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Anomaly of Bile Duct: Report of a Case

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胆管走行異常の1症例

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胆管走行異常の一症例を報告する。胃透視下でバリウム造影剤が胃角部より胆管へ逆流することにより発見された。胆管は肝管より直接胃角部へ開口するものと、正常胆嚢を経て十二指腸乳頭部

へ開口するものが認められた。胃内視鏡検査では胃角部に開口部が認められ、パングレオザミン注射により胆汁の流出が認められた。この症例は先天性奇形と考えられる。

An unusual case of bile duct anatomy was discovered after routine fluoroscopy of the stomach in a patient exhibiting relatively minor symptoms disclosed a back flow of barium meal into a bile duct. Endoscopy revealed a bile duct orifice located in the lesser curvature of the stomach. The anomaly was evaluated by fluoroscopic examination and various functional tests, and a diagrammatic representation is given.

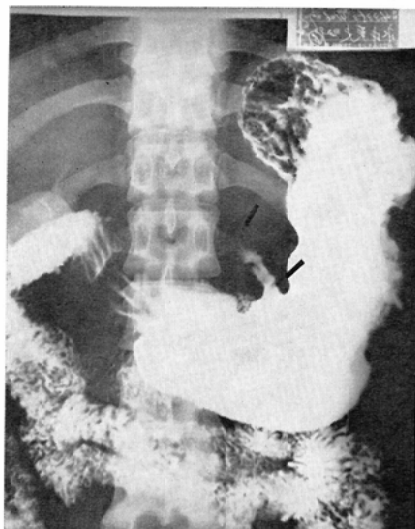
Report Of A Case

A 29 year old male visited the National Cancer Center Hospital (Japan) on March 4, 1966 with a several year history of occasional abdominal pain and diarrhea. He had an appendectomy 10 years previously and, on one occasion, two years ago, he had severe epigastralgia of a few hours duration. Physical findings were noncontributory except for a slight tenderness in the right hypochondrium. Laboratory tests gave the following information: red cell count, 4.79×10^6 per mm^3 ; and hemoglobin content by the Sahli method, 106 percent. The white cell count, was 6,000 per mm^3 , and the differential count 63.5 percent neutrocytes, 32.5 percent lymphocytes, and 4.0 percent monocytes. The total serum protein was 7.9 g per 100 ml. with an albumin/globulin ratio of 1.3. The Meulengracht icteric index was 5, and the Bromsulphalein test was 1 percent at 60 minutes. The cholesterol content of the serum was 200 mg per 100 ml, amylase was 119 Somogyi units, alkaline phosphatase (Bessy and Lowry) was 2.9, glutamic oxalacetic transaminase was 12.8, and glutamic pyruvic transaminase was 9.8. The urine analysis showed no protein or sugar, and the test for occult blood in the stool was negative.

Roentgenographic Findings.

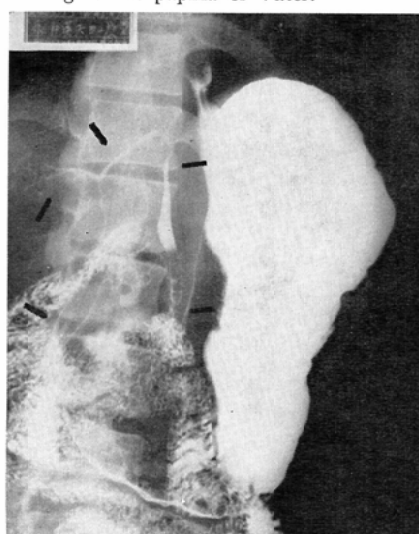
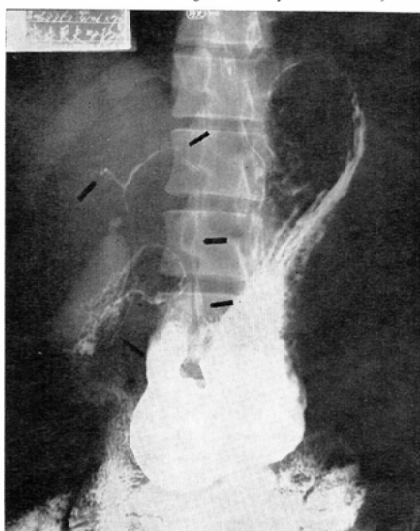
Fluoroscopy of the stomach (in the prone position) with barium meal, revealed a niche-like figure at the angle of the stomach (Figure 1). Roentgenograms visualized a duct which extended superiorly from the angle of the stomach to the level of the fundus turned toward the liver for about half the length of the first portion of the duct; bifurcation was observed at the superior portion with one branch coursing

Fig. 1. A niche like figure extends upward from the angle of the stomach (prone position).



inferiorly to the middle of the descending part of the duodenum and into the papilla of Vater, and the second branch continuing to the porta hepatis (figures 2 and 3). Cholecystographic studies with Telepaque and Biligraphin showed the gall bladder to be normal in size and form. Excretion of bile after chologogue was also normal. The cystic duct and the bile duct were partially visualized by tomography, but it was difficult to follow the common duct to the papilla of Vater.

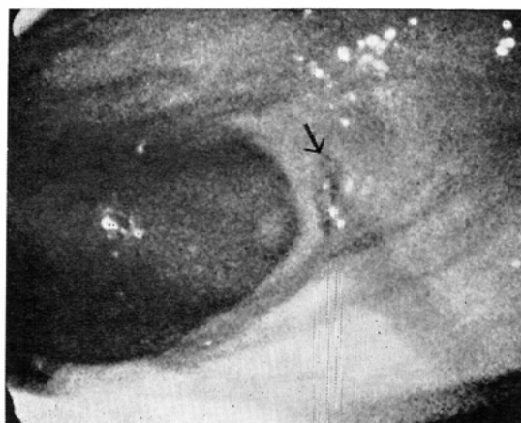
Fig. 2 & 3. A duct may be followed up from the angle of the stomach to the level of the fundus of the stomach, turning to the right, being joined by branches, and descending to the papilla of Vater.



Endoscopy of the Stomach.

A small, concave, dark-colored fossa was noticed at the angle of the stomach (Figure 4). Bile flowed into the stomach periodically from this hollow soon after the injection of Pancreozymin (1 unit per kg of

Fig. 4. Endoscopy of the stomach. At the angle of the stomach, a small, dark hollow is noted. The stream of bile issuing, after injection of Pancreozymin may be seen.



body weight).

Pancreozymin-Secretin Test⁹.

One unit of Pancreozymin and Secretin per kg of body weight was injected during a 10 minute interval. The results are summarized in Table 1-3. Here the normal icteric index indicates that the concent-

Table I
Results of Pancreozymin-Secretin Test

Analysis of duodenal juice	Patient data	Normal value*
Maximum icteric index	350	more than 200
Crystals and pigmented granules	not detected	
Volume/Kg of body weight	2.4 cc	3.0 ± 1.4
Maximum CO ₂	94.2 mEq/l	97.4 ± 27.2 mEq/l
Amylase output/Kg of body weight	6156**	3680 ± 2760 **

*Normal values (mean \pm 2SD) were obtained from 33 patients without pancreatic disease.

**Somogyi Unit/kg of body weights.

Table II
Change of Amylase in Serum and Urine in the
Pancreozymin-Secretin Test

	Before Injection	After Injection
Serum amylase	142	158
Urine amylase	555	324

Table III
Change of Gastric Juice by Pancreozymin Stimulation

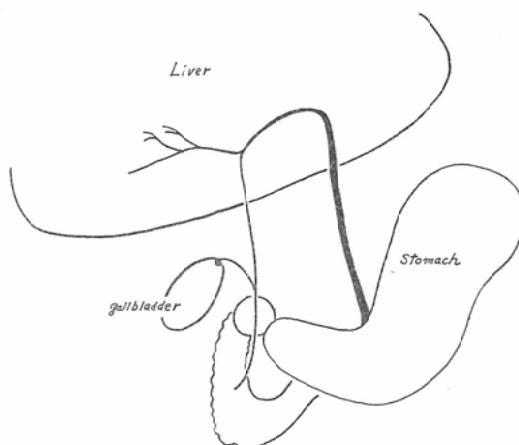
	Before Injection	After Injection
Icteric index	0	35
pH	2.0	6.0
CO ₂ (mEq/l)	1.4	3.0

ration and excretion abilities of the gall bladder were normal. The volume, maximal concentration of bicarbonate and amylase output values show that the exocrine function of the pancreas was normal. The elevated pH and the increase of maximal bicarbonate of the stomach juice may be interpreted as the result of the bile flowing into the stomach.

Discussion

The unusual configuration of the bile duct as revealed in the x-ray films has been sketched in Figure 5. The duct which entered the stomach was quite large in diameter but seemed to be atonic, and the

Fig. 5. Diagrammatic representation of bile duct anomaly.
Junction to the left hepatic duct not certain.



duct which entered the papilla of Vater was somewhat smaller than normal. The upper part of the branch which could be visualized seemed to belong to the right hepatic lobe. The position of the junction of the left hepatic duct was not established.

Anomalous anatomical configurations of the gall bladder and bile duct are not rare. Smith and Sherlock¹ reported that the common bile duct may drain into the stomach, pyloric canal or duodenum, and even the existence of two main ducts has been noted. Many cases¹⁻⁸ of bile duct anomalies have been reported, but those in which the common bile duct opens into the stomach are rare and there seems to be none similar to that of the present patient who has a normal common bile duct and also a bile duct which enters the stomach. This anomaly was not verified by surgery, but the endoscopic visualization of the flow of bile into the stomach by Pancreozymin stimulation was deemed to be sufficient confirmatory evidence for the fluoroscopic observation.

This unusual bile duct may be categorized as a congenital anomaly because the patient had no surgical treatment except for an appendectomy in his history, and there were no clinical manifestations such as cholecystitis, cholelithiasis, hepatitis or peptic ulcer. He has normal hepatic function, but his observation is being continued because of the possibility of hepatitis or inflammation of the bile duct caused by the backflow of some foreign body.

Summary

A rare case of an anomaly of the bile duct is reported. Fluoroscopic examination of the stomach showed a back-flow of contrast media into a bile duct which opened into the stomach. The presence of a normal

bile duct which opened into the papilla of Vater was also established. Endoscopic examination showed the opening of the duct at the angle of the stomach, and a flow of bile which could be increased by stimulation with Pancreozymin was observed to issue from the orifice.

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