomach have gone; and secondary ulcers do undoubtedly follow (Klein).²⁴

Louria,²⁵ reporting some of Haberer's cases, writes: "Studies of the gastric content of the stomach after

gastric resection showed either a total absence of free HCl or greatly reduced figures." Finsterer, realizing that the ordinary method of gastrectomy does not produce anacidity, advises that three-fourths of the viscus should be removed. In many of my cases of gastrectomy for gastric ulcer when the acid curve has been normal or high (an unusual condition) test meals taken many months later still show the presence of free HCl. Even when less than one-third of the stomach remains, acid may be produced. I have now had under my own care in a series of just over 100 cases of gastro-jejunal ulcer, 12 cases which followed gastrectomy performed for a secondary ulcer at, or near, the site of a gastro-enterostomy originally undertaken for duodenal ulcer; one case of secondary ulcer after primary gastrectomy for duodenal ulcer; and one case after Devine's operation. Dr. Hurst states²⁶ that there are in the literature 100 cases of secondary ulcer after gastrectomy. I have never seen such an ulcer when the stomach has been removed for gastric ulcer, but my friend Mr. Finch²⁷ records one case. It is clear, therefore, that the chief claim of the advocates of gastrectomy, that secondary ulceration is avoided, cannot be substantiated. There seems to be an inveterate and unconquerable tendency on the part of a few patients to develop ulcer in spite of all our care. These patients are of the "hypersthenic gastric diathesis" described by Hurst.

Haberer's results, both immediate and in the early years after operation (there has not yet been time to observe late results), are less satisfactory than many surgeons are able to secure by simpler methods than his. Louria,²⁸ in reviewing 166 cases of duodenal ulcer operated upon by Haberer between January 1st, 1925, and January 1st, 1927, gives the immediate mortality of gastrectomy as 8.4 per cent.: 107 cases were traced, and the results were classified as excellent in 83, "fair" in 16, and "poor" in 6, of whom 2 developed gastro-jejunal ulcers. Having regard to the fact that the first case in the series was operated upon less than four years ago we may assume that this is the best that can be said for gastrectomy. Is this satisfactory? As compared with my own experience it is far less satisfactory than are the results of gastro-enterostomy.

We may, then, well ask, What possible grounds for the advocacy of gastrectomy can be established? It is evident that it is dangerous even in the hands of its warmest advocates; a mortality of 5 to 10 per cent. is, in my judgement, prohibitive, for it means that a larger number of people are caused to die in order that a smaller number may live to experience a possibly slighter chance of developing a new ulcer. The clinical results, in my experience, do not in any particular show to advantage when compared with those of gastro-duodenostomy or gastro-enterostomy; and there is certainly not a great degree of freedom from the only serious sequel, gastro-jejunal ulcer. My own unequivocal and most confident opinion is opposed to it. It is one more evidence of the familiar Teutonic capacity for finding a difficult way of doing easy things. I regret that the wise and cautious judgement, the sanity of outlook, and care for the individual patient, which hitherto have always characterized British surgery, have not rendered all our surgeons immune from rash and most intemperate persuasions by Continental and transatlantic operators. In surgery the search is always for safety and simplicity in full accomplishment of our object. Gastrectomy for duodenal ulceration is neither safe nor simple, nor does it bring an adequate reward, if indeed it brings any slightest reward in the form of better ultimate results. We know the worst of gastro-enterostomy, the best is unsurpassable; we have yet to learn the worst of gastrectomy, though what we know is bad enough. The best that I am told of gastrectomy, and the little that I see of its results, leave me in the most contented frame of mind with regard to gastro-enterostomy, provided always that strict observance has been paid to all necessary details concerned with its performance.

In describing short-circuiting operations a Continental surgeon has written a paper upon "gastro-enterostomy, a disease." The title is admirable. Gastro-enterostomy is a disquieting and formidable disease—serious, widespread, and highly contagious—but its victims are to be found

among surgeons rather than among patients. It is the irrelevant application of the operation to unsuitable cases, and its imperfect performance in cases that do require it, that have brought it into disgrace and derision. Over twenty years ago I urged that the operation should never be practised unless the ulcer was "visible, palpable, demonstrable." The unwarrantable procedure of "gastro-enterostomy for symptoms" still goes on all over the world, and Dr. Hurst²⁹ is in consequence driven to say that among his private patients "gastro-enterostomy is the commonest gastric disorder of to-day, and undoing gastro-enterostomy is the gastric operation we most frequently recommend." Dr. Hurst knows quite well that in making this statement he is offering no contribution to the question of the surgical treatment of gastric or duodenal ulceration. I have "undone" several cases for him, and a large number referred to me by other surgeons. I have never met with a single instance in which, this deplorable procedure being necessary, there was any unequivocal sign of an old or a recent gastric or duodenal ulcer. Where the operation has been necessary the junction need never be separated, except, of course, in cases of jejunal ulcer, when the normal channel is to be restored or gastro-duodenostomy is to be performed. The necessity to undo an anastomosis is not a reflection upon an accredited surgical operation, but upon the judgement of the physician who advised it or of the surgeon who performed it. I mention the physician deliberately. To a few surgeons who have performed a needless operation I have written for details of the conditions found, and have received a reply that the short-circuit was made upon the advice and at the direct request of a physician. During an operation a competent surgeon never needs advice from anyone as to the procedure he should adopt; no physician can possibly understand the surgical indications, the technical procedures, their appropriate application, or their probable results as well as the surgeon, upon whom alone responsibility for the technical part of the operation must always rest.

CONCLUSIONS.

What, then, are my conclusions in regard to the treatment of gastric and duodenal ulcer?

1. Ulcers of the stomach or duodenum do heal, and remain soundly healed for years.
2. When healed, stenosis in the body of the stomach or in the duodenum may result, and surgical treatment for a mechanical deformity then be necessary.
3. Medical treatment should always be given a first and a second trial; if it then fails success in later efforts is extremely improbable.
4. The present methods of medical treatment are proved by experience to be of little value, and are highly dangerous. The majority of patients who die from either of these diseases succumb because medical treatment has failed to relieve them. Medical treatment undoubtedly has a mortality greatly exceeding the highest mortality following any surgical procedure adopted for chronic ulcers of the stomach or duodenum.
5. The failure of medical treatment is largely due to its insufficiency. To be successful such treatment must be rigorous and protracted. The loyal co-operation of the patient is essential. Very few patients now receive any treatment offering a reasonable prospect of healing of the ulcer.
6. When medical treatment has failed surgical treatment must be adopted, and should not be delayed.
7. Experience shows that surgical treatment, adopted when medical treatment has failed, is far less dangerous and far more effective in attaining our object than medical treatment; the immediate and remote mortalities are smaller, the after-effects far more satisfactory.
8. The failures of operative treatment by competent surgeons are due chiefly to the development of fresh ulceration at the new anastomosis.
9. The causes of this new ulceration lie partly in the diathesis of the patient, and partly with details of the operation.
10. Surgical treatment should consist in the eradication of the ulcer or ulcers; by gastrectomy if the ulcer lies in the

stomach; by a short-circuiting operation combined with destruction of the ulcer when it lies in the duodenum. Balfour's method and Walton's method have proved excellent in the hands of their authors. Other complementary procedures within the abdomen must be observed.

11. Gastrectomy in the treatment of duodenal ulcer is more dangerous than gastro-enterostomy, and does not appear to give any better late results, if indeed its results are so good. It should therefore have no place among surgical methods for the treatment of duodenal ulcer at the present time.

12. The medical treatment of gastric ulcer and of duodenal ulcer is perhaps not so much a medical problem as a problem in social economics. Rest in bed; freedom from anxieties, abstinence from work, complete repose in fact, are essential if treatment is to have the best chance of success. A counsel of almost unattainable perfection!

13. The connexion between gastric cancer and gastric ulcer is so clear³⁰ that gastrectomy alone, wherever it is practicable, should be regarded as the appropriate surgical treatment for chronic incoercible gastric ulcer.

REFERENCES.

- ¹ MacLean, Jones, and Fildes: *Lancet*, 1928, i, 14.
- ² Wills: *Lancet*, 1928, i, 825.
- ³ Bolton: *Ulcer of the Stomach*, London, 1913.
- ⁴ Stewart: *British Medical Journal*, 1922, ii, 1164.
- ⁵ Kinsella: *Med. Journ. of Australia*, 1928, i, 2.
- ⁶ Moynihan: *British Medical Journal*, 1919, ii, 765.
- ⁷ Braithwaite: *Lancet*, 1925, i, 900.
- ⁸ Balfour: *Collected Papers of the Mayo Clinic*, 1927, xix, 129.
- ⁹ Forman: *British Medical Journal*, 1927, i, 926.
- ¹⁰ Smith: *British Medical Journal*, 1928, ii, 293.
- ¹¹ Pannett: *Lancet*, 1928, ii, 529.
- ¹² Moynihan: *Abdominal Operations*, 1926, i, 276.
- ¹³ Lake: *Lancet*, 1928, ii, 630.
- ¹⁴ Pannett: *British Medical Journal*, 1928, i, 624.
- ¹⁵ Bennett: *Lancet*, 1924, i, 103.
- ¹⁶ Balfour: *Collected Papers of the Mayo Clinic*, 1924, xvi, 60.
- ¹⁷ Lake: *Lancet*, 1928, ii, 268.
- ¹⁸ Eusterman (Balfour): *Collected Papers of the Mayo Clinic*, 1927, xix, 137.
- ¹⁹ Pannett: *Loc. cit. (British Medical Journal)*.
- ²⁰ Lewisohn: *Surg., Gynecol. and Obstet.*, 1925, xl, 70.
- ²¹ Haberer: *Arch. f. klin. Chir.*, 1920, cxiv, 127.
- ²² Lake: *Lancet*, 1928, ii, 268.
- ²³ Okinczye: *Presse Médicale*, 1928, ii, 1302.
- ²⁴ Klein: *Journ. Amer. Med. Assoc.*, 1927, lxxxix, 1236.
- ²⁵ Louria: *Surg., Gynecol. and Obstet.*, 1928, xlvii, 498.
- ²⁶ Hurst: *Lancet*, 1928, ii, 680.
- ²⁷ Finch: *Lancet*, 1928, ii, 580.
- ²⁸ Louria: *Loc. cit.*
- ²⁹ Hurst: *Lancet*, 1928, ii, 477.
- ³⁰ Moynihan: *Practitioner*, 1928, cxxi, 137.

THE INTERPRETATION OF THE RADIOGRAPHIC APPEARANCES OF GASTRIC ULCER.

BY

A. E. BARCLAY, O.B.E., M.A., M.D. CANTAB.,
D.M.R.E. (CAMB.).

WHEN a radiologist detects a projection on the outline of the opaque food in the stomach he makes a positive diagnosis of an ulcer, and when the apparent pocket is deep he describes it as a "penetrating" ulcer. The question that arises is whether he is or is not justified in making the statement that it is a "penetrating" ulcer. We have all seen "penetrating" ulcers—ulcers that apparently penetrate into the stomach wall, sometimes even showing

hardly penetrated the muscular coat at all, and with no overhanging of the edges. It is difficult to imagine how an ulcer of this type could have given rise to such a definite x-ray picture of a pocket, for in the actual excised specimen there was nothing to suggest the presence of either the niche that held the opaque food in a deep cup or the pocket of air above it. There can be no doubt, therefore, that the conditions seen at x-ray examination must be far different from those that we find either in the excised specimen or even on opening the stomach at the operation when anaesthesia and other abnormal conditions are present.

The only reasonable explanation of such discrepancies is that, in life, the mucous membrane may be heaped up around the ulcer to such an extent that it actually over-

FIG. 1.—Large ulcer on lesser curvature, probably penetrating into the muscular coats. Suggested outline of the base of the mucous membrane indicated by a dotted line.

a small bubble of occluded air above the opaque food in the niche. When such a pocket is fixed on palpation there seems little room to doubt the true nature of the condition. Yet I have seen these radiographic appearances when excision has shown merely a flat ulcer that

FIG. 2.—Small ulcer on the lesser curvature, possibly healing. Suggested outline of the base of the mucous membrane dotted in. Note the half-shadow around the base of the ulcer suggesting the thickening of the mucous membrane. (S.190.24.)

laps the ulcerated surface, and thus forms a surrounding crater. On many occasions, by the aid of radiosopic palpation, I have convinced myself of the presence of quite minute ulcers by reason of the residue left in such pockets when the opaque food has been manipulated up