

Clip-induced Biliary Stone – A Case Report

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Abstract

Migration of surgical clips is a well-known phenomenon ever since their use in surgery. It is not well understood how the clip is migrated. It can occur from days to years after laparoscopic cholecystectomy. However, biliary stone resulted from the migrated clip is rare. We reported a 54-year-old male who had a biliary stone resulted from a migrated clip after laparoscopic cholecystectomy. (J Intern Med Taiwan 2012; 23: 55-58)

Key Words: Migration, Surgical clip, Laparoscopic cholecystectomy

Introduction

Common bile duct (CBD) stones can be classified as primary and secondary. Secondary stones originate in the gallbladder and migrate into the CBD, which are the more common type. Primary stones, forming de novo within the CBD are less frequently encountered. Stasis is an important contributor for forming bile duct stones, and can result from stricture or other causes of obstruction, including foreign bodies. The migrated surgical clip could be one of the foreign bodies forming the nidus of the bile duct stones. Migration of surgical clips is a well-known phenomenon ever since their use in surgery. But biliary stones resulted from the migrated clips are rare. Migration of the surgical clip into the CBD and causing a biliary stone was first recognized in 1979¹. And after laparoscopic cholecystectomy(LC), the clip-induced biliary stone was first reported in 1992². For the

typical picture of cholangiogram of the clip-induced stone, some referred it as "cat's eye calculi"³. Despite the increasing of the cases of LC, biliary stones induced by the migrated clips are rare. We present a case of biliary stone resulted from a migrated surgical clip after LC.

Case Report

This is a 63 years old male patient. He had LC in April of 2008 for gallbladder stones with right upper abdominal pain. The surgery was uneventful. One month later, he had jaundice and was admitted again. He underwent endoscopic retrograde cholangiopancreato- graphy (ERCP) and a brown stone was retrieved after endoscopic sphincterotomy (EST). He had no more specific complaint after that procedure till 2 years later. In June of 2010, he visited our outpatient department with the chief complaint of epigastralgia for one week. The pain was vague and had no relieving factor. He had

mild nausea but no vomiting. He had fever on the day before he came to our hospital. Physical examinations revealed mild icteric sclera but no tenderness of abdomen. The blood tests showed GOT 200 U/L (10~35), GPT 178 U/L (3~30), Alk-p 318 U/L (65~272), total bilirubin 1.8 mg/dl (0.4~1.4) and white blood cell count 9290/ul. Acute cholangitis was suspected. Empiric intravenous antibiotics were prescribed after admission. He underwent abdominal ultrasonography and dilatation of CBD was noted. Recurrent CBD stone with obstruction was suspected. He then underwent ERCP. The cholangiogram showed a large filling defect with a metallic clip inside (Fig. 1). A metallic clip embedded in a soft brownish stone was retrieved with the Dormia stone retrieval basket. He was discharged uneventfully later. We reviewed his radiographs retrospectively, and found a freely floating metallic clip existed in the cholangiogram of first ERCP 2 years ago, which was overlooked

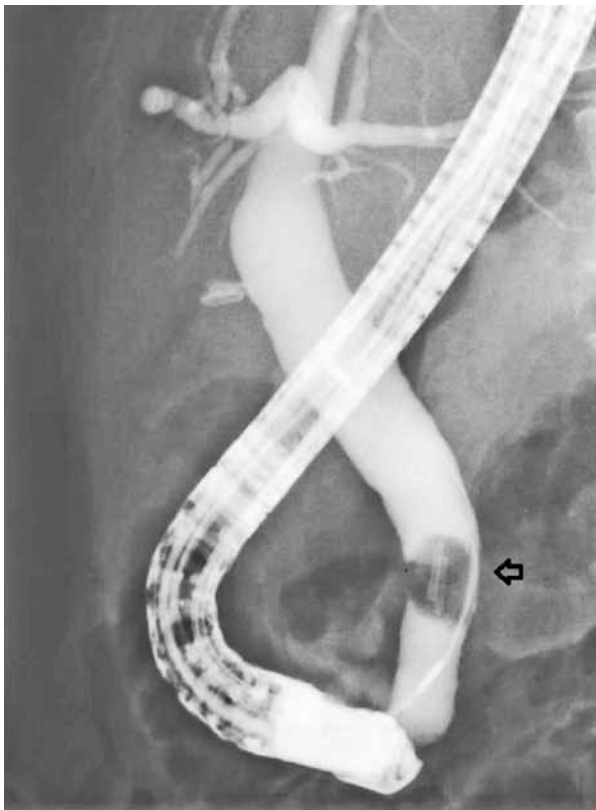


Fig. 1. The cholangiogram showed a filling defect with a clip in it (arrow) in lower end of CBD.

then (Fig. 2). We suggested that the clip had migrated into the CBD during the first month after LC, and induced a symptomatic stone 2 years later.

Discussion

Primary CBD stones are less common, some were induced by foreign bodies, which included unabsorbed suture material, parasites and migrated surgical clips¹⁻⁵. Though migration of surgical clip is not unusual, biliary stones resulted from the migrated clips are rare. Its exact incidence is not clear. One study had reported the migration rate of the surgical clips after LC to be 24% (11/46) during 2 years follow-up⁶. Most migrations (7/11) occurred within the first month. And only one case (1/46) of clip-induced CBD stone was documented in the report. We had retrospectively reviewed 660 patients undergone LC in our hospital from 2002 to 2008. Among them, 204 patients had abdominal radiographs available for survey. We had found 3 other cases had possible migration of surgical clips which were suspected by their unexpected

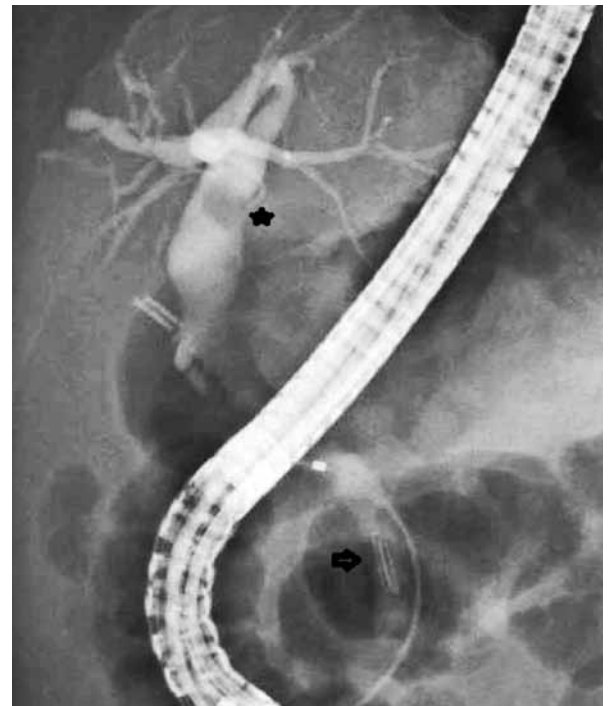


Fig. 2. The cholangiogram showed a freely floating clip (arrow) in lower end of CBD and a filling defect of stone in hilum (aster).

locations on radiographs, one of them was shown (Fig. 3). The mechanism of clip migration is poorly understood. Hypothesis of migration of the surgical clips included ischemic injury of bile ducts, pressure from intra-abdominal movement, short cystic stump, bile duct injury, local sepsis and improper placement of the surgical clips^{7,8}. In our case, improper placement of the surgical clip might be the leading cause for clip migration since it happened soon after LC.

Most migrated clips did not cause symptoms immediately⁶. In fact, spontaneous passage of migrated surgical clips had been reported [9]. Besides resulting biliary stones, the reported complications of the migrated surgical clips included causing duodenal ulcer and forming an embolus in blood vessels^{10,11}. But most cases with migrated clips were asymptomatic⁶. In our case, the surgical clip had migrated into the CBD during the first month after LC. The clip, as a nidus, induced



Fig. 3. The plain abdominal radiograph showed a clip in the unexpected location (arrow).

a biliary stone causing obstructive jaundice 2 years later.

Endoscopic retrieval of the clip-induced CBD stone is the first choice of treatment. The presence of the metallic clip usually does not interfere with successful stone retrieval⁴. Our case underwent ERCP and had stone retrieval successfully.

To prevent clip migration, surgeons should apply clips carefully and use the minimum number of clips necessary.

The clip-induced CBD stone is a rare but established complication after laparoscopic cholecystectomy. The presentation and treatment of it are not different from other type of CBD stones.

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金屬夾引起的膽管結石 – 一病例報告

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摘 要

自從在手術中採用手術用金屬夾之後，金屬夾會移位的現象就為大家所熟知。金屬夾會移位的原因並不是很清楚。它可以在膽囊切除術後數天內或數年後發生。不過因這移位的金屬夾造成膽管結石則很罕見。我們報告一位54歲的男性在接受腹腔鏡膽囊切除術後，產生了因移位的金屬夾所誘發的膽管結石。