

CHOLEDOCHUS CYST

A CASE TREATED BY Y-ROUX TYPE ANASTOMOSIS OF JEJUNUM TO THE CYST*

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THE MAJORITY OF PATIENTS with cystic dilatation of the common bile duct who have recovered have been treated by primary anastomosis of the biliary system and the gastro-intestinal tract. In the patient treated by the authors this was accomplished by a "Y" or Roux-type anastomosis. As this method of treatment seems to the authors to involve possible advantages, a description of the case and a discussion of the rationale is hereby presented.

In their publications, Shallow, Eger and Wagner^{1, 2} have reviewed and discussed 182 cases. They conclude that the safest treatment, and the one recommended for general employment, is anastomosis of the cyst to the duodenum. They mention the possibility that, with this treatment, the remaining duct may harbor regurgitated food with consequent severe ascending cholangitis. Pearce *et al.*³ have shown that in dogs with a Y-type anastomosis an antiperistaltic loop of bowel 12 inches or more in length will prevent regurgitation of intestinal contents. It therefore seems to the authors that the method of treatment that they have utilized in a case of choledochus cyst, in which such a loop was used, might serve to diminish one of the disadvantages of what would otherwise be the preferred method.

CASE REPORT

B. W. was a 17-year-old white female. According to her father, the patient had suffered several severe attacks of colicky abdominal pains as an infant. The last of these attacks was accompanied by jaundice for which she was hospitalized.

The following notes are taken from a summary of the record of B. W. which Dr. Paul V. Woolley, Jr., of Children's Hospital of Detroit, has very kindly provided. The patient first entered the hospital when she was 16 months old, on October 6, 1933, with a complaint of attacks of jaundice during the previous six months. Examination revealed an enlarged liver and a distended, enlarged gallbladder. In an attempt to roentgen ray the gallbladder, after giving "Iodeikon" by mouth, nothing was visualized in the plate. The child was kept on a low fat diet during her entire stay in the hospital. She developed a cold and the middle ears had to be opened; they drained pus and the child was acutely ill for several days. She lost considerable weight. She did not have another attack of jaundice, however, and it was thought best to discharge her and have her return if there was another attack of jaundice. She was discharged on October 26, 1933. The diagnosis was chronic cholecystitis, chronic cholangitis and chronic hepatitis.

Following this episode the patient showed no further jaundice and she is said to have remained perfectly well until the present attack, 15 years later. The present attack

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began on May 27, 1949, with a severe upper abdominal cramp, nausea and vomiting. This cleared up, and for the next two days the patient felt well. On May 29, she again experienced severe upper abdominal pain with severe upper abdominal cramps and nausea and vomiting. An enema was given at home, but the patient got no relief and she was admitted to Providence Hospital, Detroit.

Examination showed no abdominal spasm, rigidity or tenderness. A questionable upper abdominal mass could be felt, but did not reveal itself fully until the patient was completely relaxed under anesthesia. On admission, the temperature was 98.2°F, the pulse rate 80, and the respiratory rate 20. Laboratory findings were as follows: Hemoglobin, 16.6; R.B.C. 5,500,000; white cells 15,400; differential: 97 per cent neutrophils,

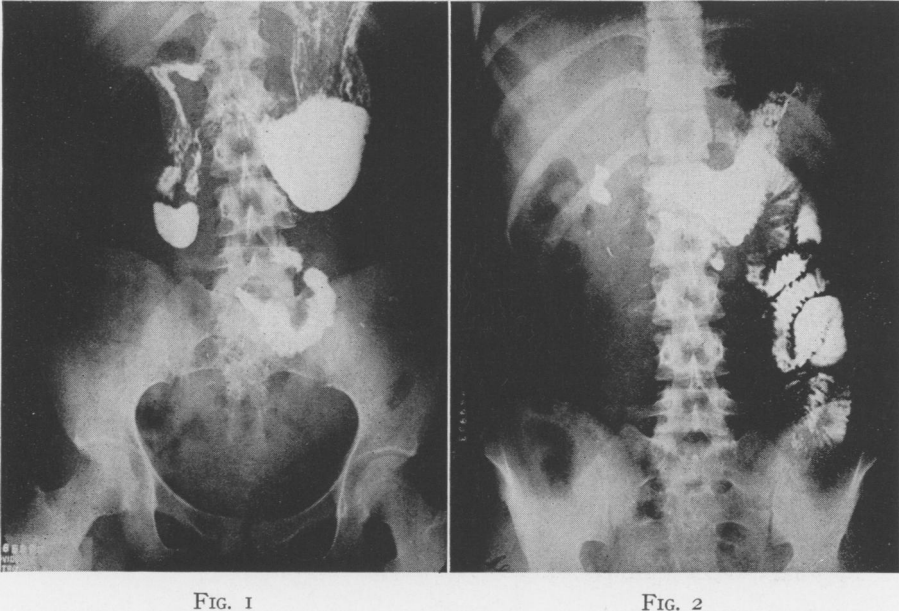


FIG. 1.—Four and one-half months postoperatively. This first view shows the descending limb of the duodenum to be somewhat elongated, and a minimal delay was suggested in the transverse portion of the duodenum. No irregularities or obstruction could be noted. The spill into the jejunum was followed readily, with the barium advancing rather slowly. At no time during this examination could barium be noted extending toward the biliary tract region. The passage of the barium through the upper small bowel appeared entirely normal.

FIG. 2.—A final study was made one-half hour later and demonstrates a normal advance of the barium through the left small bowel, with again no evidence of any barium extending up toward the biliary tract.

3 per cent lymphocytes (2 per cent non-filamented forms). The urine analysis was negative for sugar and albumin. The preoperative diagnosis was inflammation of an abnormally located appendix or possible cholecystitis. The patient was taken to the operating room.

A right rectus incision was made. Examination of the appendix and the pelvic organs showed these structures to be normal. There was a yellowish-green discoloration of the gastro-colic ligament as if there had been leakage of bile. Exploration of the right upper quadrant of the abdomen revealed a large firm mass. Careful examination of this mass showed it to be retro-duodenal and the first and second portions of the duodenum

were incorporated in the mass. The second portion of the duodenum was stretched out on the lateral side of the mass. The foramen of Winslow was obliterated. The gallbladder, which was small and surrounded with adhesions, was displaced upward.

The duodenum was mobilized by the Kocher method. This maneuver made possible a full exposure of the mass. It was seen to extend from the porta hepatis, above, to a point behind the head of the pancreas, below. Aspiration of the cystic mass yielded approximately 800 cc. of clear light green bile. A 4 or 5 cm. incision was then made into the anterior border of what appeared to be the common duct. Exploration with the index finger showed that this cystic dilatation extended all the way up into the liver, while caudally it extended as low as the third part of the duodenum and posterior to the head of the pancreas.

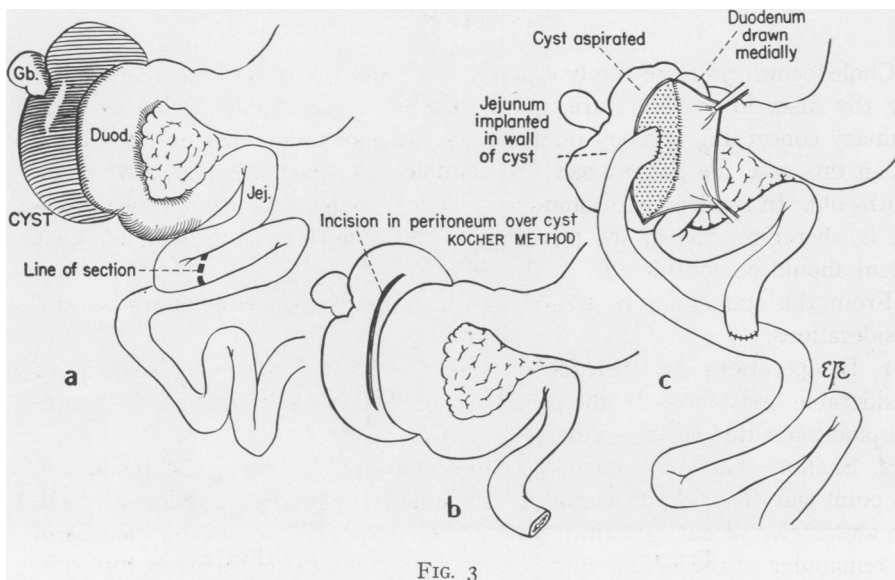


FIG. 3

An opening was then made into the avascular portion of the transverse mesocolon through which a loop of jejunum was brought. The mesocolon was sutured around this loop. A Y or Roux type of anastomosis was then made to the common duct cyst. The end of the distal limb of jejunum was anastomosed to the side of the cystic dilatation with interrupted mattress sutures. Anteriorly a row of Connell's stitches approximated the serosal surfaces of the bowel and the cyst wall. The end of the proximal limb was then anastomosed to the side of the distal limb of jejunum 12 inches distal to the first anastomosis. This was also done with interrupted chromic sutures. The omentum was brought up to both of these anastomoses. A Penrose drain was inserted into the right paracolic fossa and brought through the lowermost part of the incision. After inserting three interrupted silk sutures, the abdomen was closed.

Convalescence in this case was rather stormy. The patient continued to vomit and in spite of parenteral proteins, vitamins, glucose, electrolytes, and chemotherapy she suffered dehiscence of her wound on June 7, 1949. This was repaired and at the time evidence of localized peritonitis about the cyst was noted. Despite continued penicillin and streptomycin therapy there was no marked improvement during the next five days. At

the end of that time she was given sulfadiazene intravenously. Following this her recovery was uneventful and she was discharged from the hospital on June 23, 1949.

Four and one-half months later the patient had regained most of the weight said to have been lost during her illness. She stated that she felt "perfectly well" and she denied recurrence of any of the symptoms.

A radiologic examination was undertaken by Dr. W. A. Irwin. Gallbladder dye was administered by mouth but roentgen ray studies failed to reveal any concentration.

Following a barium meal fluoroscopic examination and a series of 4 radiograms failed to show any extension of barium toward the biliary tract even after pressure on the abdomen. The descending loop of the duodenum appeared somewhat elongated. The passage of barium through the upper small intestine was somewhat slower than usual but otherwise findings were reported to be entirely normal.

DISCUSSION

Choledochus cysts are rarely encountered. Shallow *et al.* were able to find only 182 cases in the literature up to 1946.^{1, 2} Little can be added to their summary concerning etiology or diagnosis. It may be pointed out, however, that in this case the patient had had jaundice 15 years previously when 16 months old. In children with jaundice or colicky abdominal pains, choledochus cyst is, therefore, one of the possibilities and study of the gallbladder duct system should be considered.

From the standpoint of treatment, the present case emphasizes several considerations.

1. In operations for choledochus cyst, the Kocher maneuver may be of considerable assistance. In the present case the technic simplified the procedure and permitted easier access.

2. Shallow *et al.*² recommend the anastomosis of the cyst to the duodenum, but point out the risk of ascending cholangitis from regurgitation of food. The alternative of extirpation of the cyst followed by primary anastomosis of the remainder of the biliary duct system to the duodenum reduces this risk, but Shallow and his colleagues indicate a higher mortality and recommend the method only when the patient is a good operative risk, the cyst large and infection minimal or absent.

3. Michel⁴ also mentions the possibility of reflux into the cyst and claims that this can be eliminated by the Braun type of anastomosis as demonstrated in his case. In fluoroscopic studies he was unable to force barium into the cyst even by pressure from the outside, although it did enter the anastomotic loop of intestine.

4. Tsujimura⁵ and Kambe⁶ reported one successful operation each in which they performed a Y-type anastomosis between the jejunum and the cyst. Fujihara⁷ reports a third such case which he successfully treated. He severed the jejunum 50 cm. analwards from the ligament of Treitz and, after closing both stumps, performed a side-to-side anastomosis of the distal stump with the cyst and an anastomosis of the side of the proximal stump with the side of the distal limb at a point 30 cm. analward from the previous anastomosis. In discussing operative methods for anastomosis of a choledochus cyst with the

gastro-intestinal tract, Fujihara comments that a Y-form anastomosis using a long by-passed limb of jejunum, as in his case, is the ideal form and should be considered the normal method of treatment.

5. Although Michel⁴ cites abstracts of the reports on these Japanese cases, he considers the Y-type anastomosis more dangerous than the method he used. Thus the advantages of the Y-type anastomosis, although possibly discussed in the original Japanese publications, do not appear to have been heretofore mentioned in the European or American literature on choledochus cyst.

SUMMARY

The treatment with a Y-Roux type anastomosis, with an antiperistaltic limb of jejunum of adequate length anastomosed to the cyst, would tend to eliminate one of the disadvantages of anastomosis of a choledochus cyst to the duodenum and would avoid the risks of extirpation of the cyst.

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