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A Case of Hour-glass Stomach the Result of an Ulcer on the Lesser Curvature which Produced a Septum of the Anterior Wall of the Stomach; Anterior Gastro-gastrostomy; Recovery; Cure

Read at the Pan-American Medical Congress, Panama, January, 1905

BY

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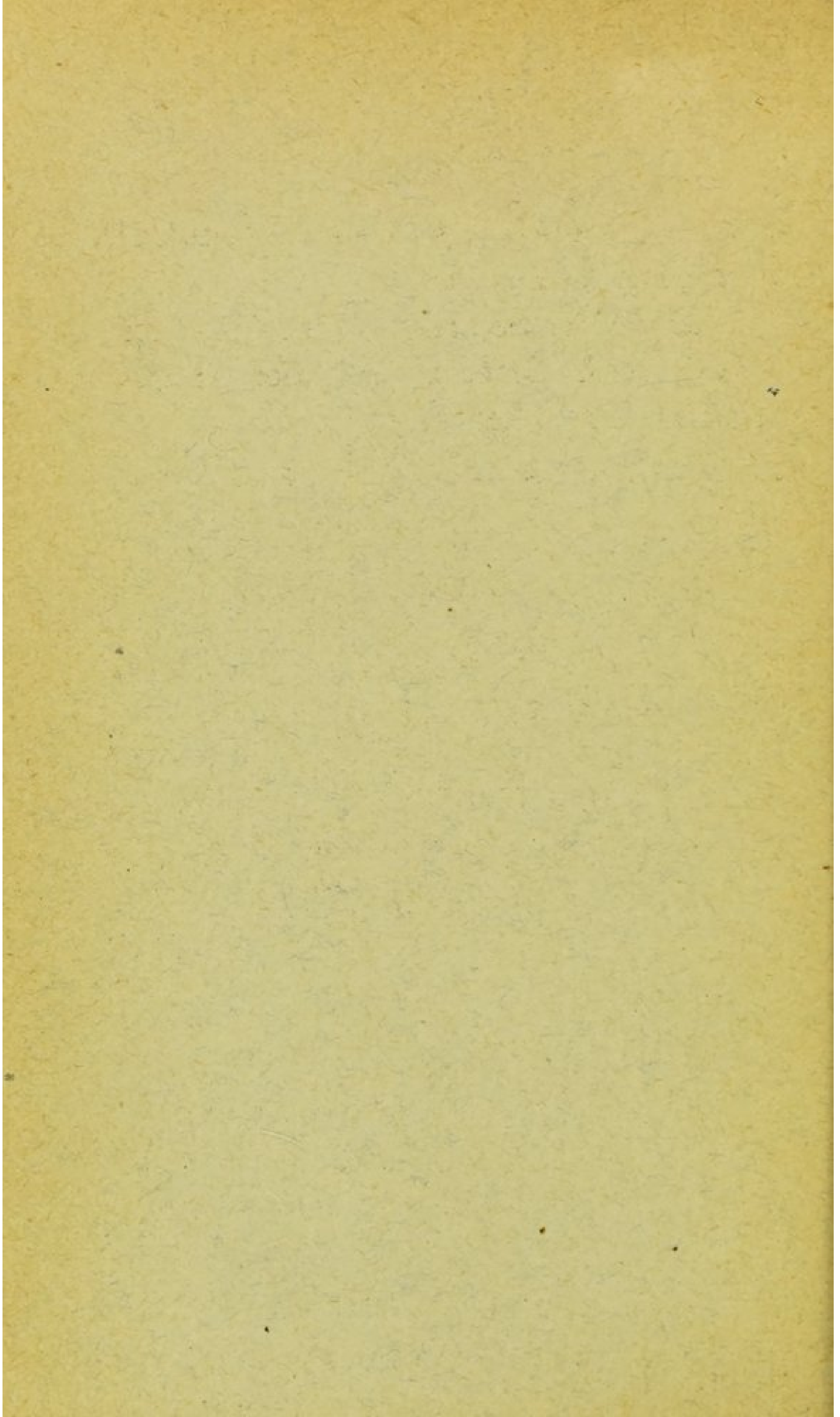

A CASE OF HOUR-GLASS STOMACH THE RESULT OF AN ULCER ON THE LESSER CURVATURE WHICH PRODUCED A SEPTUM OF THE ANTERIOR WALL OF THE STOMACH; ANTERIOR GASTRO-GASTROSTOMY; RECOVERY; CURE.

By W. W. Keen, M.D., LL.D.

The following case I think worth reporting on account of its cause, the rather unusual situation of the gastric fold dividing the stomach into two pouches, and the consequent unusual site of a gastrogastrostomy, as well as the very satisfactory result.

Chas. T., aged twenty-six, weight 144 pounds, was admitted to the Jefferson Medical College Hospital September 22, 1904, under the care of Dr. S. Solis Cohen, who has kindly furnished me with the following history: "His father died suddenly of an unknown cause; his mother and two sisters are living and well. He had measles, pneumonia, and whooping-cough while a student in Girard College (for orphans). He was in good health until five years ago, when, at the age of twenty-one, after some gastric uneasiness, he suddenly vomited a large amount of blood, which he persists in describing as dark-colored. He has used liquor, but never to excess, and for two months preceding his admission to the hospital not at all. He has, however,

smoked almost all the time. He admits having had a chancre two years ago, but he has observed no secondary symptoms.

"He dates his present illness from the time when he went to work on a dairy farm, about a week before his admission. He attributed it to "catching cold," as he was compelled to work in a room where the water was flowing across the floor all the time, and his feet, therefore, were constantly wet.

"The chief complaint is of pain at the pit of the stomach. He is able to place the tips of two fingers on the exact spot. Upon eating the pain is relieved for a short time, but soon recurs. It is so severe as to disable him from all occupations and to require the use of morphine. There is no nausea or vomiting. He asserts that he has passed a small amount of bright blood by the rectum. This may have come from some small hemorrhoids which are found to be present. There is constipation. Appetite is much impaired, but there is a craving for sweets. There has been but slight loss in weight.

"On examination the viscera of the chest are normal; the liver dulness is slightly increased downward and to the left; there is marked rigidity of the upper portion of the left rectus muscle, especially over an area about 7 centimeters in length, and the width of the muscle, corresponding pretty closely with its second segment, and a small mass can be obscurely felt in this region. On percussion over this area typmany is elicited at first, but on con-

tinuing the percussion the sound changes to dulness, and then gradually returns to a tympanitic note. Fluorescent trans-illumination of the stomach (after the method of Kemp by introducing the gastrodiaphane after the patient has swallowed a pint or more of alkalinized water containing 1/8 to 1/4 grain fluorescin in solution) showed but one small circle of illumination about 4 centimeters in diameter near the cardiac end of the stomach, at the junction of the eighth rib with its cartilage, 11 centimeters to the left of the middle line. There was no difficulty in continuing the insertion of the tube for its full length; but the light disappeared, to reappear in the same region as the tube was withdrawn. The observation was confirmed by a number of repetitions of the maneuver.

"Examination of the gastric contents showed them to be acid, that they were free from decomposition, that free HCl was present and lactic acid absent; total acidity, 0.2784.

"Blood examination September 24, 1904: Erythrocytes, 4,650,000; leucocytes, 4400; hemoglobin, 90 per cent; color index, 0.9.

"Differential count of leucocytes: Polynuclears, 68 per cent; small lymphocytes, 22 per cent; large lymphocytes, 8 per cent; eosinophiles, 2 per cent; iodophilia, negative.

"Urine: clear, very light straw color, specific gravity 1.002, reaction slightly acid, albumin absent, sugar absent, urea

0.4 per cent. Under the microscope no crystals are found, amorphous urates are present, as are also a few squamous epithelial cells and a few leucocytes; blood is absent, tube casts are absent. On September 28, a second examination of the urine showed it to be turbid, light straw, 1.010, alkaline, containing neither albumin nor sugar; urea was 2.2 per cent; triple phosphate crystals, amorphous urates and phosphates, and a few leucocytes were present; there were no epithelial cells, no blood, no tube casts."

Both to Dr. Cohen and myself the diagnosis was obscure. That there was some local tumor mass there was no doubt, but precisely its connections and its character were quite uncertain. Why the gastrodiaphane only illuminated a single point to the left, all the rest being dark, was not obvious. At the patient's age carcinoma of the stomach would be especially rare. That probably he had had an ulcer, the hematemesis five years before seemed to show pretty clearly. He had never vomited any blood since then. An hour-glass stomach never occurred to either of us, and he was not examined with a special view to its possibility. While, therefore, it was evident that surgical procedure was necessary, it was undertaken rather as an exploration than with a definite idea of what was to be found.

Operation September 28, 1904. I made an incision 2 centimeters to the left of the middle line. The pylorus and the upper duodenum were drawn out with moderate

ease. Four centimeters from the pylorus was a scar on the outer wall of the duodenum without much thickening of the duodenal wall. Possibly this was the scar of a former ulcer at this point. On attempting to draw the stomach out through the incision, I found that it was very tightly adherent, the adhesions running upward and backward from the lesser curvature. It was with great difficulty that I could draw out any considerable portion of the stomach, and I was not able to reach the left portion of the lesser curvature at all. I almost, therefore, entirely missed discovering the actual condition of a bifid or hour-glass stomach. I then liberated the adhesions which passed from the lesser curvature of the stomach about its middle upward and to the left. This finally enabled me to draw out the entire stomach, when the hour-glass condition was immediately discovered. There was a hard mass at the middle of the lesser curvature of the stomach. This had made so much traction on the anterior wall as to throw the anterior wall of the stomach into a very deep furrow, or fold, into which I could pass my fingers nearly to the knuckles (Figs. 1 and 2). This furrow separated the stomach into two portions, of which the pyloric portion was somewhat the larger. After sewing together the adjacent walls of the furrow I made an incision on the anterior wall of the stomach on each side of the deep sulcus between the two pouches. These two incisions

extended upward as near to the lesser curvature and downward as near to the lesser curvature as possible without interfering with the large vessels, say within a little over one centimeter of each curvature. None of the tissue of the wall of the stomach was removed. The two proximal and the two distal margins of the two openings were then united to each

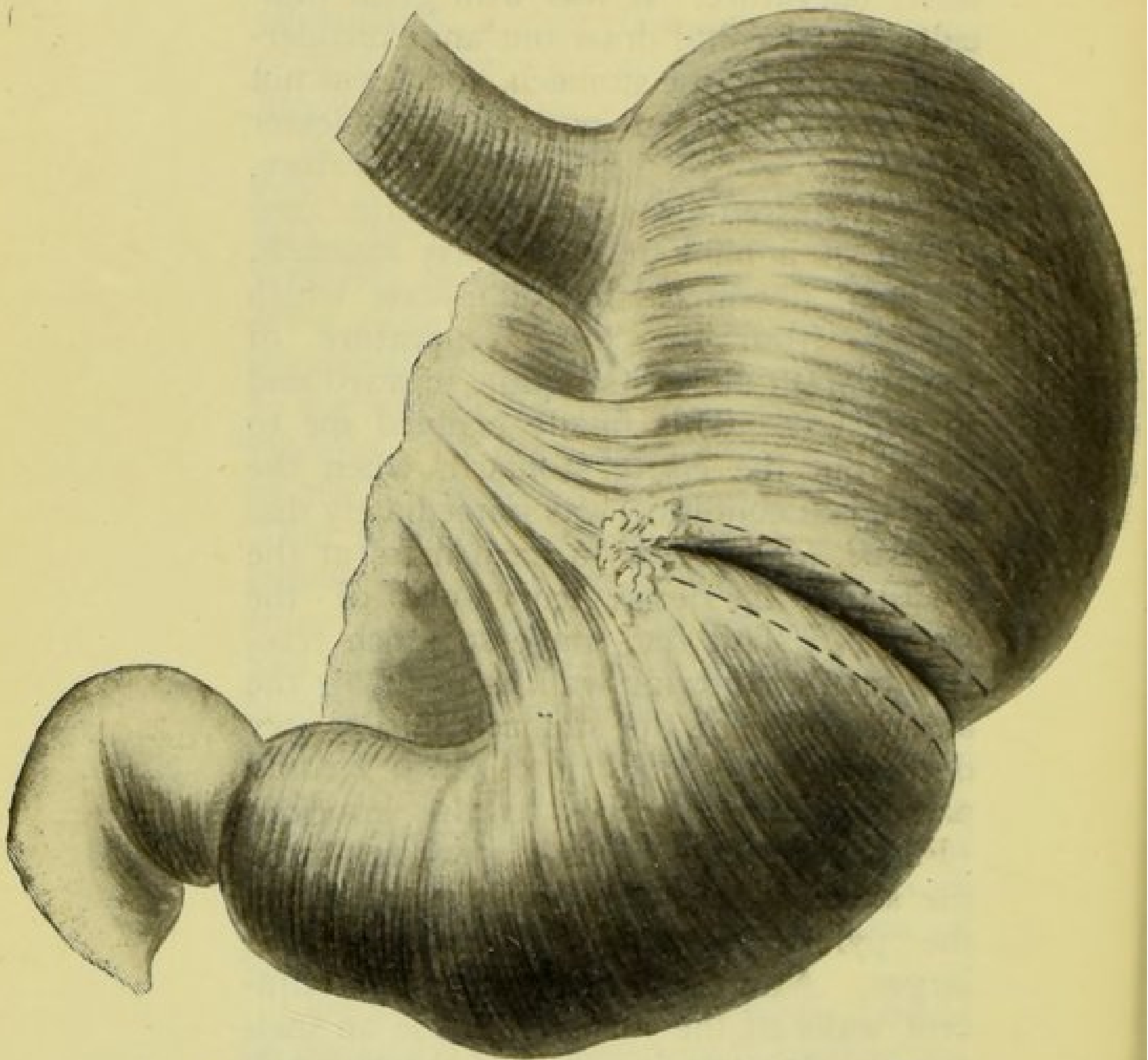

FIG. 1.—Shows the site of the ulcer, the adhesions, and the furrow in the anterior wall of the stomach. The dotted line shows the site of the two incisions made after the adjacent margins of the furrow were sutured together.

other by suture (Fig. 3), with a reën-forcing seroserous suture.

Only once did his temperature go above 100°, and then only to 100.4° F. He

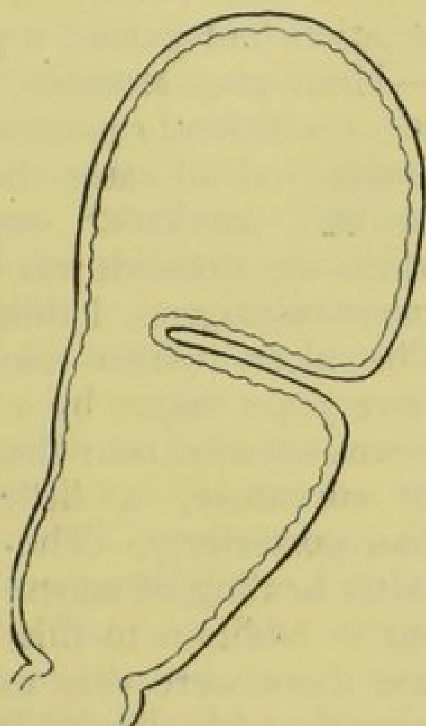

Fig. 2.—Diagram to show the furrow in a horizontal section of the stomach.

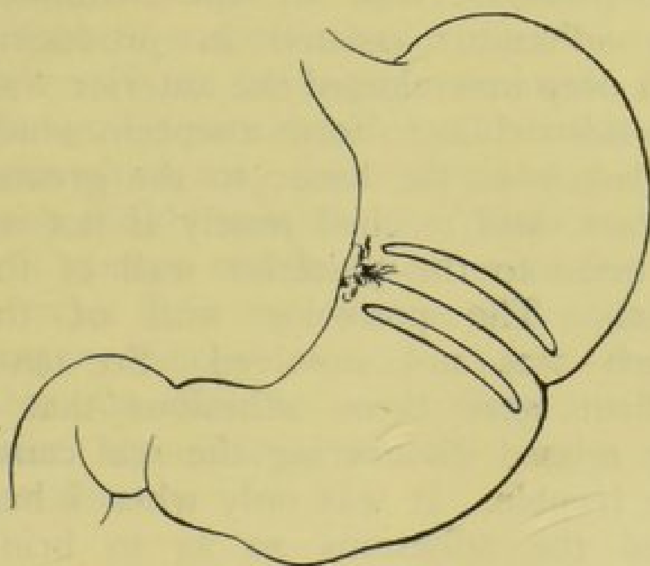

Fig. 3.—The two openings from gaping of the incisions. The two proximal and the two distal margins were sutured together.

made a perfectly uninterrupted recovery, and was discharged from the hospital October 20 in excellent condition. He was able to eat everything with relish and comfort, and in the twenty-two days since the operation had gained 9 pounds.

Remarks.—Hour-glass stomach, though not very rare, is sufficiently uncommon to make it desirable that all cases should be reported. In this particular case the manner in which the stomach was divided into two compartments was, I think, very unusual. The ulcer, which manifested its presence five years before by a serious hemorrhage, was situated near the middle of the lesser curvature, a little more anteriorly than posteriorly. The scar of such ulcers after healing of course always contracts; but in addition to this, in this particular case there were very extensive adhesions upward and backward from the site of the ulcer, which fixed the stomach to the posterior wall of the abdomen. These adhesions assisted in producing such a deep inversion of the anterior wall of the stomach as to form a septum which extended from the lesser to the greater curvature, and reached nearly if not indeed quite to the posterior wall of the stomach. The posterior wall of the stomach was not involved. So tense and firm were these adhesions that I nearly missed discovering the real cause of the trouble. It was only when I had divided the adhesions so as to bring the entire stomach into view that I found the real cause of the trouble. An anterior

gastrogastrostomy was evidently the best means by which to relieve the trouble. I thought of a gastroplasty, but the fold was so deep and so extensive that I judged that gastrogastrostomy was the more desirable operation.

As to diagnosis, neither Dr. Cohen nor I suspected an hour-glass stomach. We knew of the probable existence of an old ulcer, and therefore of adhesions, but in spite of the patient's youth we had a fear of a possible carcinomatous change engrafted upon the ulcer, especially as there was a tumor obscurely perceptible.

Inasmuch as I did not suspect an hour-glass stomach, I did not test the patient by the now well known means for determining such a possibility. I think it not improbable that a correct diagnosis might have been reached had I done so. One lesson which has been forced upon me by this case is that in every case, especially in younger people in whom there is good reason to suspect an old ulcer, the possibility of an hour-glass stomach should always be considered, and all the measures which may assist in making a diagnosis should be utilized. While operation will always enable us to make the diagnosis, it is in my opinion discreditable to surgery that we should not in every possible case make a correct diagnosis before rather than during and by means of the operation.