A case with subcapsular hematoma of the liver following laparoscopic cholecystectomy

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Abstract

Laparoscopic cholecystectomy (LC) is a safe and less traumatic procedure for benign cholecystic disease. However there have been some complications peculiar to LC. Here we report a case with postoperative subcapsular hematoma of the liver after LC. A 78-year-old woman was admitted with acute cholecystitis due to cholecystolithiasis. She underwent LC and liver dysfunction was noted after the operation. Ultrasonography (US) and computed tomography (CT) showed subcapsular hematoma of the liver. It was supposed that it had happened to occur during the operation, but we could not make the cause clear. The patient was improved with only conservative therapy and discharged. It is important to handle the forceps carefully close to the liver in the laparoscopic surgery in order to prevent this complication. We report a case with subcapsular hematoma of the liver following LC with a review of the literature. (J Nippon Med Sch 1998; 65: 478-480)

Key words: laparoscopic cholecystectomy, postoperative complication, subcapsular hematoma

Introduction

Laparoscopic cholecystectomy (LC) has become a major procedure for the treatment of the benign cholecystic diseases, and shorter hospital stay, less pain, and rapid recovery have been attracted patients to LC rather than conventional open surgery. Much attention should be given to the occurrence of iatrogenic injuries. A subcapsular hematoma of the liver is one of those injuries, and has been rarely reported so far.

This kind of complication is difficult to note during laparoscopic surgery and the etiology of the development has not been understood completely.

Case Report

A 78-year-old woman was admitted to the hospital with upper abdominal pain having continued for two days. She was febrile with 37.8°C and had no jaundice. She had moderate tenderness on the right hypochondrial area. Laboratory examination showed normal bilirubin level, and s-AST and s-ALT were 19 U/ml and 12 U/ml respectively (Table 1). The white blood cell count was 15,000/mm³. Gastroendoscopy showed mild gastritis and ultrasonography (US) showed cholecystitis with one gallstone. The patient's systemic condition was improved by conservative medications with antibiotics.

Table 1 Laboratory data

<table>
<thead>
<tr>
<th>Preoperative examination</th>
<th>Postoperative examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBC (66 \times 10^9/\text{mm}^3)</td>
<td>WBC (195 \times 10^9/\text{mm}^3)</td>
</tr>
<tr>
<td>RBC (365 \times 10^6/\text{mm}^3)</td>
<td>RBC (192 \times 10^6/\text{mm}^3)</td>
</tr>
<tr>
<td>Hb 11.4 g/dl</td>
<td>Hb 5.9 g/dl</td>
</tr>
<tr>
<td>Plt (43.5 \times 10^4/\text{mm}^3)</td>
<td>Plt (22.1 \times 10^4/\text{mm}^3)</td>
</tr>
<tr>
<td>T-Bil 0.53 mg/dl</td>
<td>T-Bil 0.56 mg/dl</td>
</tr>
<tr>
<td>AST 19 U/ml</td>
<td>AST 218 U/ml</td>
</tr>
<tr>
<td>ALT 12 U/ml</td>
<td>ALT 169 U/ml</td>
</tr>
<tr>
<td>bleeding time 2'30&quot;</td>
<td></td>
</tr>
<tr>
<td>PT 99 %</td>
<td></td>
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<tr>
<td>APTT 34.7 seconds</td>
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</table>
for the acute cholecystitis, and was scheduled for elective LC.

The laparoscope was inserted through an infraumbilical wound, and the remaining trocars were inserted in the epigastrium and the right hypochondrium in usual maneuver.

Inflammatory adhesions were observed around the triangle of Callot, but after removing them we finished the procedure uneventfully. There was neither liver trauma on its surface nor marked bleeding during surgery. The tip of a penrose drain was placed in the gallbladder fossa. It took about three hours to complete the surgery. The next morning her hemoglobin fell to 9.1 g/dl, and s-AST and s-ALT increased up to 399 U/dl and 198 U/dl respectively. She complained nothing except for slight right hypochondralgia and no bleeding was observed from the drain. Her blood pressure was stable and urine volume was sufficient. The anemia was progressive and on the third postoperative day, it decreased to 5.9 g/dl (Table 1).

She was given four units of blood transfusion. Abdominal CT and US showed subcapsular hematoma in Quinaud's segment 6 and 7 of the liver (Fig. 2). After conservative therapy, it gradually became smaller. Anemia and liver dysfunction were also improved. The patient was discharged without any other complications on the 30th postoperative day. On the 37th postoperative day, a subsequent CT revealed that hematoma had further decreased in size and been less in density.

Discussion

LC is currently becoming a safe procedure for the treatment of benign cholecystic disease. Most of the early articles described LC for chronic cholecystitis or presented only a limited number of patient with an acute process. Now it is accepted that LC in patients with acute cholecystitis is also a safe and effective procedure, in which the patient can benefit from the advantage of laparoscopic surgery. Bleeding episodes have been described as the largest group of significant complications during laparoscopic surgery. On the other hand subcapsular hematoma noted after LC has been reported in only a few cases and rarely discussed. Erstad reported a case of subcapsular hematoma after LC associated with ketorolac administration. Ketorolac is non-steroidal antiinflammatory drug (NSAID) and prolongs bleeding time through its effect on thromboxane production and platelets. Our case was not administered any NSAIDs and both her bleeding time and blood coagulation time were within normal limits (Table 1).

A case of subcapsular hematoma during LC had been described as "an unusual hemorrhagic complication" by Alexander. The exact etiology of this complication has not been explained in detail in any articles. Alexander surmised that "bending" or "wrinkling" of the liver capsule by retracion of the gallbladder during dissection might be the cause of subcapsular hemorrhage.

In our case, it was difficult to find the cystic duct and vessels because the gallstone was incarcerated in the cervical portion of the gallbladder and dense adhesive tissue was noted around the triangle of Callot. Therefore we had to retract the gallbladder in various directions so that dissection of this area could be performed safely and easily. Strong traction of the gallbladder in various directions made the liver twisted or wrinkled, and could be the cause of this type of liver injury. Fusco also reported a case of traction injury to the liver during LC, and it was due to laceration of the liver capsule. Traction injury of the liver is usually manifested as "laceration" such as their case. Thus the reason why the injury occurred in the subcapsular areas without laceration is still unclear.
We inspected the gallbladder fossa and right subphrenic space prior to the completion of the operation and no abnormal findings, such as any bleeding or changes in color of the liver, was observed.

Yamamoto et al. also reported a case of subcapsular hematoma of the liver after LC. They performed LC for a patient with gallstones and after the operation they found leakage of bile from the misclipped cystic duct by the information of the drainage tube. When they reopened, subcapsular hematoma in the right lobe of the liver happened to be recognized. Their case is also suggesting that subcapsular hematoma of the liver could occur as "a latent complication".

The diagnosis of this complication is often difficult since it is not visible during the operation, and once this complication occurs, it is hard to check the spread of the hematoma. In conclusion we experienced a case of subcapsular hematoma of the liver following LC. To prevent this complication, it is necessary to handle the forceps gently when retracting the gallbladder during dissection. If progressive anemia is found following LC, the possibility of this complication should be considered.

References


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