A British Medical Association Lecture ON THE

RELATION OF MEDICINE TO SURGERY IN THE TREATMENT OF GASTRIC AND DUODENAL ULCER.

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BY

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THE treatment of gastric and duodenal ulcer has probably occasioned more difference of opinion within recent years than that of any other single disease, both as regards the relative parts that medicine and surgery should play in it, and also as to what method or operation should be adopted, when either the one or the other treatment has been decided upon. The view of the physician is biased by the number of surgical failures which he sees, and that of the surgeon by the many cases he operates upon which have been medically treated after some fashion or other, generally inadequately, for years. The usual method of arriving at a decision is to compare statistics of cures, and certainly many surgical statistics show impressively high figures; no one can expect 100 per cent. successes, and it is urged that these figures speak for themselves, some enthusiasts believing that peptic ulcer is really a surgical disease and that medical treatment is of little avail. This relation should not, however, be decided by statistics of this kind, which cannot be rightly compared with each other, because the functions of medicine and surgery are different in that they should be concerned with different types of cases. As I shall point out later, most ulcer cases one sees have never had an adequate medical treatment, so that it seems reasonable to assume that surgical statistics are swelled by the inclusion of simple cases easily curable by medical means; on the other hand, those of medicine include many incurable chronic cases, which must be given the opportunity for healing before they can be pronounced incurable, owing to the difficulty of foretelling the condition of any particular ulcer. I have therefore no intention of bringing forward and discussing medical statistics with any other idea than to use them in support of the points I wish to raise. Instead of competing in a statistical race, we should make it our business to inquire, in greater detail than is afforded by the comparison of rough statistics, as to what are the precise functions of medicine and surgery in the treatment of this malady, and what is the most advantageous distribution of their shares in this work. If, with this end in view, we take a broad survey of the life-history of ulcer we shall realize that all the old thickened ulcers, which we hand over to the surgeon, have been originally acute and easily curable by medical means, and that during their evolution they have passed through similarly curable stages before reaching their final surgical destination. In my view ulcer is primarily a medical disease: its possessor consults, in the first instance, the practitioner of medicine, using this term in its widest sense, who should make the diagnosis, and successfully treat the bulk of the cases. He should hand over to the surgeon the recognized operable complications, and the uncomplicated ulcers which obstinately resist his treatment; and to his lot falls the treatment of the post-operative invalids. I shall first give you the facts, which are matters of common knowledge, in support of my view that ulcer is a medical disease, and can be successfully treated by medical means; I shall then describe what is meant by an adequate medical treatment; and, finally, I shall indicate what uncomplicated cases should be dealt with by the surgeon, and what we expect of him.

I. ULCER IS PRIMARILY A MEDICAL DISEASE.

(A) I have elsewhere pointed out that there is no pathognomonic symptom of gastric and duodenal ulcer; and, indeed, it is self-evident that if we could certainly diagnose the condition by symptoms we should not resort to all the tests necessary for an exact diagnosis. The malady

simply gives rise to various forms of dyspepsia, depending on its situation and indistinguishable from similar forms of dyspepsia due to other causes. It acts as a focus of irritation to the part of the apparatus in which it is situated, and induces pain, as all other causes do, referable to that particular part. I have already recorded thirty-three cases in which the symptoms so closely resembled those of ulcer as to be mistaken for them, and yet at the operation undertaken for the supposed ulcer no lesion was to be found in any part of the abdomen. The patient appears for diagnosis among a host of dyspeptics. His symptoms may or may not suggest ulcer, and in many cases we may accurately forecast the diagnosis by the regularity, severity, and clear definition of the pain; but no absolute diagnosis can be made in the absence of confirmatory tests. The difference is one of degree and not of kind. The patients have therefore to be sorted out of a multitude of medical cases complaining of similar symptoms, and this is the business of the physician. The ulcer may be, and not uncommonly is, beyond the hope of benefit by medical treatment when first seen, but it would have healed if it had been recognized in its earlier stages and afforded the opportunity.

(B) The development of ulcer shows that it has, indeed, passed through such intermediate stages. Too much attention is commonly focused upon the old chronic types to the neglect of these earlier and more curable forms. Unless one takes a broad view of the malady the relation of these early stages to the final chronic stage is not recognized. Each ulcer has a definite life-history, and may appear for diagnosis at any stage in its origin, evolution, or cicatrization. Many years ago I demonstrated the origin of chronic ulcer from the acute variety,² and pointed out that acute ulcer arising as a localized lesion in most cases heals normally; that the healing may be delayed for different periods of time; or that it may be arrested, when thickening and irregular extension convert it into a chronic ulcer. A second type of acute ulcer beginning at one point spreads rapidly in a circular fashion, destroying one coat of the stomach after the other. At any stage its extension may be arrested and healing occur; or it may thicken and, with or without the exposure of an organ to which it adheres, become chronic. A whole series of different types of ulcer are thus presented to the clinician for diagnosis, and success in medical treatment depends upon its early and efficient application. If all ulcers were thus treated there would be left no chronic ulcers or their complications for the surgeon to operate upon.

II. AN ULCER CAN USUALLY BE SUCCESSFULLY TREATED BY MEDICAL MEANS.

A.—Clinical Evidence.

Statistics to be of real value should show: (1) that an ulcer was originally present; (2) that it has been adequately treated; (3) that no test can subsequently prove its presence. No large series of follow-up cases answering all these requirements is to hand, the method of relying upon the patient's statement, as to whether he has had any symptoms or not since the treatment, being adopted. If none at all, he is said to be cured; if symptoms occasionally, but not enough to call a relapse, he is said to be improved.

(1) As Regards the Healing of the Ulcer.

The immediate results of one of the recognized methods of treatment—and it does not matter much which is employed—are uniformly excellent. The pain rapidly disappears and the patient leaves his bed and becomes convalescent without symptoms in almost 90 per cent. of cases. If the pain does not subside some complication is present, the ulcer is an old chronic one, or there is a good deal of superadded nervous irritability of the stomach. Many of these ulcers are healed, many are advanced in healing, and some are unaltered. Now the knowledge we wish to obtain is twofold: (1) the percentage of the various types of ulcer which can be directly healed by medical treatment; and (2) what proportion of these patients can be protected from reulceration of the scar, or the formation of a new ulcer. We already know that an acute ulcer of moderate size takes from two to three weeks to heal, and

a subacute or chronic one from a few weeks to months. Some indefinite time after the treatment must therefore be allowed to elapse before the ulcer can be said to have healed, unless, of course, the healing is proved by tests. A time limit of this sort can only be approximate, and perhaps in most cases twelve months would be sufficient. If this time limit be selected we must regard all the cases without symptoms and many improved cases—that is to say, which have not had a relapse within this time—as being healed. The difficulty, of course, is that the absence of symptoms does not necessarily imply that the ulcer is healed. The carefully observed cases of Einhorn and Crohn² show the following results.

Time after Treatment.	Cured.	Improved.	Total.
1 year	67.5 per cent.	22.0 per cent.	89.5 per cent.
2 years... ..	53.6 "	10.0 "	66.6 "
3 "	41.2 "	23.5 "	64.7 "
4 "	27.3 "	22.7 "	50.0 "

Taking the time limit for healing as one year, it appears that at least 70 per cent. were healed. Their statistics show very little difference between gastric and duodenal ulcers. The duration of the illness before treatment, or, in other words, the age of the ulcer, should be taken into account, and we should remember that a certain proportion of the improved cases which have had no definite relapse are without doubt healed. It is perhaps a fair statement to make that practically every acute ulcer, if efficiently treated, would heal, and that three-quarters of the subacute and moderately chronic ulcers would likewise heal, but that with increasing chronicity the probability of healing markedly diminishes.

(2) As Regards the Prevention of Future Ulceration.

Statistics dealing with longer time limits after the treatment refer more particularly to the liability to future ulceration. The statistics quoted above demonstrate that the percentage of cures diminishes with the lapse of time. According to Nielsen⁴ about 88 per cent. of the relapses occur within the first two years, after which time up to the limit of his observations—that is to say, eighteen years—there is only a small liability to recurrence. He therefore took the time-limit of two and a half years, and worked out in a series of cases the number of cures within this period of time, according to the age of the ulcer. His results are as follows:

Duration of illness.	Cured.	Improved.	Total.
6 months	60.0 per cent.	15.7 per cent.	76.7 per cent.
7-1 year	54.1 "	16.7 "	70.8 "
1-3 years	35.9 "	21.0 "	57.9 "
3-5 "	20.0 "	26.7 "	46.7 "
5-10 "	10.8 "	10.3 "	21.6 "
Over 10 "	5.3 "	17.6 "	22.9 "

This is perhaps the most important series of cases hitherto published. They demonstrate the important fact that in the case of moderately recent ulcers a permanent freedom from relapse can be guaranteed in at least 54 to 60 per cent., or, including some of the improved patients, 60 to 70 per cent. of cases. They also show that the old chronic type is the least curable, for if the duration of the illness be five years and upwards the probability of a permanent cure is only, on the average, 10 per cent. The reason for this is because the scar of an old ulcer is unsound and the covering epithelium easily re-ulcerated.

Crohn concludes that four years after the treatment over 70 per cent. of patients with a duration of illness up to six months are cured, but only 37 to 47 per cent. of those with an illness duration of from one to twenty

years. Setting aside the strict accuracy of these statistical figures, they give us the information that if ulcers were treated at a fairly early stage of their existence not only would the prospect of healing be excellent, but the risk of future ulceration would not be great. If, however, they have been untreated for five years or so the prospect of a permanent cure is poor. There are many series of statistics which have been published from time to time, dealing with mixed types of cases followed for varying periods, but not analysed year by year nor as to the chronicity of the ulcer. They show very varying percentages of cures, some high and some low. In a general sort of way their figures agree with those quoted above in showing that the longer the period of observation the smaller the number of cures. I believe that Nielsen's deductions, so far as statistics are able, give us the required information as to the possibilities of medicine and the reasons why it fails.

It is quite evident that our failure as regards the *actual healing of the ulcer* is due to neglect of the treatment in the early stages of the malady. We do not begin treatment early enough. It is unfortunately the fact that ulcer patients who have really been properly treated by medical means are in the minority, however long they have been ill. They have had numerous bottles of alkaline medicine, and perhaps a week in bed now and then when the pain was of unusual severity, but no systematic treatment by one of the recognized methods. This is neither altogether nor perhaps usually the fault of the medical attendant, because it is remarkably difficult, for one reason or another, to induce patients to undergo prolonged treatment in bed. Unless they are suffering from severe pain they are difficult to convince of the necessity for energetic treatment. It is perhaps better for the patient if he bleeds, for then bed is a necessity; even in such cases one not uncommonly sees patients who have only been in bed for one or two weeks. The same remarks apply to the question of the *prevention of recurrence*, since this again also depends upon the age of the ulcer and when treatment is commenced. There is perhaps a greater difficulty in the way, because, having restored the general health, and regulated the habits and diet of the patient, we are at his mercy as to whether he carries out our advice. It is only a certain number of patients who will conform to dietetic and other rules when they have been free from symptoms for a certain length of time. The fulfilment of this condition is, however, perhaps of as great importance as the early treatment of the ulcer.

B.—Pathological Evidence.

(a) Scars of former ulcers are often found at *post-mortem examinations*. There are several old series of statistics which show that scars and ulcers are present with equal frequency. Others give the proportion of scars to ulcers as 2 to 1 or 3 to 1. More recently Stewart⁵ has paid special attention to this subject, and in 4,000 necropsies found chronic gastric ulcers in 2.2 per cent. and scars of chronic ulcers in 2.3 per cent. This is very valuable information, for it shows that 50 per cent. of chronic ulcers undergo spontaneous healing, and the healing of acute and subacute ulcer is well known to occur more easily than that of the chronic variety. Stewart found the scars of duodenal ulcer to occur with about the same frequency as open ulcers (2.8 to 2.4). Ulcers heal more easily than these figures indicate, for in such statistics there is no knowledge of the opportunity for healing which has been afforded to most of them, and it seems probable that all these ulcers did not have adequate medical treatment. Here again we see that if more recent ulcers were included in the list healing would probably occur in not far short of three-quarters of the cases.

(b) At an operation undertaken for a supposed ulcer, a scar is not uncommonly found in its place; either the ulcer has already healed owing to postponement of the operation, or the pain was due to nervous irritability of the stomach, which had been previously the subject of an ulcer. Many examples of this kind, both gastric and duodenal, have come under the notice of physicians. I have had four such experiences myself, three of them being

duodenal. It is also a well-known fact that excised ulcers are frequently found to be advanced in healing.

(c) In death from *gastric haemorrhage* I have already pointed out that, in the case of acute ulcer when the patient has survived for a time, the ulcer will be invariably found to be rapidly healing, and in some cases it is healed up to the mouth of the bleeding artery, which thus appears to be embedded in the centre of a scar.⁶ In another class of case, fortunately rare, of which I have seen two examples, during the systematic treatment of a more chronic ulcer a sudden haematemesis has carried off the patient. The ulcer base was filled with granulation tissue, and the mucous membrane all round extended on to the base in a perfectly normal manner. An artery in the centre had suddenly commenced bleeding.

C.—X-Ray Evidence.

The *disappearance of the ulcer niche* under medical treatment occurs commonly enough, and is valuable evidence of the healing of gastric ulcer, but unfortunately it is of little use in duodenal ulcer. Since Ohnell in 1917⁷ published his cases of niche disappearance as a sign of healing of gastric ulcer, several groups of cases have been published, showing this disappearance under different forms of medical treatment. There are certain errors of the niche which should be easily avoided by a careful radiographer—for example, a loop of small intestine may cast a shadow behind the stomach, or the rare condition of gastric diverticulum may simulate a niche; even calcareous glands along the vertical column have been mistaken for it. These conditions having been excluded, a niche is indicative, not only of a chronic ulcer, but also of the acute or subacute varieties, for I agree with the opinion expressed a little while ago by Barclay⁸ on this subject. Disappearance of the niche in general means healing of the ulcer. This must not, however, be taken as an absolutely accurate statement, for filling up with granulation tissue and contraction of the ulcer may cause disappearance of the niche, although the base of the ulcer is uncovered by mucous membrane, and such a condition has been found at operation. On the other hand, I have had two cases operated on for persistence of the niche, and depressed scars only were found. Disappearance of the niche has been recorded in 71 and 91 per cent. of cases,⁹ and its reappearance has also been noted.¹⁰

III. AN ADEQUATE MEDICAL TREATMENT.

I shall now give a brief outline of an adequate medical treatment. It is one which I have been accustomed to employ for many years, but there are many other well-known methods, all no doubt fulfilling the required conditions equally well.

All the prevailing medical treatments aim at facilitating the emptying of the stomach and reducing the acidity of its contents, since delayed emptying and hyperchlorhydria prevent cicatrization,¹¹ and it is the correction of these disorders which brings about the healing of the ulcer.¹² As I have already indicated, the first object in treatment is to promote the healing of the ulcer in question, and the second to endeavour to prevent future ulceration.

A.—To Heal the Ulcer.

The disordered gastric functions are righted by diminishing the work of the stomach and affording it as much rest as possible. The patient is put to bed for an average period of four to six weeks, because the gastric functions are more easily restored in an organ at rest than when subjected to nervous and physical disturbances; and, the requirements of the body being less, the work of the stomach may be reduced by diminishing the quantity of food with less serious effects upon the general nutrition than when the patient is following his ordinary calling. When all symptoms have disappeared and two or three weeks have elapsed, the work of the stomach is gradually increased by adding to the food up to the full diet the patient is to live on subsequently. He then gets up and enters upon the ambulatory stage of his treatment. The diet should be one which calls forth the minimum quantity of gastric juice and which has the maximum combining power with hydrochloric acid. Finely disintegrated and

non-irritating food, which passes easily through the pylorus, relieves pyloric spasm and reduces acidity; by facilitating the emptying of the stomach it reduces hypersecretion. The food to begin with should, of course, be liquid. Beef-tea and meat extracts should be particularly avoided, because they contain very little protein to combine with the acid; they excite a maximal flow of gastric juice, and have a low nutritive value. On the other hand, milk excites a much smaller flow and has a very good combining power with hydrochloric acid; my practice is to give it not only as a preliminary food, but throughout the treatment with each meal. In a straightforward case 7 oz. of citrated milk are given every three hours—at 7 a.m., 10 a.m., 1 p.m., 4 p.m., 7 p.m., and 10 p.m.—which diet the patient continues for a week. At the end of this time raw egg beaten up with milk (strength, one egg to half a pint of milk) is substituted for three of the milk feeds—namely, at 7 a.m., 1 p.m., and 7 p.m.—for another week or two. This is the diet for the first two or three weeks, the latter for preference; and now it is gradually built up at these times into three meals a day with three milk feeds alternating. This process takes another three weeks; thus:—*First week*: a thin slice of bread-and-butter is added to the three egg and milk feeds; the egg is lightly boiled; pounded fish (sole, plaice, whiting) substitutes one of the eggs; and, lastly, pounded chicken substitutes a second egg. *Second week*: a cereal such as arrowroot or ground rice boiled in milk, or custard, or junket, forms a second course to the fish and chicken; ordinary fish stewed in milk and ordinary chicken substitute the pounded foods; milk pudding with stewed apples or prunes (seived) form the second course. The patient may now commence getting up, but it is better to delay for another week. *Third week*: mashed potato and sieved greens are added; minced mutton and then ordinary mutton are given; the milk with meals is continued the whole time. The first meal is given at 8 a.m., and the 10 a.m. and 10 p.m. milk feeds are omitted, so that the patient is taking three meals a day at the ordinary times, and milk for his 4 p.m. meal. The diet is further increased up to a permanent one by the addition of other kinds of white fish, tender beef once a week, cold boiled bacon or ham, stewed lamb's tongue, calf's head, tripe, sweetbread, rabbit; a further variety in vegetables, omitting those of coarse fibre; an addition to the second course in the shape of pudding made with bread or sponge cake, and stewed fruit, except the sour varieties and those containing seeds or coarse fibre; he is on stale bread, dry toast, biscuits, rusks, and his cakes are best limited to sponge, rice, or madeira. Hitherto he has been drinking milk with each meal, and now he may have, if he wishes, coffee with milk, and weak tea, each once a day. A glass of water before breakfast and at bedtime is a good practice, and he must masticate thoroughly and be careful not to rush his meals, taking a little rest before and after each. Fried foods, soups and meat extracts, and preserved and salted or second-cooked meats, together with such condiments as pickles and so on, are to be avoided. His teeth are to be put in order, and all sources of ill health, such as septic foci, removed as far as possible.

Administration of Alkalis.

The administration of alkalis is a necessary part of the treatment of ulcer, because hyperchlorhydria is so commonly present, and they should be given in the later stages of digestion.¹³ My plan is to give magnesium oxide 10 grains and sodium bicarbonate 15 grains three times a day, two hours after the chief meals (that is, those at 7 a.m., 1 p.m., and 7 p.m.); and sodium bicarbonate 15 grains two hours after the intervening milk feeds (that is, those at 10 a.m., 4 p.m., and 10 p.m.). Calcium carbonate 10 grains is substituted wholly or in part for the magnesium oxide if the motions are too loose. The phosphates of calcium and magnesium have more recently been used as antacids. There is no danger of alkalosis, as in the unnecessary "intensive alkali treatment" of Sippy,¹⁴ by their employment; but they are inferior to the alkalis I have mentioned in neutralizing power, which, given in the amounts I have prescribed even for long periods, produce no ill effects.

Belladonna.

Hypersecretion tends to subside like the other pathological processes with the above treatment, but it may be troublesome in the night, and here atropine is of value. Given before food, or in the early stages of digestion, atropine to some extent lessens the secretory response to food, but its chief use lies in its ability to relax the pyloric sphincter and thus bring down the acid curve by neutralization. It is not really necessary unless one is dealing with an obstinate case, and the mouth may become

FIG. 1.—Drawings from radiograms of H. H. (female, 54 years of age). Ulcer on small curvature. (a) October 30th, 1929. Before treatment—ulcer niche. (b) December 18th, 1929. After treatment—ulcer niche disappeared.

FIG. 2.—Drawings from radiograms of J. H. (male, 49 years of age). Ulcer on small curvature. (a) October 25th, 1929. Before treatment—large ulcer niche. (b) November 26th, 1929. During treatment—ulcer niche much smaller. (c) January 14th, 1930. After treatment—ulcer niche disappeared.

FIG. 3.—Drawings from radiograms of T. A. (male, 47 years of age). Ulcer on small curvature. (a) May 1st, 1929. Before treatment—large ulcer niche. (b) September 10th, 1929. After treatment—ulcer niche disappeared.

dry with the treatment. If, however, continuous hypersecretion is found to be present by the tube, and the acidity of the resting juice is high, atropine is to be given at bedtime in doses of 1/50 grain. It has been shown easily to limit this interdigestive hypersecretion, and herein lies its real value.

The treatment outlined above heals an ulcer quite well. Figs. 1, 2, and 3 are tracings of the x-ray appearances seen in three patients successfully treated in my wards at University College Hospital within the last few months, and which are shown by way of illustration. All observers find this, as I have already stated, to be quite a general rule; and, coincident with the disappearance of the crater, occult blood vanishes from the stools. Before freeing the patient these two tests, if they can possibly be applied, should be employed to prove that the ulcer is healed.

B.—TO PREVENT FUTURE ULCERATION.

The medical treatment having been administered and the general health restored, the patient is advised as to his habits and instructed to live permanently on the diet ordered. If he wishes to vary his diet he should see his medical attendant and ask his advice on the subject; and if any symptoms appear he is to get rid of them immediately by energetic treatment. He vanishes from our sight, and the subsequent course of events chiefly depends on himself. Some patients report their progress from time to time and scrupulously follow our advice, and, of these, recurrences occur in the old chronic cases only. The majority, however, doubtfully do so, and among these are most of the failures. When the patient is quite well many difficulties stand in his way. I need not enumerate these to you, who by your profession are students of human nature. All the manifold causes of dyspepsia gradually encroach; the lure of old habits and the exactions of business lead to forgetfulness in the healthy man, and an imperceptible return to the old manner of living. The position is summed up in the answer I received the other day from one of my old patients on inquiry as to his condition: "With a little self-denial I am in perfect health."

IV. THE PART PLAYED BY SURGERY.

A consideration of the above observations shows that medical treatment, efficiently applied, will heal the majority of ulcers; the intractable ones being those which are already too old and thickened, or have developed some complication when they come under the notice of the physician. In such cases, when medicine has failed, more drastic and more effective measures are obviously needed. The point at issue is when an uncomplicated chronic ulcer of the stomach or duodenum should be regarded as a fit case for surgical intervention, because there can be no question as to the surgical treatment of complications, except haemorrhage. This latter condition is not an indication for surgery, except, possibly, in rare cases.

It must be laid down quite definitely at the outset that no case should be handed over to the surgeon unless it has been proved incurable by medical means; and in making this statement I have the support of Moynihan¹⁵ and other distinguished surgeons. I have described how a case should be treated, and an inquiry should first be directed to ascertain what medical treatment the patient has had, and what have been his subsequent instructions and conduct. I may, perhaps, here restate the observation already made: that it is a matter for regret that so many cases are allowed to drag on for long periods of time without having had any systematic treatment for ulcer at all. If the patient has had satisfactory bed and ambulatory treatment the question arises as to whether he should be given further medical treatment or handed over to the surgeon. Every case must be judged separately on its merits, and the following points given due consideration: (1) the duration of the illness; (2) the length of the intervals of freedom from symptoms; (3) the length of time the patient has remained well since his treatment; (4) whether the recognized tests show that an ulcer is present. All these points are, of course, interdependent upon each other.

1. The duration of the illness is of the greatest importance, because, as we have seen, the older the ulcer the more difficult is the healing process. In a general sort of way it is a good rule to try further medical treatment if the duration of the illness has been no more than six or twelve months. If, on the other hand, the malady has been present for five years or more, it will be found, generally speaking, that an operation will be necessary. An onset with haemorrhage and attacks of haemorrhage at intervals are, of course, more reliable guides to the duration of the malady than pain. It is its significance as to the age and persistence of the ulcer which indicates operation, rather than the fear of further haemorrhage, because our aim is to heal all ulcers whether they bleed or not.

2. The length of the intervals of entire freedom from symptoms may indicate whether one is dealing with a single ulcer from start to finish, or with multiple recurring acute ulcers; for example, three or four years of complete freedom is commonly an indication of recurring ulcer,

whereas shorter intervals—say, six months—indicate a single ulcer. More significant of recurring acute ulcer are attacks of haemorrhage without pain—for example, if the haemorrhage has recurred at intervals of several years, with the total absence of symptoms in the intervals, the case should not be operated upon; whereas if pain has been present between the attacks of bleeding, it is probably one ulcer from start to finish, and the indication is towards operation.

3. A relapse within six or twelve months after the treatment would point more strongly to an operation than if relapse occurred after two and a half to three years.

4. No patient should be operated upon, even if there were clinical indications in favour of it, unless the presence of an ulcer is confirmed by the recognized tests.

These remarks are to be taken in a very general sort of way and as indicating how a case of relapse should be summed up. All these indications are, of course, subject to those obtained from the general condition of the patient and to his circumstances. For example, old people and those with some concomitant disease should not be subjected to operation unless the latter is absolutely necessary; and those in poor circumstances, and who cannot afford to give medicine a thorough trial, may prefer to take the shortest cut that affords a fair prospect of relief. Again, if, owing to the severity of the symptoms, wasting occurs from inability to take sufficient food, or anaemia from recurrent haemorrhages, operation is indicated.

V. SURGICAL INVALIDS.

It falls to the lot of the physician to see annually a certain number of unsuccessful operation cases, and he naturally wonders in each case whether the wisest course has been pursued in subjecting the patient to operation, and whether the most suitable operative procedure has been adopted. The particular operation selected must always be decided by the surgeon at the time of operation and determined by the conditions present, so that a variety of possible operations must always be available for use. There are definite principles, however, which should guide him in his selection, and which are based upon what we know of the pathology of peptic ulcer. We expect the surgeon not only to deal with the existing ulcer, but, in addition, so to alter the mechanism of the stomach as to ensure permanent achlorhydria and free emptying, so that immunity from future ulceration either of the stomach or the jejunum is assured. The first surgeon to insist upon reduction of acidity as being an essential to success was Paterson.¹⁶ In order to protect the jejunum complete achlorhydria should be established by the operation, so that not only is the necrosing effect of hydrochloric acid eliminated, but also its action in activating pepsin.

The unaided stomach is not able materially to reduce the acidity of its contents, but this is normally kept in check by partial neutralization by regurgitation of the duodenal contents through the pylorus, the neutralizer being the pancreatic alkali—not the bile, as is sometimes erroneously stated. Pyloric spasm is commonly present in ulcer, and this condition prevents duodenal regurgitation, thereby maintaining a high acidity, especially if hypersecretion is present, and delays the emptying of the stomach. The surgeon alters this abnormal mechanism of the stomach by making a new outlet into the intestine, thus negating this effect of the pylorus. With this end in view he either performs a simple gastro-enterostomy, or excises the pylorus together with varying portions of the stomach, anastomosing the intestine and stomach. Free emptying of the stomach is thus assured, and in many cases free regurgitation of intestinal contents into the stomach, thereby establishing the condition of achlorhydria. This desirable result is not, however, invariably attained, for, although the emptying may be satisfactory, in many cases regurgitation is defective, with the result that the acidity of the gastric contents remains as it was before the operation, or is only partially reduced. The patient thus runs the risk of jejunal ulcer, of a new gastric ulcer, or of his original ulcer remaining unhealed. This risk is small after partial gastrectomy, but is very real after gastro-enterostomy. The frequency of jejunal ulcer after gastro-enterostomy is not accurately known, because

in addition to those ulcers which are operated upon there are acute ulcers which heal and recur, only revealing their presence by occasional bleeding, and ulcers in a later stage which cause pain and are very difficult to diagnose. It is particularly seen after the operation has been performed for duodenal ulcer, due no doubt in part, but not chiefly, to unrelieved hypersecretion, since the neutralization is a question of balance between acid and alkali.

In the absence of hydrochloric acid a stitch ulcer may no doubt arise, as in any other part of the body, but the occurrence of such an ulcer would be of relatively little importance. However high the percentage of successful gastro-enterostomies, we are still confronted with this fundamental inadequacy of the operation—that its power of permanently reducing the acidity of the gastric contents to the safety level is uncertain. This very materially detracts from the value of the operation, the ultimate result of which in any given case can never be accurately foretold. There is no mortality percentage in medical treatment, and if it fails the patient is no worse off. In addition to the mortality percentage of surgical treatment, if it is unsuccessful the lot of the patient is not uncommonly worse than before, and in some cases it is truly deplorable.¹⁷ When a necessary operation is performed for an ulcer which has obstinately resisted medical treatment, the mortality percentage and complications of the operation may be put aside; but it is a different matter when it is performed for an ulcer which is easily curable by medical means, and the patient should not be subjected to it unless such means have been tried and proved a failure. There are therefore several problems which it is urgently necessary for the surgeon to solve.

CONCLUSIONS.

1. Gastric and duodenal ulcers are primarily medical diseases.
2. The majority of ulcers will heal by an adequate medical treatment, if it be thoroughly employed at a reasonably early stage of the malady.
3. The patient must for the rest of his life obey the dietetic and other rules laid down after he has been treated, otherwise he is liable to a relapse, especially if the treatment has not been employed at a comparatively early stage of the disease.
4. An uncomplicated ulcer should not be subjected to operation until it has been proved incurable by medical treatment.
5. If proved incurable by medical treatment, either as to the healing of the ulcer or the prevention of a recurrence, an operation is indicated with the reservations mentioned.
6. We expect surgery, in addition to healing or removing the ulcer, so to alter the gastric mechanism that recurrence is impossible; but since this result is at present uncertain, the gastric contents should be examined after every operation, and unless achlorhydria is established, the case should be handed back to the physician for medical treatment.
7. It is essential that greater attention should be paid by medicine to the treatment of dyspepsia and the early diagnosis of ulcer; when this malady is recognized an adequate medical treatment should be at once instituted.

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