Postoperative Bilio-cutaneous Fistula Treated Successfully with Endocholedochal Prosthesis

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Abstract
A bilio-cutaneous fistula following common bile duct exploration and sphincteroplasty, which healed rapidly after placement of an indwelling biliary stent, is reported.

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Introduction
Bilio-cutaneous fistula usually occurs as a complication of cholecystectomy and common bile duct (CBD) exploration. Surgery is usually necessary to relieve persistent biliary fistula but surgical intervention in the presence of infection and adhesions in a poor risk patient carries significant mortality. Therefore different non-surgical methods of management with successful outcome have been proposed.2,3 We describe a case of non-healing bilio-cutaneous fistula following cholecystectomy, CBD exploration and transduodenal sphincteroplasty, managed successfully by the placement of an endocholedochal prosthesis.

Case Report
A 45-year-old woman was admitted with diagnosis of acute cholecystitis. Ultrasonography revealed a thick-walled gallbladder with multiple stones. The symptoms improved with conservative treatment and she was advised to come later for surgery.

She was explored after five weeks and was found to have a thick-walled gall bladder containing multiple faceted stones. Peroperative cholangiogram showed multiple filling defects at the lower end of a non-dilated CBD with no flow of dye in to the duodenum. The CBD was opened but the impacted stones could not be extracted from above. The duodenum was then opened by a longitudinal incision in its second part and sphincterotomy was done. All stones were removed and sphincteroplasty was performed. T-tube cholangiogram on the ninth postoperative day showed patulous lower end of CBD with free flow of contrast into the duodenum and leakage of the contrast outside the biliary tree (Fig). The leakage persisted for another week. The T-tube was removed three weeks after surgery. The biliary fistula however persisted and its contents got infected.

She was reexplored one month after the first surgery. There were dense adhesions between the inferior surface of the liver, the duodenum, omentum and small bowel. A tract could be seen in the space between the duodenum and liver and going towards the CBD. The abdomen was closed after external drainage of the fistula and a feeding jejunostomy. The fistula persisted postoperatively. Percutaneous transhepatic biliary drainage was attempted but did not succeed as the intra-hepatic biliary radicals were not dilated. The patient developed sepsis and her blood pressure started dropping for which she was treated with dopamine. She also suffered an episode of myocardial infarction and became critically ill with added problems of skin excoriation of abdominal wall and bed sore. Her general condition improved after 3 weeks of supportive treatment.

Side-viewing duodenoscopy (Olympus TJF) showed a patulous papilla and characterization of CBD showed a sharp sagitation in the mid CBD with a leak. A Teflon coated guidewire (0.085") was then negotiated with difficulty beyond the angle into the common hepatic duct. A 10F straight stent with flaps was introduced over the guidewire and left in situ. On removal of the guidewire, bile was seen flowing freely into the duodenum. Following this procedure the fistula output decreased rapidly and it healed completely within 4 days. The patient was finally discharged after 67 days of hospitalization. She continues to be asymptomatic one and a half months after discharge.
Discussion

Resolution of biliocutaneous fistula originating from the CBD depends on the associated lesion and the size of the defect. If there is distal obstruction or the defect is big, the fistula may not heal. In our case the fistula did not heal in spite of a patent lower end of the CBD following sphincteroplasty mainly due to two reasons. First, the size of the defect was big as the choledochotomy sutures gave way and secondly, there was a sharp angulation perhaps due to pulling out of the T-tube which did not allow bile to flow freely.

Hoffman et al. used endoscopic indwelling biliary stents in 7 patients of biliary fistula and attained fistula closure in all. Smith et al. reported successful healing of postoperative biliary fistula in five patients with stent placement. The stent, besides providing conduit to bile flow, also acts as scaffolding for granulation tissue to cover the defect. Ordinarily these stents can be removed after 4-8 weeks but we intend to keep it in our patient for a minimum of 16 weeks considering the size and complexity of the fistula. Cotton has emphasized the importance of multidisciplinary approach by a team of gastroenterologist, interventional radiologist and surgeon for the management of complicated biliary fistula. Endoscopic retrograde cholangiography is crucial for prompt diagnosis and management and internal stenting of the CBD is a preferred line of treatment when the fistula is large.

References