

headaches, operated for a supposed abscess and found thrombosis of the vessels with softening. No doubt errors of a similar nature occur much more frequently than might be inferred from a perusal of the literature.

It should be emphasized that the diagnostic difficulties may be further enhanced by the presence of optic neuritis, as shown by one of my cases, and a case recorded by Zacher with extensive softening of both frontal lobes and double optic neuritis.

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PRESENT STATUS OF GASTRIC SURGERY.

WITH ESPECIAL REFERENCE TO THE TREATMENT OF CHRONIC ULCER.

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"THE boldest suggestion ever made for stopping gastric hemorrhage is that of Rydygier, who advocates, in case hemorrhage from an ulcer threatens to be fatal, to cut down upon the stomach, search for the bleeding ulcer, and then resect it. . . . Rydygier's suggestion seems extravagant and unwarrantable."¹

This statement made to-day would seem remarkable and out of place, yet it is quoted from a system of medicine which is standard, though the above sentiment was uttered twenty years ago, two years before von Mikulicz performed the first operation of this character, and before Roux, of Lausanne, successfully ligated the coronary artery for hemorrhage.² Gross said, in 1867, and it is just as applicable to-day: "The advances in our knowledge in

medical science are without parallel in any age. Never was the medical profession so busy and industrious, so zealous and enthusiastic, so honest and exact in its views and its results, as it is at the present moment. It would almost seem as if the millennium were actually at hand. Look where we may, progress, rapid and brilliant, nay absolutely bewildering, literally stares us in the face, and challenges our respect and admiration. One is almost ready to exclaim: 'Behold all things are new!' The age is proud of its knowledge."³

Clinically, those diseases for which the surgeon offers his aid to effect relief were never so thoroughly studied, so minutely described in their pathological details, in symptomatology, or in their dangers or termination as was done by those two masters of the early decades of the last century, Cruveilhier and Rokitansky; and with the exception of the more recent work in blood and stomach analysis there has been nothing new in gastric ulcer since their day; and it remains to be seen whether these last have really redounded to any practical good to the every-day worker. We will have occasion to refer to this again further in our paper.

The surgery of the stomach is a thing of recent date; so new, in fact, as to be within the memory of many of us. Suggestions were made early, but until the advent of asepsis the results were, as a rule, so uniformly disastrous as to deter physician, surgeon, and patient. The opening quotation reveals the surprise and contempt with which a suggestion of life-saving surgery was met with as late as 1885.

The oldest operation on the stomach was done for the removal of foreign bodies: by Crolus, in 1602, for removal of a knife, and a similar operation by Guenther, in 1613. These were gastrotomies.⁴ Though successful, the operation met with little favor, and as late as 1887 only thirteen cases had been reported.

Gastrostomy⁴ was not done on man until 1839, when Sedillot did the first operation, though the result was unsuccessful. Thirty-five years later the first recovery took place after an operation by Sidney Jones, it being his third operation of this nature. The indications for the operation are limited; however, when these are present it is one that has proved of very high value, and the results have been so uniformly gratifying that its status is firmly fixed as a life-saving surgical procedure, in regard to the employment of which there is never the least quibble.

Of pylorodiosis,⁴ first introduced by Loretta in 1882, and to which the name Loretta will always be associated, we can only say that it has not found the place among surgical operations that its originator had hoped for. The mortality and results from a curative standpoint in cases of benign obstruction were so much better after the operation of Heineke (pyloroplasty), first done in 1886, that Loretta's operation must have a very limited field.

Pylorectomy,⁴ suggested by Merrien in 1810, performed first by Pean in 1879, and by Rydygier in 1881, though unsuccessfully, was highly exploited by Billroth and Wolfler, and is one that has come to stay, and that occupies a place in gastric surgery second only to that of gastroenterostomy,⁴ which was first performed September 27, 1881, by Wolfler as an accessory to pylorectomy to procure rest for the stomach. His patient, one with cancer, lived four months. The results of Hahn with fifteen and of Doyen with twenty-one successive cases without a death did much to establish the operation on a firm basis.⁴ These operations were done in cancer cases.

Directly in the line of gastric ulcer, with which I propose largely to deal in this paper, we find Rydygier had, in 1881, done a pylorectomy for chronic ulcer on a female aged thirty-three years. The patient made a perfect recovery, which was permanent.⁵ Van Kleff, Czerny and other operators soon followed in the successful treatment of gastric ulcer by pylorectomy and excision. In 1893 Doyen, as an additional safeguard in the treatment of these cases, introduced gastroenterostomy for the rest thus secured, just as Wolfler had done for carcinoma. Since these "pioneer days" great activity has been manifested in the treatment of simple and malignant diseases of the stomach. Gastric ulcer and its complications and sequelæ, especially, have received the attention and operative skill of Czerny, Durivier, Monod, Kuster, Novaro, Triconi, Kussmaul, Moynihan, Robson, Mayo and many lesser lights.

In the treatment of cancer of the stomach we are at once confronted with the proposition: Is the disease removable; if not, can anything be done to prolong the patient's life, or to relieve starvation and pain from obstruction?

Schlatter⁶ has successfully removed the entire stomach from a female, doing an œsophagoenterostomy. Results showed vicarious action of the bowel for all gastric functions, this proposition of substitution of intestine for stomach having been the greatest difficulty in the consideration of the operation. The bowel was in this case observed to have fully compensated by a process of gradual dilatation. Bernays, of St. Louis, Richardson, of Boston, and a few others have reported cases of complete gastrectomy. Such extensive operation should be necessary in only the smallest number of cases. In by far the greater number should we be able to eradicate the disease with any degree of certainty it can be done by a partial gastrectomy or, better still, by pylorectomy. This would mean that the disease should be operated earlier, and just here is where we meet our first obstacle. We believe this can, to a great measure, be overcome by earlier diagnosis. As stated, we believe that entirely too much reliance has been placed in chemical and other analysis of stomach contents, and we may add that not sufficient import is given the clinical history and aspect of the case.

We are placing too great reliance upon our laboratory colleagues (for whom I have the highest regard) to the utter exclusion of our practical diagnostic ability.

In waiting for laboratory confirmation we may lose much valuable time, and I would suggest as a much more safe proposition early exploratory incision in doubtful cases where there is clinical suspicion of cancer, even though unconfirmed by chemical and other examinations.

And another thing, do not believe the case inoperable because there may be a tumor present. A movable tumor of the pylorus, cancerous in character, is, as Mayo⁷ has shown, often susceptible of total removal, and is, even at times, a favorable indication. Clinical experience has shown that the dictum of tumor, meaning inoperable disease, is not true, and it will not hold.

When we bear in mind the disease for which we are operating and its unavoidable fatal ending if left alone, we will not agree that these procedures for relief have a high death rate, too high to recommend to our patients. The mortality in forty-one cases operated by the Mayos is about 17 per cent.; in their last eleven cases there was no death.

Considering all these things—*i. e.*, the length of time and the men who have been doing this work, its excellent results in the class of cases applied to—we feel sure that the operation should occupy a more prominent place, and that it should and will achieve a surgical position.

Many will doubtless say: But our patients will not submit thus early to an operation where the diagnosis may be uncertain. We answer, as we do concerning the surgery for gastric ulcer, aye for appendicitis or gallstones: It is not the patient who refuses to submit, but the family physician, who refuses not only to concur, but counsels against the surgeon's advice, as being possibly unrequired or experimental, or for some equally cogent (?) reason. The family physician must co-operate with the surgeon and should realize that the surgeon has no ulterior motive in his advocacy of surgical principles, but that, like him, it is the welfare of the patient only that he has in mind. It is only within the past fortnight that a friend of mine operated upon a malignant breast tumor which had been treated for two years by a capable and reputable practitioner by a salve. I believe this practitioner knew better, because I am sure he could make a diagnosis. If he could not, he should have had a surgeon see his patient. If he knew better, the operation should have been done eighteen months or two years ago. Shame be it for me to say that here in Louisville, yes, in the State of Kentucky, patients are dying daily with appendicitis, with strangulated hernia, and all, so the notices say, after an illness of five or six days. What does this mean? Why is it? Very recently I heard an eminent surgeon say, and he was corroborated by others, that in his city there had not been a death from strangulated herina for six or

eight years; that the doctors never let them go so long; that his town-physicians were better educated. As I say, it is not the patient, it is too often yourselves who delay. "Deferred too long" might be put as the cause of many a death.

Cancer is essentially a disease that should be removed even upon suspicion; and as with breast tumors, so with gastric tumors or disease. Just as soon as symptoms present showing the least obstruction, or which might be in any way interpreted as from obstruction, just so soon should we have a suspicion of cancer, and, if unable to very shortly absolutely satisfy ourselves as to the benignity of the symptoms, an exploration should be advised.

That a perfect *restitutio ad integrum* occurs after pylorotomy has been shown beyond a doubt. In a case examined by Maresch⁸ a pylorotomy had been done more than two years previously. The pylorus was not converted into a thickened cicatricial tube, but in the region of the sphincter there was a marked thickening of the remaining muscular tissues, compensating completely for the removed portion. This compensation or substitution of function seems quite marked in the digestive tract, as was also shown in Schlatter's case.

Rodman⁹ has recently again brought forward the operation for certain cases of gastric ulcer as being better suited than gastroenterostomy; and when we consider the results which occasionally succeed upon the latter, we should again say that this procedure should occupy a more prominent place in surgery.

Saupault¹⁰ reports two cases in detail, and refers to twelve others which he had referred to the surgeon for pylorotomy. These patients had hyperchlorhydria and gastrorrhœa without stasis. All had pathological alterations about the pylorus, but were cured completely after the operation, some having remained well after four or five years. Bloodgood¹¹ also reports a case of resection for early ulcer, and advocates complete resection in cases of indurated tumor, freely movable or only slightly adherent. Permanent relief follows in simple ulceration. The absence of vicious circle, of peptic jejunal ulcer, of regurgitation, the complete restoration of function after resection, the removal of possible scar tissue which may be transformed into malignant tissue, should be sufficient reason for a careful consideration of the operation in selected cases, notwithstanding the slightly higher death rate. We believe the good achieved in these certain indicated instances more than counterbalances the possible increased risk.

The consensus of opinion seems, however, to be that chronic gastric ulcer and its sequelæ, excepting perforation, are best treated by a properly performed anastomosis between the stomach and the jejunum, the operation known as gastroenterostomy, thus short-circuiting the stomach contents around pyloric obstructions or ulcers and draining the viscus of its contents more quickly, giving

rest and promoting healing of abraded or bleeding areas. The operation was first suggested by Nicoladoni in 1880, and first performed by Wolfier, who united the jejunum to the anterior stomach wall, on September 27, 1881, the patient surviving four months. Wolfier's operation was succeeded by that of von Haecker, who advised and did the posterior anastomosis, which in some modification is the one generally carried out to-day.

Seven years ago, comparatively early in the history of gastric surgery, Hydenreich¹² insisted on the necessity of calling in the aid of surgery in dealing with obstinate gastric ulcer, stating that gastroenterostomy offered less danger than the disease itself. His present knowledge confirms his views. With the advance of surgical technique the mortality from gastroenterostomy has diminished to such an extent as to bring the operation within the reach of comparative safety; in fact, the danger from an operation in skilled hands should be only 5 per cent., which is quite small when compared with the dangers involved in ulceration of the stomach treated by internal and general therapeutics (20 to 50 per cent. according to various authorities). In the majority of cases of relapsing or intractable gastric ulcer surgical treatment is the only satisfactory method of procedure.¹³

Deaver¹¹ recommends the operation for the *complications* and *sequelæ* of gastric ulcer, stating that the chief indication for the operation exists in all lesions of the stomach where the gastric contents are not evacuated, whether the retention be due to benign mechanical obstruction, to an inflamed or ulcerated pylorus, or to atony of the gastric muscle.

This disease is liable to two very serious accidents—namely, perforation and hemorrhage. Among the complications and sequelæ which may require interference are obstruction from contraction of cicatrix about the pylorus, hour-glass stomach, muscular atony or motor insufficiency from contractures or adhesions, perigastric adhesions, abscess formations, and fistulous communications. For fear that, as a surgeon, my indications may be not sufficiently clear or possibly too radical, I would quote from Leube¹⁵ on the *Surgical Treatment of Gastric Ulcer*. I use Leube's table of indications because he has been so frequently cited by some of our medical friends as opposed to surgical aid, and as being able to cure 98 per cent. or more of his cases by internal medication.

He says that: 1. In gastric hemorrhage surgical interference is (a) indicated in uncontrollable hemorrhage repeated at short intervals, especially when combined with gastrectasis; (b) contra-indicated in a single profuse gastric hemorrhage; (c) relatively indicated in frequent repetition of profuse gastric hemorrhage.

2. In severe pain, continued vomiting, and subsequent uncontrollable inanition, gastroenterostomy is relatively indicated, but in such cases only where prolonged strict internal treatment of the ulcer

has been given a trial and where long-continued absolute rest of the stomach has been secured by rectal alimentation and has remained effectual.

3. In perigastritis, in adhesions of the stomach and adjacent parts, in subphrenic and other peritoneal abscesses, surgical interference is (a) positively indicated in abscess arising from the ulcer and in palpable inflammatory thickening and infiltrations of the stomach, having more or less similarity with tumors; (b) not indicated (or exceptionally indirectly indicated after absolute exhaustion of internal therapeutics) in cases where adhesions of the stomach to its surroundings seems possible from the clinical symptoms but where they cannot be demonstrated by palpation.

4. In perforation of the stomach into the abdominal cavity operation is positively indicated, and should be performed as early as possible, waiting for the initial shock to pass over, but within the first ten hours after perforation has occurred. In threatened perforation operation is contraindicated, the indication here being not for surgical interference of any kind, but for opium and total abstinence from food.

Mikulicz considers the danger to life as probably greater from an open ulcer than from surgical interference, which he believes justifiable in all cases where internal treatment has proved unavailing. He gives as the general indications for surgical intervention:

1. Phenomena directly or indirectly hostile to life (frequent hemorrhage, progressive emaciation, beginning suppurative peritonitis, suspected carcinoma).

2. Absent or transitory results from methodical and repeatedly resumed internal treatment, the patient's general condition and working capacity being seriously disturbed by pain, dyspepsia, and vomiting.

As to *perforation*, there seems to be no longer the least shadow of a doubt as to what is the best line of treatment to follow. All authorities are agreed that the only hope practically of saving the life of the patient is immediate operation and suture of the perforating ulcer, with suitable toilette of the peritoneum to take care of the infection. So many successful cases have been reported by Scudder,¹⁶ Guibal,¹⁷ Goodwin,¹⁸ Howitt,¹⁹ Gross,²⁰ Robson,²¹ Moynihan²² and others that it would be criminal to treat such a case in any other way than by operation.

Gross²⁰ in a monograph extending over the previous year gives a complete survey of the literature and a summary of the details of 405 reported case.

Granting, then, the imperative demand for operation in perforation, its recognition is not always an easy matter. It may be mistaken for appendicitis, gall-bladder disease, pancreatitis or any other acute local peritoneal inflammation. The risk of operation, however, is definite, the hazard of delay is immeasurable.

Diagnosis is more difficult in the case of the subacute or chronic ulcer which perforates slowly, resulting in perigastritis without pus or acute symptoms, or in abscess, omental or subdiaphragmatic. These latter may be so slow in their development as to be entirely overlooked until the abscess has existed for some time and quite a quantity of pus has been formed. It is often too late to save the patient by any plan of treatment. In acute perforation, on the other hand, recognition should be early and the good to be accomplished is in direct proportion to the early diagnosis. The symptoms are always marked and indicate grave intra-abdominal trouble and in early cases, doubtful or clear, demand immediate operation.

"The immediate symptoms of acute perforation are first, sudden, agonizing, overwhelming pain in the region of the stomach, sometimes tearing in character, often with the sensation of something having given away. This pain is frequently so intolerable that the patient falls to the ground and even may become unconscious. . . . The pain rapidly spreads, following the gastric contents to other parts of the peritoneal cavity. If the perforation be near the pylorus or in the duodenum, the stomach contents flow over the hillock of the right transverse mesocolon into the right kidney pouch, and from there into the right iliac fossa, which accounts for the fact that many of these cases are diagnosed as appendicitis. Rigidity and tenderness of the abdomen soon follow, together with profound collapse. The absence of liver dulness is a symptom upon which some authors place considerable reliance, but if the stomach does not contain considerable gas at the time of the perforation the liver dulness will not be changed."²¹ Great reliance may be placed on the board-like rigidity which is present.

We may then say of the surgical treatment of that complication, in which before 1894 we were helpless, or what we did was harmful, that at the present time the omission of such treatment would constitute criminal negligence. Without it the death rate exceeds 95 per cent., with it the prognosis is influenced by the timeliness of diagnosis and operation. Individual observers vary as to the advisability of waiting for the initial shock to pass over before operating. However, the general trend of opinion is against all unavoidable delay. The chances of recovery are reduced by more than one-half where surgery is called upon more than twelve hours after perforation. The dexterity of the surgeon must be preceded and equalled by the diagnostic skill of the physician.

POINTS TO BE CONSIDERED IN SURGICAL INTERFERENCE. Prevention of delay, avoidance of morphine, determination of nature of the last meal, and of interval between it and the occurrence of perforation, position of patient at the time of perforation (the erect attitude limits to some extent the passage of gastric contents into the peritoneal cavity).

Excision of the ulcer is not generally attempted, on account of the

risk of hemorrhage and increased shock from prolongation of the operation. Partial excision and removal have been carried out to meet special requirements. Usually the opening is closed by insertion of sutures, a continuous suture taking in all the coats of the stomach being the one most commonly employed, buried afterward by a row of Lembert sutures. The treatment of the ulcer itself is succeeded by careful cleansing of the peritoneal cavity and drainage.

Ulceration of the stomach or duodenum associated with bleeding, acute or chronic, demands *surgical treatment* for two reasons:

1. Arrest of the hemorrhage.
2. Cure of the causative ulceration.

Perforation and hemorrhage are liable to occur even in the mildest cases of gastric ulcer, and with such suddenness from accidental rupture that the patient's safety stands in direct ratio to the timeliness and promptness of surgical interference. Palliative methods are not only uncertain, but a source of positive danger, hemorrhage from the stomach being a very frequent and very fatal complication of gastric ulcer. From the surgical point of view, exact diagnosis concerning the location of the ulcer and presumably the hemorrhage is important and valuable for the determination of general treatment and operative procedures.

The first operation for hemorrhage from gastric ulcer was performed by Mikulicz in 1889. Roux operated successfully in a case of ulcer with hemorrhage from the coronary artery, excising the ulcer and ligaturing both ends of the artery.

According to Moynihan, operative intervention is *hazardous* in *hemorrhage from gastric ulcer*. On the other hand, a continued bleeding will, in certain cases, inevitably result in death. Two plans may be followed in dealing with gastric hemorrhage:

1. Search for the ulcer or ulcers and direct management by excision, ligation, cauterization, etc.

2. Indirect management of the hemorrhage by performing gastroenterostomy as speedily as possible. Whilst the former method is the more rational and desirable it is not always feasible (excision of the ulcer or direct treatment of the bleeding point may be impossible) and the performance of gastroenterostomy is then necessarily indicated. In all of the author's cases, gastroenterostomy led to an instantaneous cessation of the bleeding and to the speedy and complete healing of the ulcer. Arrest of the hemorrhage proved to be perfect and permanent.

In the experience of others, hemorrhage has been observed to recur after the gastroenterostomy, leading to a fatal termination. Kocher, Quenn, and Peterson report cases of this kind. For the bad results in certain other cases Moynihan holds a Murphy button which had passed into the stomach as responsible rather than the gastroenterostomy. The cases in which gastroenterostomy has failed to arrest

the hemorrhage are few, and in some of these a perfect anastomosis may not have been secured.

The safest course, and the procedure of election, is to determine and secure the bleeding first, whenever possible, with subsequent recourse to gastroenterostomy. In addition to the performance of this operation, Rutkowski and Witzel have suggested the advisability of gastrotomy, ensuring complete rest to the stomach for a period of six or eight weeks, without impairing the nutrition of the patient. In some cases, gastroenterostomy with jejunostomy may be performed. This combination is considered by Mikulicz as the operation of the future, and is at the present time habitually performed in Germany.

The following case illustrates intermittent hemorrhage in chronic gastric ulcer. The patient, a female, aged twenty-eight years, had a sudden attack of profuse bleeding from the stomach in May, 1898. She was in bed for six weeks, and during the eighteen following months she suffered from constant dyspepsia, with occasional vomiting and obstinate constipation. Then her health remained fairly good for six months, during which time her digestion improved considerably, until severe digestive disturbances developed in April, 1900, with recurrence of a profuse hemorrhage. A six months' course of treatment secured much benefit, but a third attack of hæmatemesis with syncope occurred in January, 1902. She remained in bed for four weeks at this time, and in September, 1902, had another equally severe attack of hæmatemesis. Constant treatment until January, 1903, resulted in very slight improvement. Anæmia had been present and prominent since April, 1900. Surgical interference had favorable results. A large ulcer was found in the stomach and another in the duodenum. The operation was a gastroenterostomy.

GASTRECTASIS. The indications in the various forms of *gastrectasis* are for *surgical treatment* whenever lavage and internal medication do not promptly accomplish definite and satisfactory improvement. The authorities strongly advise gastroenterostomy in dilatation of the stomach which fails to yield to general treatment, the operation being much more certain than pyloroplasty or pylorodiosis, without being attended with greater risk.

In the severe form of idiopathic acute dilatation of the stomach, gastrotomy may become the operation of necessity for opening and draining the stomach, or continuous drainage into the intestines might be secured by means of gastroenterostomy which has, however never been attempted in practice.

In atonic dilatation of the stomach, gastroenterostomy may meet the indications, whilst eventually the operations of gastrorrhaphy or gastroplication may prove the ideal surgical procedure for a certain number of cases without any form of mechanical obstruction.

Where gastrectasis is secondary to adhesions or stricture of the pylorus, gastrolisis or gastroenterostomy are called for respectively. Cramer²² recommends gastroenterostomy in dilatation of the stomach

from benign stenosis of the pylorus, especially in the high degrees, the operation to be performed at an early date to avoid loss of time by internal treatment. He advises operation in every case that shows no improvement after four weeks of rational diet and gastric lavage.

PYLORIC STENOSIS. Waterhouse²³ advocates gastroenterostomy for the cure of gastric ulcer not amenable to medical treatment after six months' perseverance. The signs and symptoms of progressive or persistent ulceration (repeated vomiting, hemorrhage, pain, anæmia, marked dyspepsia, hyperacidity, headache, emaciation) indicate gastroenterostomy as the only procedure of use for the relief of pyloric stenosis, with or without gastric dilatation. Waterhouse has performed thirty-one gastroenterostomies for chronic gastric ulcer and pyloric stenosis, with a mortality of 6.45 per cent. One death resulted from profuse hemorrhage three hours after gastroenterostomy had been performed for repeated hemorrhage from gastric ulcer. Three ulcers were found postmortem, from one of which (not discovered at the time of the operation) the fatal hemorrhage had taken place. Another patient died from exhaustion, the operation in this case having been performed upon a practically moribund individual.

DISTURBANCES OF MOTILITY. The indications are furnished by the disturbance of motility due to the presence of the ulcer, such as cicatricial stenosis of the pylorus, stenotic ulcer, perigastritis, and pylorospasm. The last-named condition has been distinctly observed by Fick²⁴ in one case after opening the peritoneal cavity—the entire prepyloric portion, which presented in the wound, being, for one and one-half minutes, in such constant and powerful contraction that the stomach bulged out of the incision. The pylorus was demonstrated as a hard, roundish tumor, which disappeared with the contraction of the gastric wall. It was possible to invaginate the stomach wall in such a way that the permeability of the pylorus was shown by the finger. With reference to special forms of surgical treatment, gastroenterostomy is preferred to pyloroplasty. Curative effects are sometimes absent, notwithstanding perfect function of the gastric fistula, for the reason that the operation can have a direct influence upon the disturbance of motility only, rather than upon the hyperacidity and the ulcer itself. Dietetics improve the prognosis.

With any of these complications, when it is seen that recovery cannot take place under medicinal treatment, it matters not how long this may be persisted in our duty to the patient becomes at once clear. With perforation and often with hemorrhages, notably those frequently repeated the condition becomes very shortly one of such gravity that no human skill is of avail. In the sequelæ, such as hour-glass contraction, pyloric obstruction, gastrectasis, perigastritis, the interference with proper stomach function is such that starvation, pain, anæmia soon reduce the patient to a condition that as a surgical subject he is most unfit, and the lowering of vitality is so great that recovery becomes a question of exceeding doubt. If our dyspep-

tics, our patients with chronic indigestion, were more closely investigated, not only would they be spared many of the sequels of this condition, but timely operation would save much suffering and discomfort, as well as enhance the possibilities of cure. We would not be understood as offering as a general proposition that every chronic gastric ulcer should be operated as soon as diagnosticated, but we do believe and maintain that this eventuality should be borne in mind, and that after a thorough course of medical treatment, properly carried out in intelligent hands without improvement of decided character, this eventuality approaches a probability and should be so stated to the patient. Moullin²⁵ thinks that every chronic ulcer that persists in the stomach and causes severe pain and vomiting, after *one* thorough trial of the ordinary method of treatment, should be exposed, examined, and treated surgically. Medical treatment should not for the reasons stated be given a too protracted trial, and while it is a difficult matter to fix an absolute rule as to the time for an operation in a patient with ulcer, the length of time for such treatment should be within reasonable limits. A thorough course of treatment can be carried out in from six to eight weeks. Surgical technique has been brought to such a degree of perfection at the present day that operation should be the method of election in the treatment of these patients after the above time under the care of a competent medical man. Patients in the final stages have not been accorded the benefits of modern surgical knowledge and skill, and, as already stated, to the operator they do not offer a fair field for the demonstration of the efficiency of surgical interference.

The operation of choice in ulcer will be a properly performed gastroenterostomy. I will not consume space by describing the technique of this procedure, but would refer to the article in the *Journal of the American Medical Association*, by Moynihan, p. 1971, vol. xliii., the number for December 24, 1904, for the description of the operation as now carried out. The only modification of this operation which may be of value may be that of an additional enteroenterostomy to short-circuit the duodenum; but this will be rarely necessary if the anastomosis is made close to the ligament of Treitz and the long loop discarded. This is essentially the operation as carried out not only by Moynihan, but by Mayo, Kocher, Czerny, Mikulicz, von Eiselberg, Korte, Kummel, Witzel, Hartman, Robson and others.

We find Krauss and at times Ochsner, who in his text-book advises the anterior anastomosis, the only surgeons of note who are not doing the posterior operation exclusively in ulcer cases. The mortality from this operation is not great. In nearly 500 operations by Mayo the mortality was very low, in the last 61 cases only one patient dying. From a very careful study of the literature, reviewing reports from all quarters and by many operators, the mortality does not seem to exceed 15 per cent., and when we consider the condition of many of these patients this to me is a most excellent showing. I

am sure that with greater experience and with our general profession educated as they should be in regard to this disease, we will be able to do what Moynihan²⁷ has done with his colleagues in medicine behind him, that is, report a mortality of two cases in 100 operations, and of these, one death was in a case operated for profuse and recurrent hemorrhage, fourteen others with the same condition being saved. Certainly such statistics are as gratifying as any in the domain of surgery and are far better than any statistics which have yet been presented giving results after medical treatment. Even Leube's results are not better, as will be seen from the following, quoted from Henry:²⁸

"Out of Leube's 556 cases only 12 died (*i.e.*, 2.2 per cent.), of which 6 died of perforation and 6 from uncontrollable hemorrhage. In 69 of the cases the method was not carried out in all its rigor, the patient leaving the hospital before the cure was complete. This leaves 424 cases, of which 314 (74.1 per cent.) were cured; 93 (21.9 per cent.) were improved; 7 (1.6 per cent.) were not relieved; and 10 (2.4 per cent.) died," and these are the best results ever obtained by anyone, being the ones so often quoted to, or against, the surgeon in his advocacy of the views I express. I might say that under surgical treatment these ten cases would have recovered.

We know that gastric ulcer is by no means an infrequent disease; Robson estimated that from 5 to 10 per cent. of the community is afflicted with it. In contradistinction to cancer it occurs in the second and third decades of life, and more frequently in the male, though acute ulcer occurs in preponderance in the female. The diagnosis does not depend upon any one symptom, though the most important is tenderness and pain referred to Brinton's or Cruveilhier's point. There is no doubt that many patients who have died from supposed malignant disease of the stomach have suffered from nothing but chronic ulceration. The induration which a persisting ulceration may cause is remarkable both for its extent and for its extraordinary mimicry of the appearance of malignant disease.

"Pain, following from a few minutes to several hours after eating, is a very constant symptom of gastric ulcer. It is variously described as gnawing, boring, or stinging, and corresponds to a point of tenderness about two inches below and a little to the left of the ensiform appendix. This is the so-called Brinton's point. If the ulcer is in the posterior wall of the stomach a similar point of tenderness is found a little to the left of the last two dorsal vertebræ, and this is known as Cruveilhier's point. Now, these would be pathognomonic were they found only in gastric ulcer, but may be mistaken for cholecystitis. However, nearly always in the latter condition we find the pain radiating on a level with the tenth rib to a point at the angle of the right scapula. The pain of gastric ulcer has a further significance in that it marks a relatively advanced progress of the disease. Vomiting and nausea are frequently associated with ulcer, but as these

conditions are common to functional gastric affections they are in no sense pathognomonic, but of considerable corroboratory value. The same may be said of hyperacidity, which condition is, however, said to occur in 90 per cent. of gastric ulcers.

"Periodic attacks of headache is a symptom often complained of, and frequently indeed patients seek aid for the relief of this when upon close inquiry we find it coincident with the gastric trouble."²⁹

Inveterate dyspepsia is in itself an ample warrant for surgical treatment. Cases are within the experience of all in which prolonged medicinal treatment, most thoroughly and carefully supervised, proves ineffective, or, if temporarily beneficial, is powerless to ward off the recurrence of dyspepsia. In such cases, be the physical signs what they may, an operation is desirable, and abundant justification for it will almost always be found when the stomach comes to be examined.

There are few beings so abjectly miserable as those who are the victims of intractable dyspepsia. The meal-time, which should be a delight, is a time of despair and foreboding. The keen relish of good food, which the man in physical health should appreciate, is a joy unknown or long forgotten to the dyspeptic. A patient who has misery written in every wrinkle of a thin, haggard face, who by reason of long suffering and bitter experience has felt compelled to abandon first one dish and then another, till fluids alone can be taken, and these not always with impunity; a patient, to say the truth, whose life becomes embittered by the pangs of a suffering which he must inflict upon himself, this patient will find, if a gastroenterostomy be done for the chronic ulcer which is the source of all his trouble that his return to health and appetite is at first almost beyond relief.

There is no operation in surgery which gives better results, which gives more complete satisfaction both to the patient and to his surgeon, than gastroenterostomy for chronic ulcer of the stomach.

I wish again to emphasize the fact that these dyspeptics should be considered as sufferers from chronic ulcer, and if we can rule out the appendix and gall-bladder as causes it becomes almost a certainty. I am prepared to say from my experience in abdominal surgery and from my own observations and that of other surgeons that all protracted gastric or intestinal disturbances are due to organic causes and are absolutely never functional. This may be a bold assertion, but if you see, as I have and as all surgeons who observe do, how these cases get well after operation, notwithstanding at times dieting and years of stomach washing and medication, you would be convinced of the large amount of truth in this statement.

Before closing the question of diagnosis I wish to pay my respects to the gastric analyst, and to say that while I believe to the utmost in chemistry and microscopy there is no question of the utter futility of test-breakfasts and stomach-washing in many of these cases. Too much reliance must not be placed in these analyses in excluding or

diagnosing ulcer. The methods and standards are so varied and so diversified that it seems impossible to place a proper estimate upon their value. Clinical diagnosis is what we want and more attention should be given to it, and when proper treatment fails to bring about complete, not partial, relief view the case from the surgical aspect. After a failure of general treatment, gastroenterostomy must be considered and performed as the most reliable procedure for the treatment of gastric ulcer either chronic or acute.

If there is any question as to diagnosis, we think that the exploratory incision should be freely resorted to as a legitimate and accredited operation.

I cannot better conclude this paper than by use of this quotation from Maylard:³⁰ "It is only within the last few years that the surgeon has come to the assistance of the physician in the treatment of certain diseases of the stomach; it may therefore be said that, reasoning in the light of the successful incursions made by surgery in other departments of medicine, there yet exists a sphere of labor for the surgeon far beyond his present limited field of operation. It is not, I venture to think, too venturesome to predict that the day is not far distant when the stomach will be opened, explored, and resutured *for purely diagnostic purposes* with as much freedom and security as is now done, for instance, in the case of the brain."

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THE LEUKOCYTES IN GONORRHOEA.

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THE leukocytic formula in gonorrhœa has been given little attention. A survey of the literature of the subject reveals little of clinical value, save the statements regarding the variability of the eosinophiles. In attempting to harmonize the various findings of other observers, fifty cases of gonorrhœa have been studied and form the basis of this discussion.

According to Wood,¹ eosinophilia is occasionally noted in gonorrhœa, especially when it involves the deep urethra and epididymis. In mild acute anterior urethritis the leukocytic formula is normal.

Boston² states that leukocytosis is caused by complications and may obtain in uncomplicated cases of gonorrhœa. Extension of the inflammatory process to the deep urethra or epididymis may induce a high percentage of eosinophiles.

Scholtz,³ Reinert,⁴ Coles,⁵ Da Costa,⁶ von Limbeck,⁷ and Nothern's *System*⁸ fail to mention eosinophilia in connection with gonorrhœa.

Sabrazes⁹ in three cases found the leukocytes "10,561, 11,408,