CYST OF THE AMPULLA OF VATER

CASE REPORT

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Case Report.—Vanderbilt University Hospital No. 119392: A white male, age 30, was admitted to the hospital, February 2, 1942, because of repeated attacks of abdominal pain accompanied by nausea, vomiting and possibly jaundice. Although the patient emphasized the symptoms which had been present for the past year, he was able to give a detailed account of an illness occurring at the age of 15, characterized by severe epigastric pain and tenderness, nausea and vomiting, of a sufficient intensity to lead a physician to make a diagnosis of acute cholecystitis, perform of celiotomy and place a drainage tube in the gallbladder. Following the removal of this tube, the patient made an uninterrupted recovery and considered himself well until he was 26 years old, at which time he began to suffer from hemorrhoids, for which an operation was performed in February, 1941.

Approximately one month after this operation the patient had an attack of pain, deeply boring in character and entirely confined to the epigastrium. The pain reached its climax in four or five hours and was accompanied by nausea and vomiting. The symptoms persisted for about 24 hours, after which he considered himself well for a period of one month, when he experienced a similar episode.

These attacks have subsequently occurred approximately once each month. Neither the patient nor his family have noticed any discoloration of the skin or sclera, but the patient believes that his urine became dark in color after at least some of his attacks.

Ten months before admission the patient saw a physician, who made a diagnosis of peptic ulcer. On January 1, 1942, the patient began the use of the Muelengracht diet, to which regimen he has carefully adhered, without obtaining relief. His weight decreased from 190 to 150 pounds. The patient experienced his last attack approximately one week before being admitted to the Vanderbilt University Hospital.

On admission to the hospital the patient appeared as a fairly well nourished, intelligent, cooperative individual. Examination of the abdomen was particularly satisfactory because of the unusual relaxation of the abdominal wall, and no abnormalities of the abdomen were detected. The usual microscopic and chemical examination of the blood and urine showed no abnormality except for the elevation of the icteric index to 12 units, following one episode of pain. Repeated examination of the stools always disclosed the presence of occult blood. Cholecystographic examination showed a definite but faint shadow of the gallbladder.

Roentgenologic examination of the gastro-intestinal tract by means of the barium meal was of particular interest because of our failure to observe in the roentgenograms definite evidence of the unusual lesion subsequently disclosed at operation. The dilatation of the duodenum and proximal portion of the jejunum was quite obvious, but the curious filling defect in the duodenum, as shown by Figures 1 and 2, was not seen until after operation.

Operation.—February 12, 1942: The abdomen was opened to the right of the midline above the level of the umbilicus. It was noted that the gallbladder was completely obscured by adhesions, and the operator turned his attention first to an examination of the jejunum. Approximately the first two feet of the jejunum showed marked hypertrophy and dilatation. The walls of the intestine were thick and

leathery and the hypertrophy of the longitudinal muscle coat of the intestine was such as to produce gross striation. The hypertrophy and dilatation terminated almost abruptly into normal small bowel, without any evidence of obstruction at the point of termination.

Examination of the stomach and first portion of the duodenum showed nothing abnormal except for small stellate scarring of the anterior wall of the duodenum just distal to the pylorus. There was, however, in the scar no induration or other evidence of duodenal ulcer. About one inch from the pylorus the duodenum became

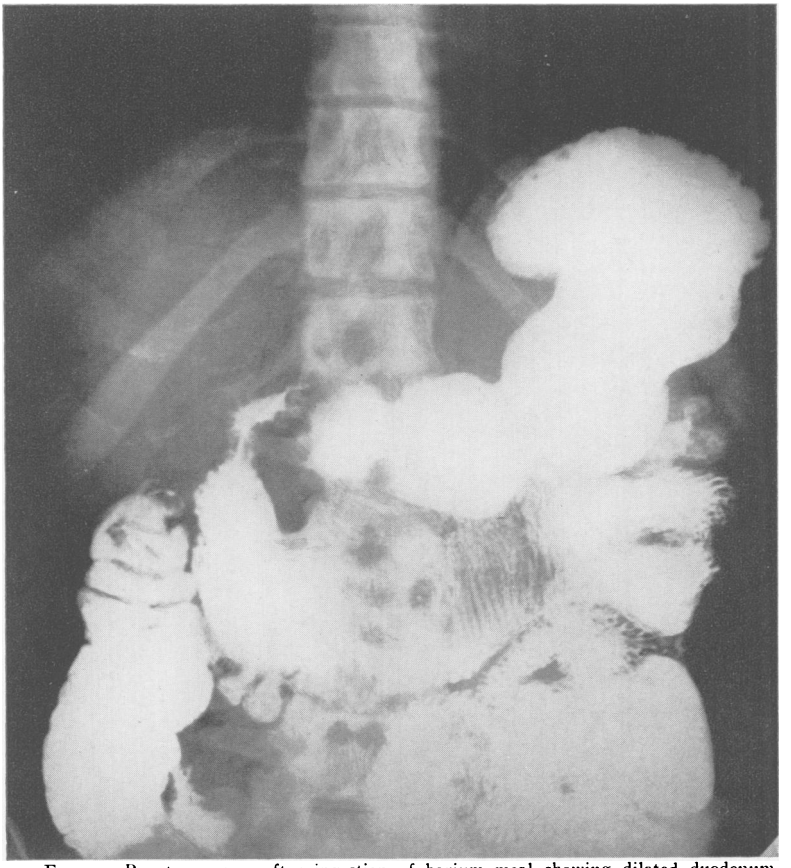

FIG. 1.—Roentgenogram after ingestion of barium meal showing dilated duodenum with large filling defect. (See Figure 2.)

greatly enlarged. The enlargement was such that the diameter of the duodenum was approximately the same as that of the stomach. On palpation, the duodenum was tense and fluctuant. When pressure was first exerted upon the tense duodenum, it could not be made to collapse, but subsequently, while handling the duodenum, the operator was aware of an abrupt partial emptying of the distended duodenum in the direction of the jejunum, which immediately became distended with fluid. Further attempts to empty the duodenum were unsuccessful. An incision was then made in the posterior peritoneum along the lateral wall of the duodenum, which, thus mobilized, was delivered into the operative wound. A longitudinal incision approximately ten centimeters in length, was then made through the anterior duodenal wall. The duodenum was found to contain a large polypoid mass which, when delivered through the incision in the duodenum, was found to be attached to the posterior wall of the descending portion

of the duodenum. The polypoid mass was estimated as measuring 8 cm. in diameter and 12 to 15 cm. in length—(note the mass was considerably reduced previous to the opening of the duodenum). The operator observed that if the tumor was stretched towards the left, it was sufficiently long to reach for some distance beyond Treitz' ligament. The entire polypoid mass was covered with what appeared to be normal duodenal mucosa. At the apex of the tumor there was a slit-like opening which, after

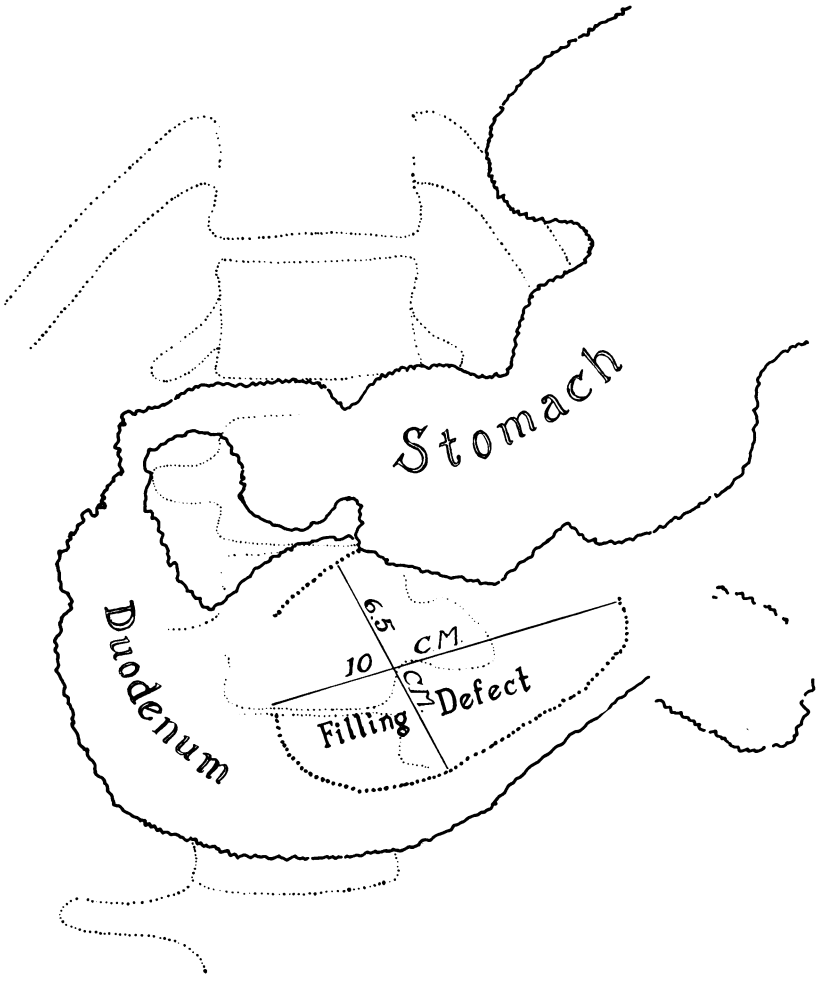

FIG. 2.—Tracing of roentgenogram shown in Figure 1.

its edges were separated, permitted the discharge of a large amount of golden-yellow bile. If the edges of the slit were not held apart, a considerable amount of pressure could be exerted upon the tumor without causing the discharge of bile (Fig. 3).

An incision was made through the anterior aspect of the tumor and it was found that the central portion of the tumor was occupied by a cavity lined with mucosa, which had the same appearance as the mucosa of the duodenum. On careful examination it was noted that there were two small openings into the central cavity. These openings were approximately two millimeters apart, one being slightly larger than the other. A probe passed into the larger opening followed the pedicle of the tumor

into what appeared to be quite normal common bile duct. A probe passed into the other opening apparently followed the direction of the duct of Wirsung. The cavity within the polyp communicated with the lumen of the duodenum by means of a slit-like opening at the tip of the tumor (Fig. 4).

A circular incision was made about the apertures of the common bile duct and pancreatic duct (Fig. 4), and all of the muscosa lining the central cavity except that contained within the circular incision was removed. The greater portion of the mucosa covering the polypoid mass was then removed. This resulted in what appeared to be

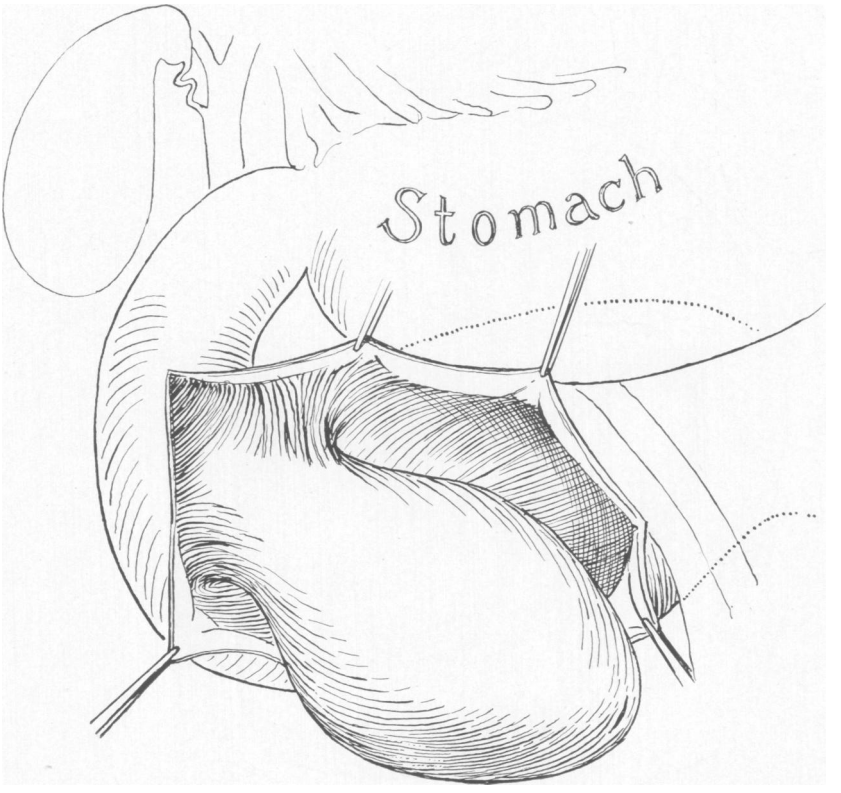

FIG. 3.—Diagrammatic illustration of the appearance of the duodenum after it was opened. The polyp was relatively longer and had a more bulbous tip than is shown in this illustration. The slit-like opening is almost as obscure in the illustration as it was in reality.

a linear incision of the mucosa of the posterior wall of the duodenum, within which there was a separate island of mucosa derived from the mucosal lining of the central cyst. The mucosa of the posterior wall of the duodenum was then closed, incorporating the island of mucosa surrounding the openings of the bile and pancreatic ducts (Fig. 5). The incision in the anterior wall of the duodenum was then closed by a double row of inverting sutures.

The gallbladder was then exposed by separation of the surrounding adhesions, and, on palpation, was found to contain a few small stones. An incision was made at the tip of the gallbladder and the stones removed. The operator hesitated to remove the gallbladder for fear that a subsequent constriction would form at the opening of the common bile duct into the duodenum. A small tube was, therefore, placed in the fundus of the gallbladder and brought out through a stab wound at the right costal margin. The abdominal incision was closed in layers.

The patient's postoperative course was uneventful. He was discharged from the hospital on the 12th postoperative day. During the year following operation the patient has enjoyed excellent health, and has gained 40 pounds. When reexamined a year after operation he appeared to be in perfect physical condition. At this time roentgenologic examination of the gastro-intestinal tract revealed slight dilatation only of the upper portion of the jejunum, with no evidence of obstruction.

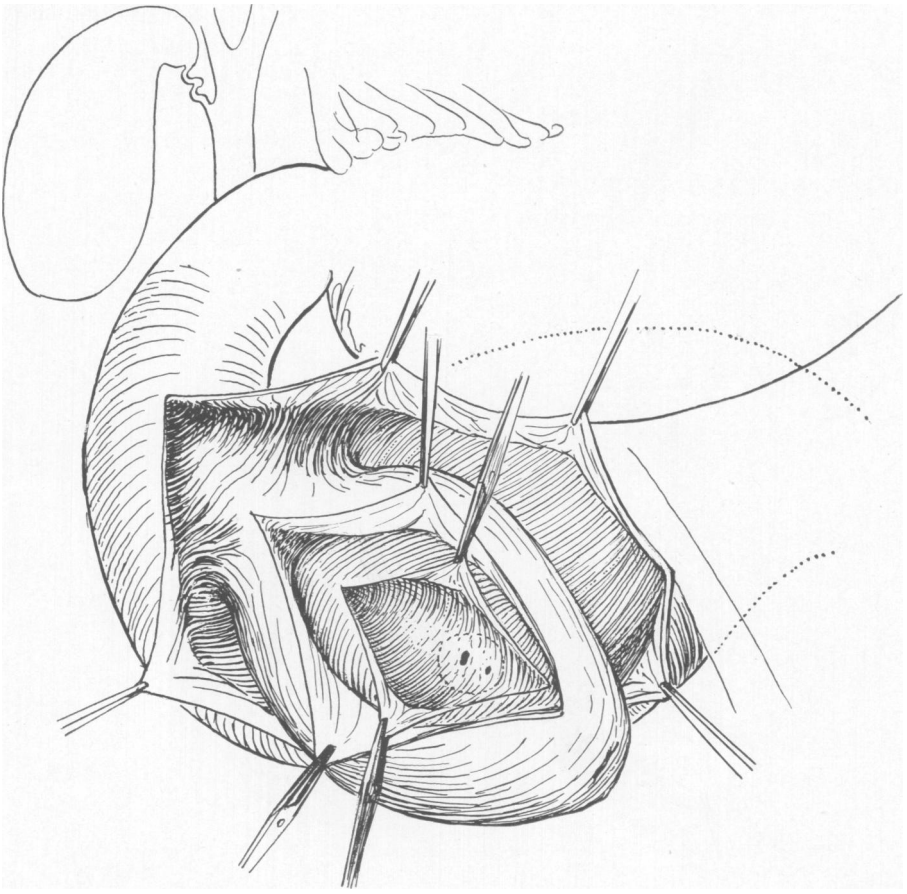

FIG. 4.—Diagrammatic illustration of the appearance of the polypoid tumor after an incision was made into the central cyst. The dotted line around the apertures of the bile and pancreatic ducts marks the site of the incision made for preserving this area of mucosa for subsequent transplantation into the posterior duodenal wall.

DISCUSSION

The term, cyst of the ampulla of Vater, is used in the title of this paper because it seemed best suited for making this report available in the current medical indices to those subsequently interested in this subject, but in reality the conditions present were not as simple as this term implies.

Whatever the cause of the initial anomaly at the normal site of the ampulla of Vater was, it seems quite certain that the outstanding anatomic characteristics of the tumor, the duodenum and proximal jejunum, as well as the

major symptoms present, were because of the intussusception of the cyst. In fact, it is difficult to understand how so large a mass could exist in the duodenum without more discomfort than the patient appeared to have. The hypertrophy of the jejunum for a distance greater than the length of the tumor is easily accounted for by the bulbous end of the tumor, which if once engaged in peristaltic waves would result in the jejunum being drawn on to the intussuscepted mass after its further progress were impossible because of the attachment of its pedicle.

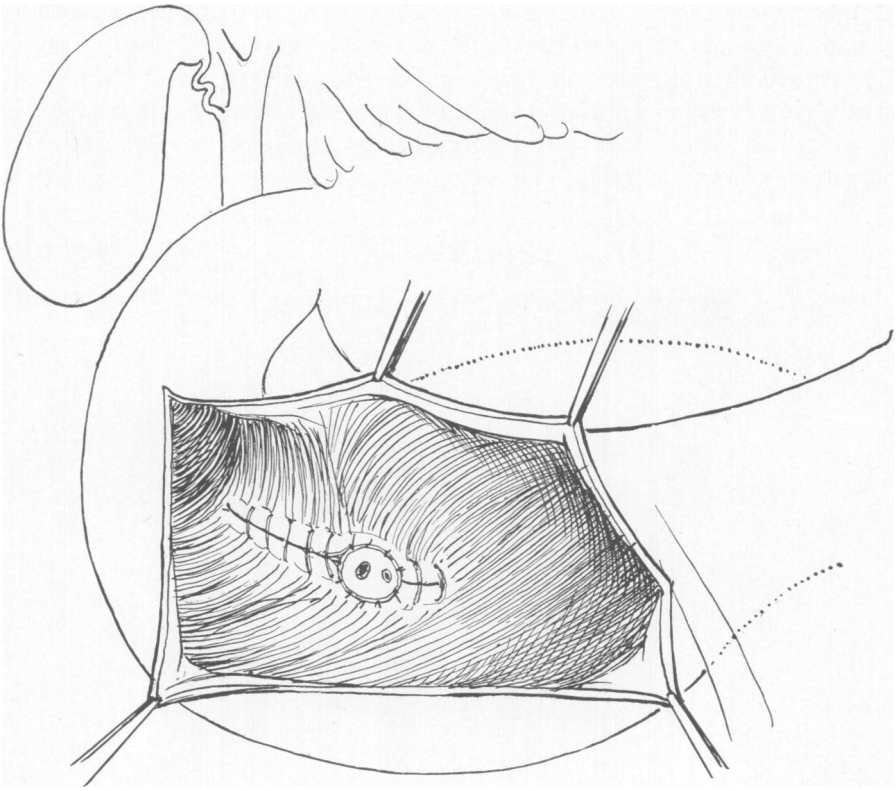

FIG. 5.—Diagrammatic illustration of the method of closure of the wound in the posterior wall of duodenum containing the transplant of mucosa from the central cyst.

The explanation of the initial anomaly is by no means as simple as the title of this report implies. Although the slit-like opening in the distal end of the polypoid tumor seemed quite analogous to the aperture of the normal ampulla of Vater, and the common bile duct and the duct of Wirsung opened into the cyst, it appeared impossible to consider the cyst as having been acquired from a dilatation of the canal within the ampulla, because the slit-like opening of the cyst into the duodenum was really larger than the aperture of the normal ampulla, and because the cyst was lined with a mucosa which, on both gross and microscopic examination, was identical with the

normal mucosa of the duodenum. Also, the openings of the bile and pancreatic ducts were at the distal aspect of the cyst.

It appears, therefore, as if the abnormality described herewith was a congenital anomaly of the duodenal wall and not an acquired dilatation of the ampulla of Vater. The authors were unable to find a record of a similar condition having been observed except perhaps the "anomalous pouch" of the duodenum reported by J. C. Boileau Grant.[1]

The nature of the symptoms experienced by the patient at the age of 15, is strongly presumptive evidence of the existence of the polypoid tumor at that time. In this connection, it is interesting to note the remarkable change in the patient's definition of being "well" before and after operation. Before operation the patient believed himself "well" between "attacks of severe pain, nausea and vomiting" only occurring during the year previous to operation. One year after operation he stated that he had, since the operation, enjoyed a feeling of comfort and well-being previously unknown to him.

REFERENCE

[1] Grant, J. C. Boileau: Anomalous Duodenal Pouch. Brit. Jour. Surg., **23**, 233, July, 1935.