

# Cholecystocolic Fistula: \*

## A Complication of Cholecystostomy; with Special Reference to the Management of Cholecystostomy

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FOLLOWING the first planned cholecystostomy performed by Marion Sims\*\* in 1878,<sup>17</sup> this operation was the accepted method of treatment for both acute and chronic cholecystitis for many years.<sup>4, 10, 19</sup> Although Langenbuch performed the first cholecystectomy as early as 1882,<sup>13</sup> complete removal of the gallbladder was not practiced widely until the early part of this century when improvement in surgical technics made this more definitive operation possible.<sup>4, 10</sup> Since then the usefulness of cholecystostomy often has been overlooked and it has come to be regarded unjustifiably by many surgeons as a compromise operation or a substitute procedure.<sup>7</sup> The value of cholecystostomy in a poor-risk patient or in a healthy patient with a difficult technical problem appears to be established, however, and will undoubtedly perpetuate its continued use in these special situations.<sup>11, 18</sup> In the reported series of patients suffering from acute cholecystitis, cholecystostomy was employed in a varying incidence of 1.0 to 28 per cent of cases.<sup>18</sup>

An unusual and hitherto unreported complication of cholecystostomy was encountered recently as a result of prolonged

cholecystostomy tube drainage. Because this complication is avoidable, the following case is reported and the principles concerning the management of the patient with a cholecystostomy briefly outlined.

### Case Report

**A. C.** A 70-year-old white woman was admitted to the Grace-New Haven Hospital on February 24, 1962 because of melena.

In November 1961, the patient underwent hemigastrectomy and vagotomy for a bleeding gastric ulcer. Cholecystostomy was performed at the same time because of a past history of symptomatic cholelithiasis. All calculi were removed from the gallbladder and a large mushroom catheter with the end cut off was inserted into its lumen. A cholecystostomy rather than a cholecystectomy was done because considerable scarring around the common duct would, in the opinion of the surgeon, have made cholecystectomy hazardous. Her postoperative course was smooth and she was discharged from the hospital on December 4, 1961 after a cholecystocholangiogram through the cholecystostomy tube had demonstrated free passage of the contrast medium into the duodenum without any evidence of biliary calculi (Fig. 1). The cholecystostomy tube at the time of discharge was clamped and cut near the skin. The patient did well until one day prior to admission when she noted passage of bright red blood around the cholecystostomy tube. On the assumption that the bleeding was secondary to erosion of granulation tissue in the cholecystostomy sinus tract, the cholecystostomy tube was removed. The bleeding continued, however, and on the day of admission on February 24, 1962 the patient began to have bloody bowel move-

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\*\* The first unplanned cholecystostomy was done by J. S. Bobbs of Indianapolis under the mistaken impression that he was opening a large ovarian cyst.<sup>1</sup>

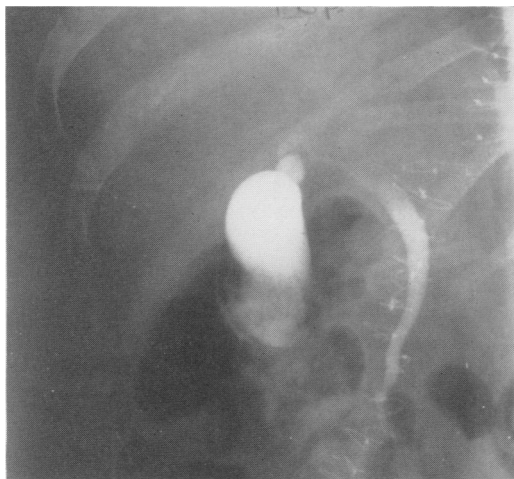


FIG. 1. Cholecystocholangiogram through cholecystostomy tube (two weeks after cholecystostomy), demonstrating absence of biliary calculi and no evidence of fistula.

ments, passing large amounts of bright red blood mixed with clots per rectum.

On admission the B.P. was 160/80, P. 96, T. 38.3° C. The patient appeared to have lost a large amount of blood. Active bleeding was present from the cholecystostomy site. The abdomen was soft and nontender and the bowel sounds were active. There was no jaundice present. The admission hematocrit was 31 per cent, WBC 10,400, and the urinalysis was normal. The blood clotting mechanism was normal with the exception of a prothrombin of 86 per cent.

A Levin tube was passed into the stomach but no blood was obtained. With a tentative diagnosis of cholecystocolic fistula an attempt was made to arrest the hemorrhage by packing the cholecystostomy sinus tract and the gallbladder with powdered Gelfoam® and topical thrombin as well as with the administration of fresh whole blood and vitamins K and C. It was necessary to administer 12 units of blood before bleeding was arrested, approximately 20 hours after admission and on the verge of taking the patient to the operating room.

In the next two or three days the patient was noted to be passing flatus and small amounts of fecal material through the cholecystostomy sinus tract. The temperature remained elevated, in the neighborhood of 38.3° C. and Achromycin, 500 mg. q6h was started. A cholecystocholangiogram on February 26 demonstrated a cholecystocolic fistula (Fig. 2) and barium enema two days later showed filling of the entire biliary tract.

On March 6, 1962, after a six-day bowel

preparation with sulfathaladine an operation was performed. The abdomen was entered through a long transverse incision excising the cholecystostomy sinus tract. The fistula between the gallbladder and the transverse colon was dissected free and clamped. After a cholangiogram through the cystic duct stump had demonstrated no biliary calculi to be present a cholecystectomy was performed. The fistulous opening into the transverse colon was closed with a double layer of interrupted 4-0 silk sutures. The patient's postoperative course was smooth and she was discharged on March 16, 1962.

### Discussion

Internal biliary fistulas are most frequently the result of chronic biliary tract disease with cholelithiasis; the abnormal communication between the biliary tract and adjacent bowel is caused by erosion of the wall of the gallbladder or common duct by a gallstone which then penetrates into the juxtaposed bowel.<sup>14</sup> Less than 15 per cent of internal biliary fistulas are due to other causes such as peptic ulcer, carcinoma or congenital anomalies.<sup>8, 14</sup> In the present case, the etiology of the cholecystocolic fistula can be traced with fair certainty to the mechanical erosion of the gallbladder wall and adjacent large bowel by a cholecystostomy tube which was left in the gallbladder after cholecystostomy to provide a *safety valve*.

It is agreed customarily that cholecystostomy should be regarded as a temporary procedure, to be followed by cholecystectomy when the condition of the patient improves, or, when a suitable interval has elapsed.<sup>16, 18</sup> If one elects to postpone operation indefinitely, when advanced age or concomitant disease makes cholecystectomy undesirable, the possibility of subsequent symptomatic biliary tract disease is in the neighborhood of 50 per cent.<sup>10, 15, 16</sup> If an attack of acute cholecystitis results, a second cholecystostomy has been recommended in these patients.<sup>11</sup> A repeat cholecystostomy is as a rule a much easier procedure than the first cholecystostomy and

can be readily done under local anesthesia by reopening the healed sinus tract.

To guard against a subsequent attack of acute cholecystitis in the patient reported and to facilitate its management, it was elected not to remove the cholecystostomy tube but to keep it in place (clamped and cut near the skin) to act as a safety valve which would decompress the gallbladder when necessary. Although no serious complications relating to such practice have been encountered in the past, prolonged cholecystostomy tube drainage is probably unnecessary and undesirable, especially when postoperative cholecystocholangiogram has demonstrated the patency of the cystic and common ducts. The presence of a tube is often uncomfortable to the patient, requires constant local care, and allows for entry of bacterial infection into the hepatobiliary system. The inconvenience as well as the dangers of prolonged cholecystostomy tube drainage would thus appear more often than not to far outweigh the potential gain which might be derived from it.

The management of the patient with a cholecystostomy has been described.<sup>15, 16, 18</sup> At the operating table, an attempt should be made to remove all the calculi. This is the most important factor in determining the long range effectiveness of cholecystostomy.<sup>18</sup> Postoperatively, the cholecystostomy tube is removed in one to two weeks unless drainage is excessive. A cholecystocholangiogram through the tube, before it is removed, will give information about the patency of the biliary ductal system and is used as a guide in planning further operative procedures. After removal of the cholecystostomy tube the sinus tract will usually close within several days. In the presence of complete cystic duct obstruction, a persistent mucous fistula is not uncommon but usually of little concern to the patient. If residual stones are present and an attack of acute cholecystitis supervenes before the definitive procedure of chole-



FIG. 2. Cholecystocholangiogram through cholecystostomy sinus tract (three and one half months after cholecystostomy), demonstrating the presence of a cholecystocolic fistula.

cystectomy has been carried out, a simple opening of the sinus tract under local anesthesia will provide prompt and effective decompression of the gallbladder and relieve the immediate attack. The condition of the patient permitting, cholecystectomy can usually be done within four to six weeks after cholecystostomy, provided the erythrocyte sedimentation rate has leveled off or come down to normal.

The large bowel hemorrhage associated with the cholecystocolic fistula in the present case deserves comment. Many chronic internal biliary fistulas are asymptomatic and may close spontaneously; when clinical manifestations occur, they are usually those of chronic biliary tract disease with pain, fever and jaundice.<sup>14</sup> Ascending cholangitis is a complication primarily of a cholecystocolic fistula,<sup>2, 6</sup> and was also present in our patient as shown by fever and reflux of barium into the biliary tree following barium enema. Gastro-intestinal bleeding, manifesting itself as hematemesis<sup>3</sup> or melena,<sup>5</sup> depending on whether the fistula is cholecystoduodenal or cholecystocolic, appears to be an uncommon complication. In both types of fistulas the bleeding is probably related to erosion and necrosis of the gallbladder wall and contiguous bowel.<sup>5</sup>

Hemorrhagic diathesis due to poor vitamin K absorption may play an additional role in cholecystocolic fistulas complicated by common duct obstruction.

The treatment of internal biliary fistulas is generally elective. An alarming large bowel hemorrhage in our patient almost precipitated emergency operation. This should be avoided whenever possible to permit proper preoperative preparation, including diagnostic roentgenographic examination designed to demonstrate the location or the fistula, suppression of bacterial flora by intestinal antibiotics, and maximum improvement in impaired liver functions and other existing metabolic deficiencies. Systemic antibiotics are used if there is evidence of ascending cholangitis.<sup>9</sup> Operative treatment includes cholecystectomy, accurate reconstruction of the normal anatomical arrangement with closure of the fistulous opening into the bowel and common duct exploration whenever indicated.

### Conclusion

A case of a cholecystocolic fistula complicating prolonged cholecystostomy tube drainage is reported. The major manifestation of the cholecystocolic fistula was large bowel hemorrhage. The management of the patient with a cholecystostomy and the treatment of internal biliary fistulas are discussed.

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