## Post cholecystectomy hemobilia: transcatheter embolization of pseudoaneuryms with homemade steel coils

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Two patients presented with hemobilia, one and two months following cholecystectomy. Angiography demonstrated pseudoaneurysms arising form the gastroduodenal and right hepatic arteries. Percutaneous transcatheter embolization of the pseudoaneurysms was successfully performed in both patients using homemade steel coils. [*Indian J Gastroenterol* 2002;21:161-162]

**Key words:** Cholecystectomy — complication

Post cholecystectomy hemobilia is a rare but almost invariably fatal cause of upper gastrointestinal bleeding.[1] Due to the high success rates and low procedure-related morbidity, angiographic procedures are now the treatment of choice for such lesions.[2] The widespread use of angiography has been inhibited by the cost of commercially available imported steel coils. We report two cases with post cholecystectomy hemobilia who were successfully managed using homemade steel coils.

*Case 1:* A 60-year-old woman underwent open cholecystectomy and bile duct exploration. She continued to have persistent drainage from the T-tube (250-400 mL) 15 days after surgery and was diagnosed to have a biliary fistula. She was readmitted for repair of the biliary fistula. One week after admission she developed fever, vomiting and epigastric tenderness, and later had a bout of fresh hemorrhage in the T-tube drain. Emergency angiogram revealed a bilobed pseudoaneurysm arising from the gastroduodenal artery and a wide communication of the aneurysm with the common bile duct (Fig). The mouth of the aneurysm was embolized with steel coils made from 0.035" conventional guidewire, using the technique described elsewhere.[3] This resulted in complete occlusion of the aneurysm (Fig) and cessation of hemorrhage from the T-tube. The patient later underwent surgical repair of the biliary fistula and is well one year later.

*Case 2:* A 32-year-old woman presented two months after successful laparoscopic cholecystectomy with an episode of hematemesis and melena. On examination she was pale, icteric and normotensive. Side-viewing endoscopy and ERCP re-

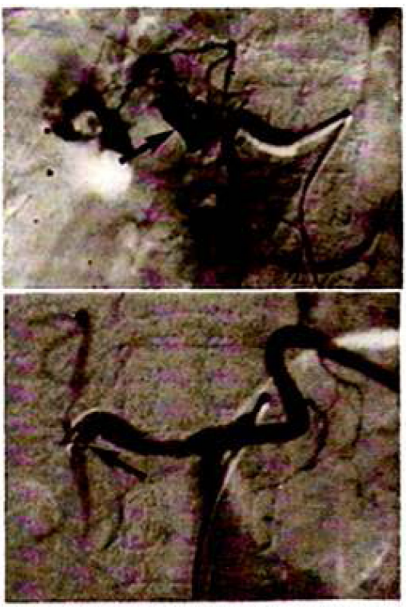

**Fig: Superselective common hepatic arteriogram (top) shows pseudoaneurysm (open arrow) arising from proximal gastroduodenal artery with active hemorrhage into common bile duct. Selective celiac axis angiogram (bottom) after embolization of neck of pseudoaneurysm with steel coils (arrow) shows much smaller pseudoaneurysm and no leakage of contrast**

vealed bleeding from the papilla with large filling defects in the common bile duct. Angiogram revealed a large pseudoaneurysm with a narrow mouth, arising from the anterior branch of the right hepatic artery. No communication with the biliary tree could be demonstrated. Instillation of steel coils and gelfoam into the pseudoaneurysm cavity did not result in thrombosis. Therefore we embolized the anterior branch of the right hepatic artery at the mouth of the pseudoaneurysm using homemade steel coils. Repeat superselective right hepatic angiogram demonstrated successful embolization and minimal filling of the pseudoaneurysm. After two days the patient underwent endoscopic papillotomy to drain the common bile duct of clots. She is well on 18 months' follow up.

These cases demonstrate that post cholecystectomy hemobilia due to pseudoaneurysms can be easily managed by embolization of the diseased artery, and surgery can be avoided.[2] A wide variety of agents have been used as embolic material, such as gelfoam, Ivalon, autologous blood clot, metallic coils, super glue, and detachable balloons. Transcatheter embolization using steel coils is quicker and allows more precise control of the ischemia.[4] We used multiple homemade steel coils for embolization in both our patients. These coils were fabricated from 0.032" or 0.035" conventional steel guidewires. The two ends of the guidewire were cut to separate the outer coil from the inner steel core and a fine safety wire. The coil was cut to the desired length and the edges smoothened with sterilized sandpaper. The central core was bent at an acute angle about 5 cm from one end and the cut length of the coil pushed over it into a helical coil. The advantage of these coils was that they can be quickly fabricated from easily available guidewires and their cost is much less than that of commercially available steel coils.[3]

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