SURGICAL TREATMENT OF SYPHILIS OF THE STOMACH*

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It is only within very recent years that syphilis of the stomach has been taken out of the realm of rare medical curiosities and has been recognized as a condition of sufficient frequency to warrant serious attention. Curtis [1] as recently as 1909 made the significant statement that in only two of the sixteen cases then in the literature had complications arisen which were amenable to treatment. Perforation of ulcers had occurred in both of these cases, one of which was reported by Fraenkel [2] and the other by Flexner.[3] The application of the Wassermann reaction and the development of the X-ray examination of the stomach have led not only to the recognition of the greater frequency of these cases, but also to the diagnosis of many of them even without operation. The literature in the last few years has therefore shown an increasing number of articles devoted to this subject. It is worthy of comment, however, that certainly in the majority of instances the diagnosis has been made by more or less indirect methods, such as the association of suspicious lesions with a positive Wassermann reaction, marked deformities of the stomach as revealed by the X-ray but without the corresponding cachexia and anæmia of carcinoma, and other indirect evidence. So far as I have been able to discover from the literature, in not a single case of gastric syphilis have the spirochætes been found. Symmers,[4] in 1916, in reporting a case of syphilitic ulcer of the stomach in which death occurred from hæmatemesis, stated that Pappenheimer and Woodruff were able to find only twelve other acceptable cases of syphilitic gastric ulcer in the literature. In the case of Symmers the diagnosis was made at autopsy by the finding of multiple ulcers of the stomach which microscopically showed miliary gummas, endarteritis obliterans, and circumvascular plasma and round-cell infiltration.

The diagnosis of gastric syphilis will not be discussed extensively in this article. Excellent accounts of the diagnosis have been given by Mills [5] and by Eusterman.[6] Instead emphasis will be placed here on the treatment of the surgical complications, of which the most commonly recognized are pyloric stenosis and hour-glass formation. Apparently, however, any of the sequelæ of ordinary peptic ulcer may occur also with the syphilitic ulcer. Perforation has already been noted above in the cases of Fraenkel and Flexner. Severe hemorrhage has also been known to occur. Except for the acute complications, such as perforation or hemorrhage, the conditions which have called for surgical intervention have usually represented the final stage of healing

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and have therefore been concerned with the results of scar formation. It is not surprising then that the most common indications for operation would be stenosis of the pylorus, hour-glass formation, or other conditions due to perigastric adhesions, etc. The process is of course analogous to the syphilitic strictures of the rectum. It is also not surprising that the search for spirochætes has so far been futile.

A search of the literature shows that an operation has been performed for gastric syphilis on thirty-two patients. In many of these cases the diagnosis has been merely clinical and in others it has been supplemented by a microscopical examination of excised tissue. Of the reported cases, gastro-enterostomy has been performed in seventeen instances and resection of the pylorus in four instances. Eusterman,[7] in reporting cases from the Mayo Clinic, states that ten operations were performed but he does not state the kind of operation; it is evident from his article, however, that some of them were pyloric resections. In the accompanying table are shown the results reported by various authors after either gastro-enterostomy or resection of the pylorus. The results are difficult to interpret accurately because in many cases the data are unsatisfactory. In general, however, they show marked improvement. There have been only two deaths, one from nephritis and one on the third post-operative day in a case which presented numerous small ulcers in the duodenum. With the exception of the series of eight cases of Castex in which gastro-enterostomy was done with no permanent relief of symptoms, almost equally good results have occurred regardless of whether a resection or merely a gastro-enterostomy has been done. It should be stated that Castex performed gastro-enterostomy not only in cases in which evidence of pyloric stenosis existed, but also in some in which merely an ulcer of the stomach or duodenum was present which had been diagnosed clinically as syphilis. On the basis of these results Castex suggests that gastric or duo-

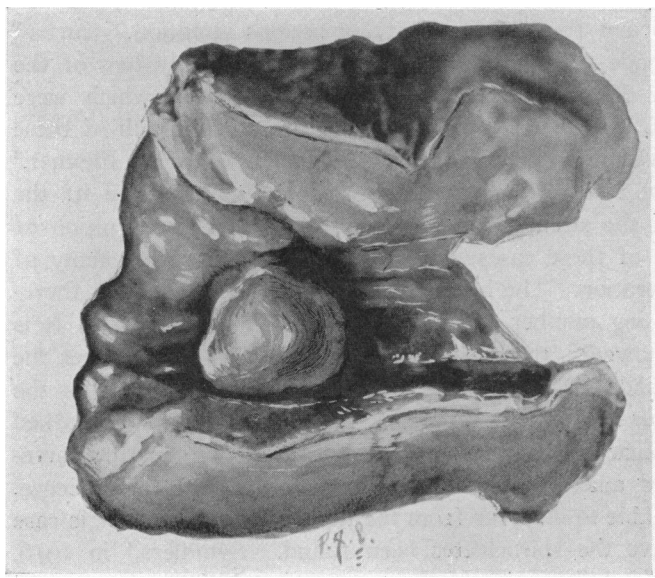

FIG. 1.—Case III. Resected pyloric portion of stomach split open on side of lesser curvature to show tumor obstructing lumen. The hypertrophied muscle is clearly shown.

denal ulcers whose symptoms do not disappear after gastro-enterostomy should be regarded as syphilitic and placed on specific treatment. It is doubtful, however, how many of such cases should be regarded as definitely syphilitic. It would seem that in cases of outspoken pyloric stenosis, no matter from what cause, surgical intervention would certainly give relief. On the other hand, many cases of syphilitic pyloric stenosis, even of high grade, have been entirely relieved of symptoms after a course of anti-syphilitic treatment. See in this connection articles by Eusterman, Beclere and Bensaude, Fowler, Hausmann, etc.

The difficulty of accurate diagnosis makes any analysis of results somewhat unsatisfactory, since cases which are regarded by some as syphilitic would doubtless be considered as questionably syphilitic by others. Again, also the

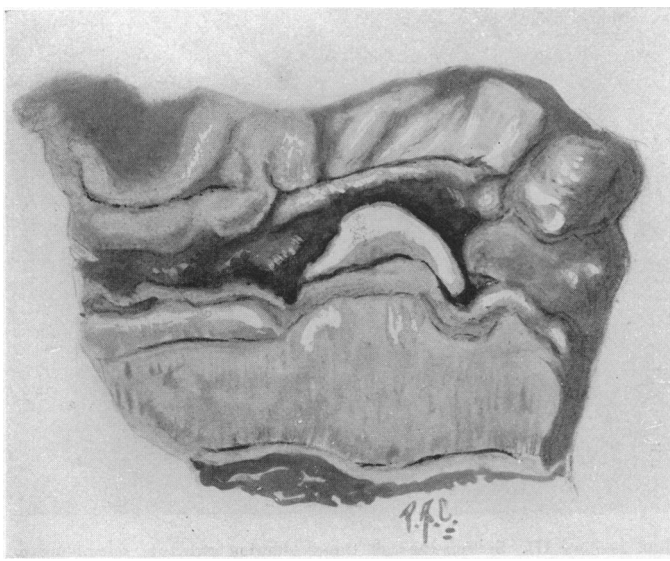

FIG. 2.—Case III. Longitudinal section of pyloric portion and tumor.

pathology is not accurately described, so that it is uncertain whether the condition for which operation was undertaken was an actual pyloric stenosis, active ulcer of the stomach, or some other condition. Of the three cases of apparently definite syphilis of the stomach upon which I have operated, two presented a type of lesion which has received but little comment and for the treatment of which there have been reported so few observations that apparently no good precedent has been established. These are the cases in which there is moderate thickening of the whole stomach which is reduced in size, an absence of pyloric stenosis and an absence of any gross deformity such as hour-glass formation or extensive perigastric adhesions. The symptoms may be very distressing and consist of vomiting, pain, loss of weight, etc. It has been chiefly from a desire to arouse discussion and to profit by the experience of others that I report these cases.

CASE I.—White woman, aged thirty-one. Admitted to Barnes Hospital, October, 1920. Began to have vomiting eight years ago. Vomited immediately after eating, without nausea. In September, 1919, had large hæmatemesis of brown clotted blood. Again in November of same year had large hæmatemesis and was thought to be dead. Has lost 80 pounds since origin of trouble. Has had three miscarriages. Examination showed secondary anæmia, Wassermann four plus, perforated nasal septum, no free HCl in stomach. X-ray by Doctor Mills showed moderate delay in emptying of stomach, with deformity of pylorus, with possibly syphilitic ulcer (serpiginous) of pylorus. Previous antisyphilitic treatment for four months with both salvarsan and mercury resulted in improvement

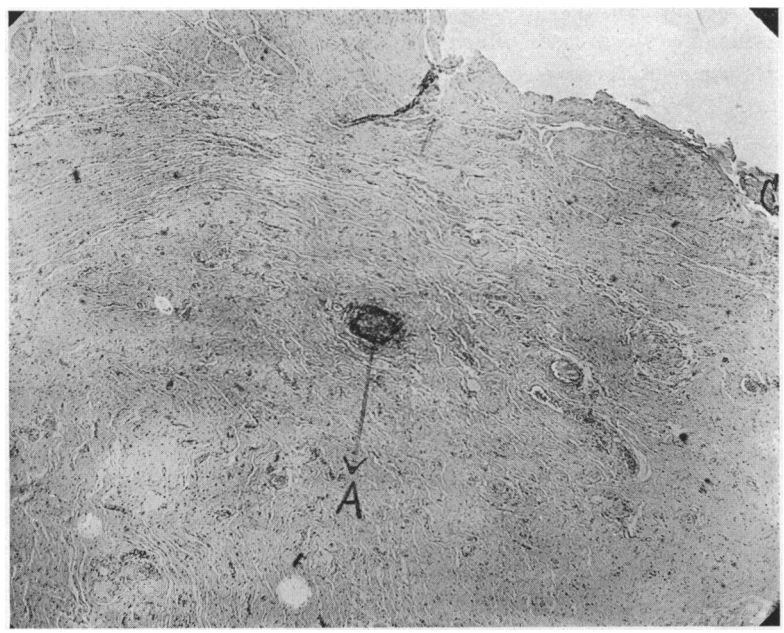

FIG. 3.—Case III. Section through tumor showing structure resembling a miliary gumma at point marked A.

of symptoms but without complete recovery. On October 20, 1920, a laparotomy was performed. Stomach found smaller than normal. Pylorus readily admitted finger. No enlarged glands. No perigastric adhesions. Slight thickening of whole stomach but no localized induration and no definite evidence of ulcer. No evidence of carcinoma. Duodenum normal in first portion. Liver normal. Gall-bladder slightly thickened but no stones or adhesions. Because of absence of definite evidence of organic pyloric stenosis or of active ulcer no operative procedure was undertaken on the stomach except to remove a small piece of the anterior wall for microscopic examination. A microscopic examination of the removed piece showed the mucosa slightly thinner than normal. The whole of its outer border was densely infiltrated with small medium-sized mononuclear cells. Typical polyblasts, few plasma cells and a few polymorphonuclear cells were in this infiltration. A similar infiltration was seen focally in the lower portion of the mucosa. There were a few mononuclears in the wall of the endothelial-lined spaces in the serosa. A diagnosis was made of chronic atrophic gastritis, probably syphilitic.

The patient was again placed on antisyphilitic treatment. About six months after leaving the hospital she died, following an abortion. Death was presumably due to infection.

CASE II.—Colored man, aged twenty-four, Pullman porter. Entered Barnes Hospital, May 16, 1921. Onset October, 1917, with choking sensations in throat and palpitation with precordial pain. Vomited food eaten on same day. Course progressively worse so that at times fasting was necessary for several days. To relieve feeling of distention, induced vomiting brought up bloody material with food. Pain in epigastrium sometimes but not always relieved by food. Constipated. Salts every day. Lost 17 pounds in last 6 months. Examination showed mass in epigastrium. Free HCl 26; total acid 40. Wassermann negative

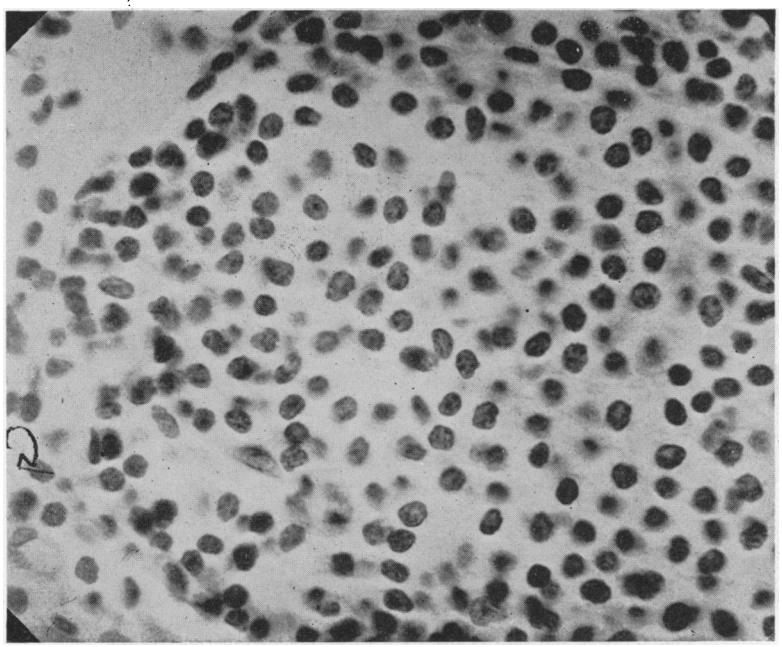

FIG. 4.—Same as Fig. 3, showing character of cells in the small gumma.

in both blood and spinal fluid. Hæmoglobin 80 per cent., leucocytes 7200, erythrocytes 5,160,000. X-ray (Doctor Larimore and Doctor Mills) showed superficial lesions involving distal portion of pars pylorica of type suggesting luetic ulceration. Stomach empty at five and one-half hours. On May 23rd laparotomy. Stomach found somewhat smaller than normal. Moderate thickening of pylorus, but nothing definitely indicative of ulcer. No enlarged glands. Liver normal. Posterior gastro-enterostomy with no loop done, and appendectomy. The stoma was about two inches in diameter. Piece of stomach wall next to gastro-enterostomy opening showed infiltration of all coats of stomach with round cells which were not, however, limited to blood-vessels. Uneventful recovery. X-ray examination (Doctor Mills and Doctor Larimore) on September 18, 1921 (4 months later) showed good function of gastro-enterostomy but no marked change in appearance of lesion. Patient's condition much improved with gain of about 15 pounds in weight but there was still some epigastric discomfort and fulness. In April, 1922 (about one year later), at another examination it was found that

about the same condition persisted. Gastro-enterostomy opening still patent but patient still complaining of discomfort almost immediately after eating. The beneficial result of the operation, although definite, has not been striking. Possibly, in view of the negative Wassermann reaction, this case should not be regarded as positively one of syphilis, but yet the other findings seemed to accord with that diagnosis.

CASE III.—Definite pyloric obstruction. Colored woman, aged forty. Entered Barnes Hospital, April 29, 1921. Symptoms of epigastric discomfort for about 16 years. For last four months there has been vomiting after every meal. Constant throbbing pain in left upper quadrant. Loss of weight of 35 pounds. Sometimes

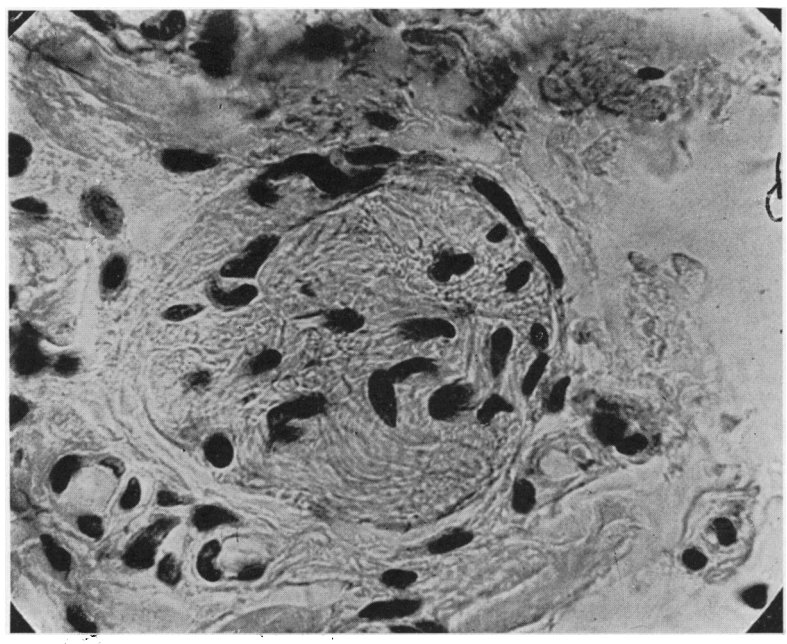

FIG. 5.—Same specimen as Fig. 3, but showing obliterating endarteritis.

vomits food eaten on previous day. Three miscarriages. Wassermann four plus. Free HCl varied from 3 to 6. Visible peristalsis in stomach. Hæmoglobin, 70 per cent., reds, 3,420,000; leucocytes, 11,000. X-ray (Doctor Mills and Doctor Larimore), lesion of pars pylorica, probably luetic. Small residue in stomach at 24 hours. On May 10, 1921, laparotomy was performed. Stomach about normal size despite pyloric obstruction. In pyloric region a definite tumor could be felt about the size of a hickory nut. This was slightly movable within the stomach and felt somewhat like an adenoma. It was definitely limited to the interior of the stomach, and there was no change in the gross appearance of the outer layers of the stomach suggestive of a carcinoma. There were no enlarged glands. The stomach was opened to inspect the tumor, which was found nearly obstructing the pyloric orifice and arising from the greater curvature side of the stomach. It was covered with mucosa. A resection of the pylorus was done followed by a gastro-jejunostomy by the Polya-Balfour method. Uneventful recovery. X-ray examination (Doctor Mills) two weeks later showed "admirable conditions after gastric resection and gastro-jejunostomy." Antisyphilitic treatment was also instituted.

A report from the patient was received on April 12, 1922 (11 months after the operation), which stated that she was entirely relieved of her symptoms, that she had gained markedly in weight and that she was eating a general diet.

Microscopic examination of the tumor showed numerous small gumma-like collections of round cells beneath the mucosa. There was very marked perivascular infiltration with thickening of the intima of some of the arteries. There were occasional small areas of necrosis. These collections of cells were seen in the muscular layers as well as in the submucosa. Doctor Opie, who examined several of the sections, expressed the opinion that they presented very striking evidence of syphilis. Levaditi stains, however, failed to reveal spirochætes.

TABLE I

Results of Surgical Treatment in Gastric Syphilis.

Author	Gastro-enterostomy	Resection	Result
Mills [10]	One case		Marked improvement
Downes and Le Wald [11]	Five cases		4 well, 1 died of nephritis
Hubbard [12]	One case		Well
McNeil [13]		One case	Good
Mühlmann [14]	One case		Excellent
Culler [15]		One case	Fair
Douglas [16]		One case	Excellent
Eusterman [6]	10 operations but types not specified		3 "cured", 5 much improved 2 not heard from
Dasso [17]	One case		Well
Beck [18]		One case	Well
Castex [19]	Eight cases		Symptoms returned in all cases.
Sparmann [20]	One case		Death on third day. Numerous small ulcers in duodenum.
Graham	One case	One case	Resection case well. Gastro-enterostomy case improved.

Another type of lesion which is possibly syphilitic is the gastric or duodenal ulcer associated with so-called gastric crises in tabes dorsalis. A recent case of moderately advanced tabes came to the hospital with attacks of vomiting and marked epigastric pain. The patient was supposed to be suffering from a gastric crisis. An X-ray examination by Doctor Mills disclosed a duodenal ulcer with a residue in the stomach after twenty-four hours. A posterior gastro-enterostomy was done, followed by complete relief of the gastric symptoms, and a gain of thirty-five pounds in weight. Vigorous anti-syphilitic treatment was instituted after the operation. There was nothing either in the findings at the X-ray examination or at operation to suggest particularly a syphilitic origin of the ulcer, and it is possible that there is no good reason to assume anything more than a coincidental relationship.

In conclusion, it should be stated that surgical complications of gastric syphilis occur with probably greater frequency than is commonly recognized. These consist usually of deformities produced by scar tissue formation in the healing of the syphilitic process. They are commonly seen, therefore, as stenoses at or near the pylorus, but sometimes as hour-glass contractures or perigastric adhesions. In another group in which there is impaired motility

without organic stenosis of the pyloric orifice but with rather generalized sclerosis of the whole stomach, it is doubtful how much good, if any, can be accomplished by surgical measures. In a study of thirty-four cases (including thirty-two from the literature and two from the author's series) resection of the pylorus gave uniformly good results in cases of stenosis of that orifice, while gastro-enterostomy was frequently followed by only slight or temporary improvement. It would seem, therefore, that pylorectomy is more likely to be followed by complete relief of symptoms than is simple gastro-enterostomy, although a study of more cases may show that the latter operation is sufficient in cases of actual stenosis of the pylorus. There will remain certain cases without organic obstruction in which surgical measures will probably not be indicated.

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