Turk J Gastroenterol 2001; 12 (4): 308-310

Treatment of laparoscopic cholecystectomy complication of hemobilia by selective arterial embolization

Laparoskopik kolesistektomi sonucu gelişen hemobilia'nın selektif arteriyel embolizasyon ile tedavisi

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A female patient developed hemobilia due to a false aneurysm on the right branch of the hepatic artery,

three months after laparoscopic cholecystectomy, which was treated by emergency common hepatic artery ligation. When recurrence of hemobilia occurred six days later, the false aneurysm was treated by platinum coil embolization, entering the superior mesenteric artery. The patient recovered without event and during the 11-month follow-up period, was free of symptoms.

Key words: Hemobilia, laparoscopic cholecystectomy, hepatic artery, embolization

Laparoskopik kolesistektomi sonucu gelişen ve yapılan comman hepatik arter cerrahi ligasyonuna rağmen devam eden hemoblia'lı olguya yapılan cölyak ve süperior mesenterik anjiografide comman hepatik arter ligasyonu ve sag hepatik arterde fals anevrizma saptanmış olup süperior mesenterik arter'den retrograd olarak girilerek gelişen fals anevrizma platinium coil ile embolize edilmiştir. 11 ay sonraki kontrolde klinik ve labratuvar olarak hiçbir şikayeti olmadığı görülmüştür.

Anahtar kelimeler: Haemobilia, laparoskopik kolesistektomi.

INTRODUCTION

Although laparoscopic cholecystectomy is rapidly replacing conventional cholecystectomy in the treatment of gallbladder diseases, the use of this advancing surgical technique, despite its advantages, may cause a number of different complications(2). The following case report describes treatment of hemobilia caused by false aneurysm, which occurred as rare complication of laparoscopic cholecystectomy, the hemobilia was treated by selective arterial embolization.

CASE REPORT

A 49-year-old woman who underwent laparoscopic cholecystectomy returned to hospital three months after surgery with complaints of hematemesis and melena. She was given three units of blood because hemoglobin had dropped to 8.3 g/L. Endoscopy showed the blood to be coming through the ampulla of Vater. When the hemoglobin level dropped to 6.3 g/l an additional 6 units of blood was given.

After a surgical consultation, a decision was made to perform emergency common hepatic artery ligation six days after ligation, hematemesis and melena recurred. Since the hospital did not have angiography facilities, the patient was sent to our hospital, where a celiac arterial angiography by the transfemoral approach showed that the common hepatic artery was blocked at the proximal end and the blood flow to the liver was supplied from the dorsal pancreatic artery to the gastroduodenal artery. In addition, a 3-cm false aneurism and a surgical clip was seen on the right branch of hepatic artery, which was in contact with the neck of the false aneurism. During selective injection of contrast medium into the superior mesenteric artery, opacification of the gastroduodenal artery by retrograde flow through the anteroinferior pancreaticoduodenal artery and posteroinferior pancreticoduodenal artery (PIPD)

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Manuscript received: 19.3.2001 **Accepted:** 6.11.2001

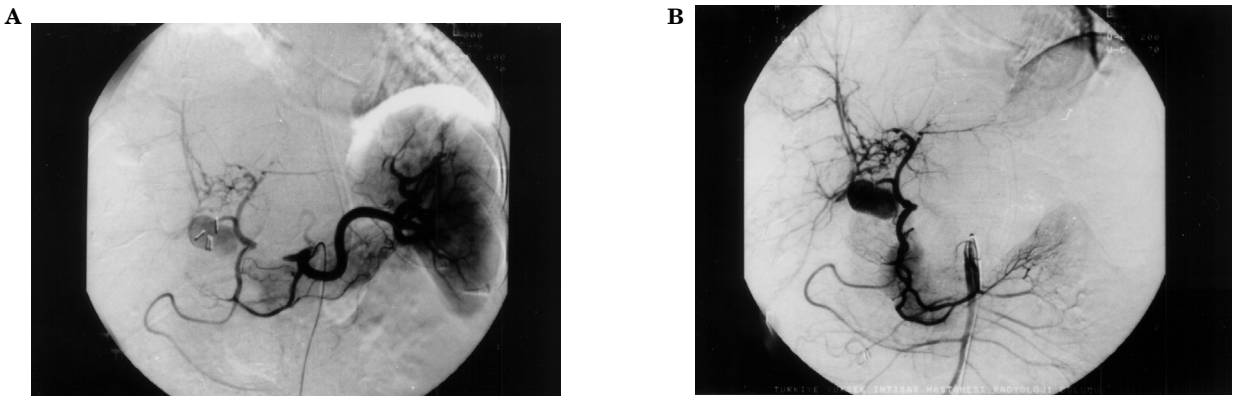
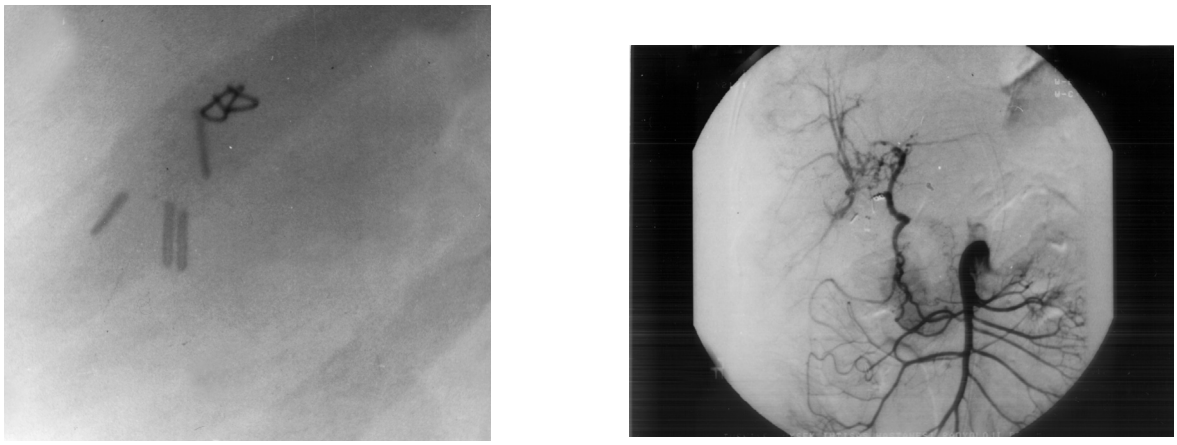


Figure 1. A 49-year-old female with haemobilia.
A and B. Celiac (A) and Superior mesenteric (B) angiograms show filling of gastroduodenal artery by collateral circulation; false aneurysm on the right branch of hepatic artery can also be observed. Note the metal clip which caused false aneurysm by injuring the arterial wall was placed between the neck of false aneurysm and the point where the right hepatic artery is blocked.



C. Aspect after embolization with platinum coil.

D. Post-embolization angiogram shows no false aneurysm.

was observed. The right hepatic arterial segment next to the distal section of the filling point of the false aneurysm was found to be blocked and the right hepatic branch was noted to be opacified by intrahepatic collaterals. On late phase angiogram, it was observed that the portal circulation showed normal opacification. By using more selective catheterization (3 Fr 150-cm Tracker-18 catheter) and a route via the PIPD, it was possible to reach the right hepatic artery through the gastroduodenal artery, and by using a platinum coil, the blood flow to the right part of the liver was completely blocked. Examination of post-embolization angiogram showed that the false aneurysm on the right branch of the hepatic artery was not opacified and the distal branches of the right hepatic artery were opacified by intrahepatic collaterals (Figure 1).

During an 11-month follow-up period, the patient had no further melena or hematemesis.

DISCUSSION

False aneurysm of the hepatic artery causing haemobilia is a rare complication of laparoscopic cholecystectomy. Two hypotheses have been put forward for the occurrence of this complication: (a) the tip of a clip injures the wall of the hepatic

artery, thereby weakening it; (b) the arterial wall is progressively eroded by a clip pushed by arterial pulsation (1).

In this case, it was found that the metal clip used for ligation of the cystic artery at the proximal end injured the wall of the right hepatic artery, as a result of false aneurysm.

Emergency common hepatic arterial ligation was unsuccessful in stopping bleeding because the hepatic artery had numerous collaterals with both the superior mesenteric artery and splenic arteries (3), and haemobilia recurred shortly afterwards.

Since hemobilia is caused by a defect in the biliary tree, it is highly probable that this defect occurred during laparoscopic cholecystectomy; alternatively, it was thought that haemobilia may have occurred secondary to erosion of the nearby the biliary canal by the devoloping false aneurysm. In the present case, we demonstrated that although the common hepatic arterial ligation was performed with the, right hepatic artery being reached by entering at the superior mesenteric artery and passing through the PIPD by retrograde fashion. The feeding artery of the false aneurysm was then successfully blocked.

False aneurysm should be the first complication to consider in haemobilia developing after laparoscopic cholecystectomy and according to the result of this evaluation, the diagnosis and method of treatment should be planned. If false aneurysm is confirmed, selective arterial embolization should be the treatment method of choice as common hepatic artery ligation may be unsuccessful due to anatomical structure.

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