CHRONIC DISEASES OF THE STOMACH.*

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The privilege of delivering the Annual Address on Surgery before the State Medical Society of Wisconsin is an honor to which I am not insensible, and I desire to express to you my appreciation of your distinguished consideration.

In no field of our common art is the medical profession more constantly engrossed than in the management of diseases of the stomach. Yet out of a score of cases complaining of digestive disorders only a few will have an actual involvement of the stomach. We must eliminate renal, cardiac, hepatic and other constitutional and reflex causes. Many cases of chronic invalidism, depending upon what Still-er called congenital asthenia, embrace that large class of disorders generically termed gastric neuroses. Quite 30 per cent of the cases that consult the physician for stomach symptoms are of this type. They bear the stigmata of congenital asthenia—visceral ptoses, slender bones, dilated pupils, cold hands and feet, movable tenth rib, dermatography, persistent malnutrition and obstinate constipation. They will be found to have gastropotosis and atony. It is not a local gastric disease, but one of the multifarious manifestations of this general, developmental and nutritional disorder. The stomach itself does not require treatment and certainly not operation. These cases so treated will be our undoing. If operation is alleged to have cured bizarre, general and gastric symptoms of neurasthenia, it was not really a legitimate surgical result, but due to suggestion and rest.

The knife is a dangerous form of mental suggestion and it is repulsive to the conscientious surgeon. I speak of these gastric neuroses first to eliminate them. They have caused the great bulk of bad results. A good

surgeon will not commit this error often; a good operator may. There is a broad distinction between the two. A surgeon should weigh rather than venture. He should not only possess the dextrous handcraftship which gave him his name, but a broad and ripe experience in general disease, keen diagnostic acumen, sound judgment, absolute honesty and the gift of knowing when not to operate. It is nowadays the ill-advised and unnecessary operation that is the opprobrium of surgery rather than the unskilled and bungling one.

It must be confessed that we do not always approach diseases of the stomach with the same careful inquiry coupled with the precise methods of diagnosis which are employed in other ailments. One of the most important things in connection with stomach disorders is a more searching inquiry into the exact history of the malady and a more thorough physical examination of the patient. The general practitioner is prone to pass over digestive complaints with scant notice. The stomach specialist is apt, in the multiplicity of diagnostic and remedial agencies, to depend too much upon the latter. The surgeon in turn is liable to be overweening in his estimate of surgical indications in gastric conditions. It is needful, therefore, that a wider dissemination of knowledge in these important matters be had, to the end that an equalization of practice and perfection of our resources be placed at the disposal of the large army of sufferers from "stomach complaint."

The most signal advances in this work have been as the result of the invasion of this field by the surgeon. In reviewing the first quarter of a century of gastroenterology as a specialist, Boas says that not much progress was made until the specialists became more and

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more surgical. This was true of the specialty of the eye and ear, of gynecology and diseases of the bladder and kidneys. He suggests a more permanent, personal association between the gastro-enterologist and abdominal surgeon until the former acquires the requisite expertness in surgical skill.

While the surgery of the stomach is about thirty years old, it was not until the last half dozen years that the methods were perfected to the degree that inspired confidence in the effort and gave uniformly gratifying results. In the present perfected state of this branch of surgery, it may be said that about all of the mechanical lesions of the stomach can be most satisfactorily dealt with. Chronic ulcer and its sequelae are of supreme interest and has yielded the most brilliant results. Surgery has been called upon in its application to the stomach to bear the brunt of our very discouraging contest with malignancy. Ensnared in an organ whose functional manifestations are so variable and in which the diseased manifestations are so well nigh inscrutable, combined with the inherent and ofttimes insurmountable difficulties attending surgery in all forms of malignancy, is it any wonder that the results have at times been the subject of despair?

Our early work in simple gastro-enterostomy was beclouded by its misapplication in some cases of gastric neurosis. The necessarily disappointing result served to prejudice the new-fledged aspirant for surgical honors in the medical world. All of the faltering steps, errors of judgment, acquisition of technic, scrutiny of end results and final estimate of what can and what cannot be accomplished by surgery were necessary in its evolution. I will not, therefore, deal with controversial points, but rather tell the "plain, unvarnished tale" of what appears to be the just status of the surgery of the stomach and that which has been borne out in my own experience.

At the present time it has been very definitely settled that the chronic, indurated ulcer, causing obstruction of the pylorus, and

the calloused ulcer of the duodenum are absolute indications for operative interference. Multiple or single ulcers, causing intractable dyspepsia, that resist all other forms of treatment, are operable. Ulcers causing repeated hemorrhages and those attended with severe pain, causing interference with nutrition and disabling the patient for his accustomed work, should also be operated upon. The complication of perforation, like all perforative peritonitis, is, of course, purely surgical. The various malformations such as hourglass stomach, together with the disabling adhesions of peri-gastritis, should be treated mechanically. The congenital pyloric stenosis of infants has yielded very gratifying operative results. And lastly, the scourge of cancer, until some magical remedy for its dissipation is had, must yield to the only thing which is known to be effective—removal.

Speaking particularly of ulcer, it is said that about 5 per cent of all individuals have some variety. The acute ulcer occurs in the young chlorotic woman; whereas, the chronic ulcer is more prone to attack the middle-aged man. The former is quite amenable to medicinal and dietetic treatment. The latter, while generally believed to be somewhat uniformly cured by similar measures, is really extremely rebellious. It is said that 50 per cent of the cases treated in the Massachusetts General Hospital, even if cured, or apparently cured, recur later. The death rate is estimated at from 10 to 50 per cent, say 25 per cent. If the recurrences are 50 per cent, it is obvious that only about 25 per cent are really cured medicinally.

Ulcers apparently have their origin in an injury to an area in the tissues below the mucous membrane by a blood clot in the vessels causing its detachment. Portions so deprived of its blood supply undergoes necrosis. It leaves an unprotected submucosa to the influences of the acrid gastric juice. The constant bathing in this fluid is the chief reason of its indolency. The so-called saddle ulcer, which bestrides the lesser curvature and extends down

the anterior and posterior wall like a saddle-skirt, appears to be the result of blood vessel origin. The branches of the gastric artery are given off in the lesser omentum and run down both walls of the stomach. If one of these rupture and a clot forms it would interfere with the nutrition of the tissue in the line of distribution and thus cause the ulcer. The spreading edges become undermined, later undergo inflammatory induration and become thickened and terraced. If it is true that the hematemeses occasionally seen in acute appendicitis is due to an acute gastric ulcer from blockage of a gastric vein by a septic embolus from a thrombosed omental vein, as suggested by Wilkie, then may not chronic ulcer be associated with inflammatory conditions by way of the omentum? He suggests further that the greater frequency of duodenal ulcer in men may be from their greater likelihood to appendicitis and consequent involvement of the right border of the omentum, whereas, the greater frequency of ulcers of the body of the stomach in women may be associated with her exposure to pelvic infections which may involve any portion of the omentum. While it was formerly supposed that peptic ulcer occurred with much greater frequency in the stomach, it has been found at the operating table in the Mayo Clinic that two out of three ulcers have had their origin in the duodenum. The greater number are situated within two inches, on one or the other side of pylorus. It has been further observed that almost three out of four ulcers occur in men, contrary to our former belief, and that 95 per cent of chronic, indurated ulcers are single. Bearing upon the frequency of duodenal ulcer and its cause, Baldwin, of Cornell, found fifteen true diverticula of the duodenum in 105 consecutive cases examined in the dissecting room. May it not be that this condition, occurring apparently much more frequently than is supposed, predisposes to the formation of ulcer? Codman thinks that duodenal ulcer is not only twice as common as gastric ulcer, but nearly as common as acute appendicitis. In nearly 3,000 autopsies

in the Massachusetts General Hospital, ulcer of the duodenum was present irrespective of the cause of death in one in every hundred cases.

The triad of symptoms pointing to ulcer are pain, vomiting and hemorrhage. Of these the most reliable is pain. Right here it may be most appropriately said that painless indigestion is rarely surgical. The definite appearance of pain at a rather uniform time after eating is extremely suggestive. Those situated at the cardiac end would give pain very shortly after ingestion. Those nearer the middle of the stomach and on the posterior wall, at from one to two hours after meals, and those which comprise the greater number, in the pyloric antrum, from two to four hours. While there has been some diversity of opinion regarding the cause of pain in the duodenal ulcer, it is rather firmly established that its onset is at the end of digestion. In interrogating the patient one can get a more accurate statement by asking if the pain does not more commonly occur before eating. This is the so-called "hunger pain," a burning, gnawing, aching pain. Peculiarly significant of duodenal ulcer is the regular appearance of the pain not only at a fairly certain and regular hour after each meal (three or four hours), but in the small hours of the morning, and the common practice of its victims to get relief is by nibbling a biscuit, taking a glass of water, etc., which is supposed to close the pylorus and stop the flow of acid gastric juice over the ulcerated surface.

Local tenderness is valuable when present, but is said to occur in only about 10 per cent of cases.

If in connection with the pain vomiting is conspicuous, or when manifested by sour belching or eructation of acid fluids, denoting the excess of free hydrochloric acid, and especially if blood be present in large or small amounts in the vomitus, in the test meal or occult in the stools, the diagnosis of ulcer is reasonably certain. Hematemesis, to mean ulcer, must be preceded or followed by other

symptoms. The most characteristic feature of ulcer is its occurrence in spells or attacks that last a variable period, interspersed with periods of relief.

Gastric analysis, while it should be used as a routine, is only dependable in connection with the clinical history. The three important points to determine are: First, the absence or presence of free hydrochloric acid, the former roughly suggesting ulcer and the latter being more indicative of cancer. The Gunsberg and the dimethyl-amido-azo-benzol test are the most satisfactory. Second, the absence or presence of residual food. An effective way to determine this is to give a handful of raisins the night before the test breakfast, the seeds of which, if retained, are conclusive evidence of obstruction. Food retention, particularly of small particles, for eight to twelve hours is almost conclusive proof of stenosis and a fairly certain indication for surgery. Third, the size and position of the stomach is mapped out by the aid of auscultation when the stomach is distended with air through the stomach tube.

A rough idea of dilatation can be obtained by clapotage with resulting splashing sound. In advanced cases visible peristalsis is telltale and the typical frothy gray vomit of fermentation, with food remnants in the percipitate, is pathognomonic. These are the cases with long ulcer history which have resulted in cicatrization and stenosis of the pylorus with consecutive dilatation. They are pitably emaciated, and while presenting a most forbidding clinical picture, nevertheless yield on the whole the most absolutely perfect result from short circuiting and drainage by gastro jejunostomy. One of my earlier cases, typical of this stage, had lost half of her body weight, which was rapidly regained after the new opening.

The short or "no-loop" anastomosis has done away with the vicious circle and post-operative vomiting.

By this method Moynihan has performed 186 operations with a mortality of 1.6 per cent, and in the last 121 operations there were no deaths.

Mitchell, of Belfast, says that the surgical management of gastric and duodenal ulcers which fail to respond to medicinal treatment gives a 90 per cent probability of complete and permanent cure. In duodenal ulcer and those causing obstruction at the pylorus treated by gastrojejunostomy, with excision or infolding, gave 98 per cent of cure, or great improvement, according to Mayor. Eighty-five per cent of ulcers of the body of the stomach are greatly relieved by excision or devitalizing suture compression with gastrojejunostomy. The other 15 per cent were more or less benefited, and Mayo has had none who was made worse by the operation in the period since 1906, when the perfection of technique has eliminated post-operative troubles and even deaths that were formerly encountered. The objection to excision of the duodenal ulcer are crippling adhesions resulting, and in two of nineteen cases so treated by the last named operator, a secondary gastro-intestinal anastomosis had to be done before cure was effected. It has become more and more the practice to excise all ulcers where possible on account of the liability to cancer. The drainage operation, however, he says, gave better results than excision alone. Where the induration is not too great, obliteration of the ulcer base by suture, followed by infolding, is good.

The resection of the pyloric end of the stomach, including the entire ulcer-bearing area, has been suggested by Rodman, and is sound. It has, of course, a somewhat higher mortality, but where there is a suspicion of cancer, it should be done. The trans-gastric resection of calloused ulcers on the posterior wall is reasonable and sometimes necessary. The technique of Coffey, by which the anterior wall is held up by traction sutures, allows the fluid to gravitate by air pressure to the dependent portion of the stomach, where it can be ladeled out and mopped clean and dry, is useful and renders the field safe from soiling. It furnishes actual visual inspection of the entire interior of the stomach, which, in the absence

of contamination, is exceedingly desirable and oftentimes essential.

The expectation of perforation is put at 5 per cent by Mitchell. While the diagnosis at times is rather difficult as to the exact cause of the resulting peritonitis, yet the symptoms are so compelling that the acute peritoneal catastrophe must be dealt with. The patient is so desperately ill from shock that he is unable to give an accurate history, and if dependent upon the family or friends, it is often unreliable. The signs are usually so unmistakable that prompt operation is demanded, irrespective of the cause. Promptitude, as in other perforations, is the greatest desideratum. To be successful, operation should be undertaken within the first few hours. Moynihan was able to save seven out of eleven perforating ulcers of the duodenum. While simple closure is usually followed by permanent cure, there may be a second or third perforation, and it has sometimes occurred even though gastro-enterostomy was done at the same time. However, if the condition of the patient allows it, gastro-enterostomy should be combined with closure, as it does away with the fear of lessening the lumen by suture and is effective if other ulcers are present.

Chronic perforations walled in by adhesions are extremely disabling. They may be subacute and cause subdiaphragmatic abscess.

What is the cause of cancer? We do not know. What is the cause of cancer of the stomach? Chronic gastric dyspepsia is the chief cause. This cathexism is intended to ground our faith in the precancerous condition of ulcer of the stomach and to accentuate its keener appreciation and its eradication by earlier and more radical means.

The stomach is the seat of one-third of all the cancers of the human body. More than 5,000 persons on an average die from cancer each year in England and Wales alone, according to Paterson. While cancer of the stomach is more frequent than in any other site of the body, operation on the stomach for its removal is one of the less frequent of all

operations. In the average hospital there are probably one hundred operations done for appendicitis to one for cancer of the stomach, yet in higher specialized clinics this is not true. The ratio between this operation and operation on the stomach being seven to one.

Clinically, there are two type histories—one is the man with the long history of gastric distress, which comes in attacks, and from which he has learned the amelioration with certain diet and treatment. Finally there comes an attack which fails to respond to the former methods, but persists. In an elderly man this is very suggestive. We should not relax our efforts until the presence or absence of cancer is established. The second type is in the elderly individual, who suddenly, and, perhaps, for the first time in his life, and without any other cause, begins to have a train of stomach distress that is more or less intractable to any and all measures. Under these circumstances, our every diagnostic resource should be invoked. Stomach symptoms persisting without apparent cause in a man over forty, with loss of appetite, with or without visible or occult blood in the stools, who is not benefited by diet and rest, means cancer in all probability. We must not expect to have all of the symptoms, such as hemorrhage, absence of hydrochloric acid, presence of lactic and Oppenheimer bacillus, or palpable tumor, emaciation and left-sided supra-clavicular glands. These are not the early symptoms of cancer, but the token of inoperability. We should not even wait for the absence of hydrochloric acid. It will probably come later on, but so late the cure is impossible.

Graham found acid in nearly one-half of the cases subjected to operation. He has long contended that a large per cent of cancers have a good ulcer history. In a later series of cases the laboratories have confirmed this clinical observation of its extreme frequency, and that 71 per cent of cancers of the stomach actually developed on an ulcer base.

Deaver and Ashhurst say: "It seems to us that every case diagnosticated certainly as car-

cinoma of the stomach before operation is a disgrace to the attending physician, provided he has had the patient under treatment for more than a few weeks." With the present paucity of methods for the early diagnosis we must admit that exploratory abdominal section is our only real measure which can make the diagnosis sufficiently early to expect permanent cure. It is surprising how frequently the patient will accede to this when frankly put before him. We are so "wedded to our flesh-pots" of symptomatology, however, that the medical man often demurs, waiting for the development of more conclusive symptoms, the advent of which he admits renders operation useless.

Radiography of the bismuth meal in the stomach, when skillfully performed, gives evidence of unmistakable value. It should, however, be studied in connection with functional tests and clinical history. It should not serve, according to Von Schmeiden, as an exclusive basis for diagnosis, yet in a difficult case it should not be considered complete without an X-ray picture. Hemolysis of the wash water of the fasting stomach has been appealed to. Elaborate tests for peptid-splitting ferments have been devised. The simplest of these is the reaction of Weinstein, which depends upon the detection of tryptophan, one of the amino-acids, which is supposed to be formed where cancer of the stomach is present. If positive, it is said to be indicative of cancer, but a negative diagnosis should not disprove.

The advent of palpable tumor or obstruction is really a fortunate circumstance for the patient, because if it occurs early it compels attention. While not all masses in the stomach believed to be cancer are such, on the other hand Kuttner found cancer in 43 per cent of resections of the stomach which had been rewarded as calloused ulcer.

Every doubtful case which is not apparently too far gone should be subjected to exploration. Unfortunately, a considerable proportion will find the disease so extensive that further effort is useless. Yet there is a certain satisfaction to the surgeon and to the friends of the patient in knowing that the patient has been deprived of no chance. The wound is closed with non-absorbable sutures and the patient is permitted to return home within a few days. Moreover, certain cases that are apparently forbidding turn out to be amenable to removal.

Partial gastrectomy in suitable cases is not only a legitimate procedure, but is far from being the dispiriting picture which has been so discouraging. The mortality in skilled hands is from 5 to 8 per cent. The ultimate result compares favorably with the treatment of cancer elsewhere.

Kummel had 29 per cent free from recurrence for more than three years.

Mikulicz had 30 per cent who lived for three years, and 39 per cent, if only the last three years of his work be taken.

Mayo, out of 296 resections, had 25 per cent of his patients who recovered from the operation alive and well over five years.

It behooves us, therefore, to be more optimistic about this fearful malady and its possibilities. The surgical requirements, it must be confessed, are most exacting, and the judgment of the operator is no less a potent factor than his skill.

Napoleon, when crossing the Alps, said that an army travels on its stomach, and so it is with our industrial army. In dealing with inveterate and disabling dyspepsia of the mechanical type, modern gastric surgery has indubitably demonstrated its ability to cure these stomach sufferers and restore them to the paths of peace.