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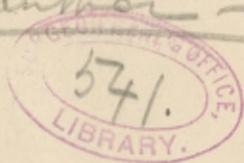
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PRIMARY CARCINOMA OF THE HEAD OF
THE PANCREAS, WITH HOUR-GLASS CON-
TRACTION OF THE STOMACH, SIMULAT-
ING DURING LIFE PYLORIC STENOSIS.¹

THE patient, a single woman, a domestic, aged fifty-three, first came under observation in the wards of the Episcopal Hospital, in February, 1894. At that time she gave a history of three months' illness, the principal symptoms of which were epigastric pain and occasional vomiting; the latter usually affording relief, and consisting of mucus and undigested food, and once of bright-red blood. The outlines of the stomach were apparently normal, and deep pressure in the epigastrium elicited pain, but there was no tumor. Günz-
burg's test revealed the presence of free HCl, but not in excessive amount, *i.e.*, the reaction, though well defined, was not intensely so. She had always been an excessive eater and a large drinker of tea, but never of alcohol. There was no family history of note. Under rest and a diet of peptonized milk she rapidly improved, and within three months was discharged, a diagnosis of chronic catarrhal gastritis having been made.

On November 3, 1894, she was readmitted into the Episcopal Hospital. It was then noted that she had lost considerable flesh and was quite anæmic. She reported marked increase in, and almost constant, pain and frequent vomiting—on several occasions of pure blood, or the so-called "coffee grounds" material. There was no tumor discernible. The outlines of the stomach,

¹ Read before the Philadelphia Pathological Society, May 8, 1895.

as defined by auscultatory percussion, appeared to be normal, and remained so throughout the whole history of the case. Examination of the gastric contents after Ewald's test-meal gave a faint reaction with Günz-burg's solution. The contents had a strongly acid odor, reacting promptly to blue litmus paper. By the latter part of December a small, immovable, ill-defined, and very tender tumor could be felt in the epigastrium, two inches below the ensiform cartilage. Shortly after admission peptonized milk in small quantities was ordered, and daily lavage was practised. To effect this, a large amount of water was used, and it was noticed that, although the washings were done in the morning, they contained quantities of food given the day before. This occurred even when no food or milk had been taken for twelve or fourteen hours. About the 20th of January, 1895, a light jaundice was noted. This grew more intense, and was accompanied by an increase in the hepatic dimensions, and by the development of an oval, elastic, and semi-fluctuating tumor at the tip of the ninth right rib; this was thought to be the gall-bladder.

Several examinations during the course of the disease failed to give constant evidence of the presence of free HCl. This was probably due, as the sequel will show, to the failure to thoroughly wash out the stomach on the night previous to the administration of the test-breakfast—a precaution that should never be omitted, if we desire correct results in chemical examination of the gastric contents. The salol-test for the motor function of the stomach was also employed, but with unsatisfactory results.

During the latter third of the patient's life the stools were frequently, but unsuccessfully, examined for evidences of fat. A microscopic examination, however, was not made. The urine, though tested on several occasions, contained neither sugar nor albumin.

By February 25th the epigastric tumor was more de-

fined, and still very painful and immovable. Otherwise the patient's condition continued about the same. Sometimes vomiting daily for a period, and then a week or ten days elapsing with entire freedom from this symptom. Pure blood was never vomited while under observation, though the so-called "coffee grounds" matter was ejected on several occasions. At this time Dr. D. D. Stewart kindly saw the case, and consented to undertake an examination of the gastric contents with the view of determining the absence or presence of lactic acid. In order to eliminate all sources of error, the organ, at Dr. Stewart's suggestion, was thoroughly cleansed prior to the administration of Boas's flour soup. In doing this forty-eight quarts of water were used. In the withdrawn contents, Dr. Stewart found a total acidity of 88 ; .05 of free HCl ; sharp reaction with Günz- burg's test ; and no lactic acid. In the light of this examination a probable diagnosis of cicatricial stenosis from old ulcers was made.

From the 25th to the 28th of February the patient was fed exclusively on meat broths, milk being entirely withheld ; on the latter date the stomach was again thoroughly washed out with a solution of soda (sod. bicarb., $\frac{3}{4}$ ss. ; water, Oij.). It took but eight quarts on this occasion to cleanse the organ. The flour soup was then introduced through, and before removing, the tube, allowed to remain in the stomach over night, and withdrawn the next morning by aspiration.¹ Dr. Stewart's examination of this was as follows : Contents received, 360 c.c. ; strong odor of salol (given six days previously) ; total acidity, 70 ; sharp Günzburg ; free HCl, 0.175 ; combined and free HCl (Leo's method), 0.02225 ; no lactic acid ; egg disk completely dissolved in three and a half hours.

On the 7th of March tympanites developed, and there were signs of commencing cardiac failure.

¹ These manipulations were carried on under Dr. Stewart's directions.

Various measures were employed to relieve the abdominal distention, but with indifferent success. The patient gradually grew weaker and died March 13th. It should be added that no enlargement of the supraclavicular and inguinal glands was at any time present, and that the temperature ranged between 98° and 99.5° F., occasionally reaching 100° F.

Autopsy.—Body emaciated. Skin and mucous membranes deeply tinged with bile. Pleuræ adherent at various points. Lungs pale, except at posterior bases, where there is hypostatic congestion. Slight amount of fluid in pericardium. Heart small, muscle pale, valves normal. Stomach and intestines strongly distended with gas. Stomach occupies an almost vertical position, the whole of the organ lying to the left of the median line, the lowest extremity on a level with the umbilicus. The pylorus is at a point midway between the ensiform cartilage and the umbilicus. On a line with the pylorus, and involving the whole circumference of the stomach, is a constricting band, which divides the organ into two parts: the lower, consisting of about one-third of the stomach, is thus separated from the body of the viscus by a rather narrow opening. The diameter of the stomach is lessened about one-half at this point. The portion above the constriction is of about normal capacity, while that below seems dilated. (Owing to rupture of the walls before the removal of the stomach, the exact capacity could not be tested, but the constricted portion evidently held about sixteen fluid ounces, the rest of the organ about two pints.) The mucous membrane is softened (post mortem) and in a state of catarrhal gastritis; but there is no evidence of cicatrization at the site of the constriction or elsewhere. The pyloric orifice is little, if at all, narrowed, as it admits the forefinger with ease. The head of the pancreas is the seat of a hard tumor, about the size of a hen's egg, which completely surrounds and occludes the pancreatic and

common bile-ducts. As a result the body of the pancreas is enlarged and softened, its duct dilated and filled with retained secretion. Behind the obstructed portion, the common duct is dilated and filled with dark bile. The cystic and hepatic ducts are also dilated, while the gall-bladder is enlarged and distended with fluid bile. The liver is enlarged, bile-tinged, the ramification of the hepatic duct filled with dark-greenish fluid. There are no secondary growths. The condition of the other organs is unnoteworthy. Dr. McFarland, pathologist to the Episcopal Hospital, examined the pancreatic growth, and reported it to be carcinoma.

This case presents many points of interest. In the first place, it emphasizes the value and the necessity of the modern methods of research in the diagnosis of obscure affections of the stomach and pyloric zone. The clinical history above narrated certainly warranted the diagnosis of malignant stenosis of the pylorus, with secondary involvement of the liver, or, at least, of the glands in the hepatic fissure ; but the constant presence of free HCl (although by our imperfect methods this was often absent), and above all the absence of lactic acid, enabled us to exclude gastric cancer, and led us to attribute the symptoms to a cicatricial stenosis of the pylorus, hypertrophic in character, occluding the common duct, with possibly a concomitant carcinoma of the pancreatic head. The autopsy showed the latter surmise to be true. There was no stenosis, but a remarkable constriction of the whole circumference of the stomach, forming the diverticulum above mentioned, and accounting for the signs of dilatation during life, and the difficulty in washing out the organ, the food collecting in the constricted portion. It explained, also, why auscultatory percussion failed to reveal the true dimensions of the organ, the stomach note being lost as soon as the space separating the two portions came under the percussing finger. This contraction was evidently

congenital, as there was not the slightest evidence at the autopsy of cicatrices at the site of the constriction. Contractions of the stomach seem to be rather rare anomalies, as the few works we have referred to make little or no mention of them. This seems to be an instance of exaggeration of the antrum pylori (the lower quarter lying in front of the pylorus), which Ewald¹ mentions as causing the stomach, without the action of cicatricial contraction, to assume the shape of an hour-glass. Another interesting feature is the confirmatory evidence which our case gives of Boas's and D. D. Stewart's² work on the value of the presence of lactic acid as a sign of carcinoma of the stomach. The gastric catarrh was evidently sympathetic in character, and the weakening and dilatation of the constricted portion sequential to this. Until the onset of the pancreatic disease the diverticulum must have been able to empty itself, as there were no symptoms before that time. With the appearance of the carcinoma, however, and the consequent gastritis, the motor power of the stomach was impaired, and signs of dilatation became evident.

As to the pancreas, a comparatively uncommon condition is presented in the limitation of the malignant growth to the gland alone. In only 12 out of 127 cases of pancreatic cancer collected by Segre,³ was the disease confined to that organ. It is quite possible that the pancreatic disease might have been detected with more certainty during life, had closer attention been paid to the presence of fat in the stools and glycosuria; but owing to the prominence and interesting features of the gastric symptoms, the stools were not examined microscopically, and the urine was tested but a few times.

¹ Diseases of Stomach, English Translation, p. 111. New York, 1892.

² Medical News, February 16, 1895.

³ Osler: Practice of Medicine, p. 461. New York, 18