Migration of suture material into common bile duct leading to stone formation: A case report
N Sharma, A Gupta, R Maheshwari, R Gupta

Citation

Abstract
Recurrent common bile duct stones are a common problem. In spite of recommendations to use absorbable suture for ligating the bile duct end of the cystic duct, many surgeons continue to use nonabsorbable suture for this purpose. We report a patient who developed recurrent CBD stone due to the nonabsorbable thread acting as a nidus for stone formation. We reiterate that only absorbable suture should be used for ligating the bile duct end of the cystic duct during cholecystectomy.

INTRODUCTION
Common bile duct stones are rather common. It is estimated that the common bile duct is explored in 25% of the 500,000 cholecystectomies performed annually in the United States and that common duct stones are found in 12-15% of these patients. In addition, 3-5% of patients who have had exploration of common bile duct will subsequently be found to have retained or recurrent common bile duct stones.

Common bile duct stones can be classified as either primary or secondary. Secondary stones originate in the gall bladder and migrate into the common bile duct. They are the most common type encountered. Primary stones, forming de novo within the common duct, are less frequently encountered. It is generally agreed that stones found more than 2 years after cholecystectomy are primary common bile duct stones.

A variety of factors may contribute to the formation of primary common bile duct stones. In one study, 30% of recurrent stones in the common bile duct after cholecystectomy contained non-absorbable suture material in the centre of the stone, serving as nidus. We report a case of choledocholithiasis that developed 6 years after open cholecystectomy in which suture material served as a nidus for stone formation.

CASE REPORT
A 45-year-old female was referred to our institution in August 2008 from another hospital for evaluation of right upper quadrant pain, itching and recurrent fever. Earlier the patient had undergone an open cholecystectomy for chronic cholecystitis in August 2002.

Physical examination showed right upper quadrant tenderness. Laboratory examination revealed a total bilirubin of 1.5 mg/dl (normal: 0.1-1.1 mg/dl), and a direct bilirubin of 1.2 mg/dl, a SGPT of 41 U/L (normal: 0-40 U/L), a SGOT of 71 U/L (normal: 0-40 U/L), and an ALP of 2095 U/L (normal: 30-140 U/L). Serum amylase and serum lipase were normal.

USG revealed a dilated CBD with distal intraluminal obstruction. MRCP revealed an elongated structure in the distal half of the common bile duct measuring approximately 29 x 2 mm in size and a dilated proximal common bile duct of 14 mm. ERCP was not available at our institution and the patient refused to go to any other institution for ES. Common bile duct exploration was done which confirmed the presence of thread pieces forming the nidus of a stone in the distal common bile duct. The stone was soft and brown. After removal of the thread and associated stones, the patient’s liver enzymes returned to normal, and she had an uneventful recovery.

DISCUSSION
Multiple cases of foreign body in the biliary tree have previously been reported. In the case described in this report, suture material migrated from the cystic duct stump and into the common bile duct, forming the nidus of a stone. The stone with suture material was removed after common bile duct exploration.

Cystic duct clip migration into the common bile duct has been reported after laparoscopic as well as open cholecystectomy. Table 1 summarizes the 17 reported cases of surgical clips or suture materials migrating into the
common bile duct. The time from surgery to presentation ranged from 5 months to 27 years. Ten cases occurred after an open cholecystectomy, six after laparoscopic cholecystectomy, one after conversion of laparoscopic to open cholecystectomy. All of the reported patients presented with recurrent abdominal pain, and in addition several patients presented with cholangitis and/or jaundice.

The use of absorbable suture has been recommended for closure of the cystic duct; an advice that is often ignored, sometimes causing late complications.

We would like to reinforce the advice of using absorbable suture alone for ligating the cystic duct.

**Figure 1**

Table 1: Previous reports of recurrent CBD stones due to suture/clip

<table>
<thead>
<tr>
<th>References</th>
<th>Age (yrs)</th>
<th>Type of cholecystectomy</th>
<th>Time after cholecystectomy</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walker</td>
<td>65 M</td>
<td>Open</td>
<td>2 yrs</td>
<td>Surgical</td>
</tr>
<tr>
<td>Margolis</td>
<td>72 M</td>
<td>Open</td>
<td>1 yr</td>
<td>Surgical</td>
</tr>
<tr>
<td>Davis</td>
<td>49 M</td>
<td>Open</td>
<td>3 yrs</td>
<td>Surgical</td>
</tr>
<tr>
<td>Martinez</td>
<td>65 F</td>
<td>Open</td>
<td>3 yrs</td>
<td>Endoscopic</td>
</tr>
<tr>
<td>Lombardo</td>
<td>58 M</td>
<td>Laparoscopic converted to open</td>
<td>1 yr</td>
<td>Endoscopic</td>
</tr>
<tr>
<td>Reauol</td>
<td>42 F</td>
<td>Laparoscopic</td>
<td>10 months</td>
<td>Endoscopic</td>
</tr>
<tr>
<td>Fournier</td>
<td>64 F</td>
<td>Laparoscopic</td>
<td>8 months</td>
<td>Endoscopic</td>
</tr>
<tr>
<td>Wu</td>
<td>79 M</td>
<td>Open</td>
<td>4 yrs</td>
<td>Endoscopic</td>
</tr>
<tr>
<td>Ghanbarani</td>
<td>42 M</td>
<td>Open</td>
<td>4 yrs</td>
<td>Endoscopic</td>
</tr>
<tr>
<td>Janson</td>
<td>46 F</td>
<td>Open</td>
<td>10 yrs</td>
<td>Endoscopic</td>
</tr>
<tr>
<td>Bruun</td>
<td>84 F</td>
<td>Open</td>
<td>3 yrs</td>
<td>Endoscopic</td>
</tr>
<tr>
<td>Fortun</td>
<td>72 F</td>
<td>Open</td>
<td>27 yrs</td>
<td>Endoscopic</td>
</tr>
<tr>
<td>DelliAbate</td>
<td>67 F</td>
<td>Laparoscopic</td>
<td>1 yr</td>
<td>Endoscopic</td>
</tr>
<tr>
<td>Sharma</td>
<td>45 F</td>
<td>Laparoscopic</td>
<td>6 yrs</td>
<td>Surgical</td>
</tr>
</tbody>
</table>

**Figure 2**

Picture 1: Removed CBD stone with the suture acting as nidus for stone formation.

**References**

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