Case Report

Right Hepatic Necrosis: A Rare Complication of Open Cholecystectomy: Report of a Case

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Abstract. Although endoscopic surgery outnumbered the open surgical procedures, both of these methods are still frequently performed for the surgical treatment of symptomatic cholelithiasis. Various complications have been reported after open or laparoscopic cholecystectomy. Vascular injuries are one of the most dangerous of these complications. But hepatic necrosis and atrophy due to the vascular injury after open cholecystectomy has not been previously reported. We would like to report a 74-year-old woman with right hepatic atrophy due to the hepatic necrosis, which has been evaluated for dyspeptic complaints two years after an open cholecystectomy. While abdominal ultrasonography and computed tomography revealed atrophy of the right lobe of the liver, Doppler ultrasonography showed no flow in the right hepatic artery. To our knowledge, this is the first case of hepatic atrophy due to the right hepatic necrosis associated with right hepatic artery injury after an open cholecystectomy.

Key words: open cholecystectomy, vascular injury, right hepatic necrosis.

The primary treatment of symptomatic cholelithiasis is surgery. Although laparoscopic cholecystectomy outnumbered the open procedures in the last decade, both of these methods are still frequently performed for the surgical treatment of symptomatic cholelithiasis [1,2]. Various complications have been reported after open or laparoscopic cholecystectomy [2]. However, an increase has been observed in the frequency of vascular and biliary complications in the last decade because of the high application rate of laparoscopic cholecystectomy [2,4,5]. The incidence of serious vascular injury after laparoscopic cholecystectomy has been reported as 0.08 to 0.25% [2,5]. These complications may also develop very seldom after open cholecystectomy.

Several authors reported vascular complications particularly after laparoscopic cholecystectomy such as pseudo-aneurysm of the hepatic artery, intraabdominal hematoma or hepatic necrosis due to the occlusion of hepatic artery or portal vein [2,7]. Hepatic necrosis and atrophy due to the vascular injury after open cholecystectomy has not been reported previously.

To our knowledge, we present the first case of hepatic atrophy due to the hepatic necrosis as a result of right hepatic artery injury after open cholecystectomy.

Case Report

A 74-year-old female patient admitted to our clinic with fatigue and dyspeptic complaints persisting for a long period. In review of her history, we have realized that she had an open cholecystectomy for symptomatic cholelithiasis in another hospital about 2 years ago. Her recovery was very slow and she had to stay in hospital for a month postoperatively. She claimed that bloody discharge with bad odor from the surgical drain continued for one month. However, this had been overlooked or ignored. She had treated with daily wound care only. She had no other surgical treatment except this operation.

On the physical examination, there were no abnormalities except mild obesity and a scar of right subcostal incision on the anterior abdominal wall. Arterial blood pressure was 140/80 mmHg, and pulse rate was 78 per minute.

The laboratory tests; complete blood count, routine biochemical analysis, complete urinary analysis and PA chest x-ray were normal. On the abdominal ultrasonography, almost the whole right liver lobe was found atrophic. There was compensatory hypertrophy in the left lobe of the liver. The right main portal vein, right hepatic vein and right hepatic artery could not be observed with B-mode and colored Doppler ultrasonographic assessments of the hepatic vascular structures. The gall bladder could not be tracked and the area had the normal postoperative appearance.

Abdominal computed tomography (CT) revealed the absence of the 5th through 8th segments of the right lobe of the liver. It was observed that colon displaced in segments toward the empty space due to the significant loss of the volume of the right lobe of liver. The main portal vein at the level of hepatic hilus was observed in normal calibration. Although the left main portal vein displayed a normal appearance, the right main portal vein could not be observed. The right hepatic vein and artery could not be observed either (Fig. 1).

The patient had a history of previous open cholecystectomy for symptomatic cholelithiasis. Surgery notes and reports of preoperative abdominal ultrasonography were re-reviewed. There were no reported abnormalities related to liver parenchyma in preoperative ultrasonography or surgery.
notes. Since she claimed that she had no information about her liver problem, the existing complaints of the patient were considered to be developed due to the hepatic necrosis.

The patient was informed about her condition. Symptomatic medical treatment was initiated and she followed up regularly. After 1 year, she felt well and we did find any problem neither in physical examination nor in ultrasonographic or biochemical analysis other than some dyspeptic problems.

Discussion

Cholecystectomy can be performed either with laparoscopic or open surgical procedures. Development of biliary and non-biliary complications after surgery has been reported in the literature [2,8]. Vascular injuries play a significant role among non-biliary complications [4]. Vascular injuries might develop due to the uncontrolled use of Trochar or Veress injections in the abdomen. If the separation of the Callout’s angle is difficult, vessels inside the hepatoduodenal ligament can be occluded with a clip accidentally. Also unnoticed ligation of the right hepatic artery while controlling the hemorrhage of cystic artery, excessive dissection of peripheral tissues or excessive use of diathermy can cause serious vascular injury [9].

Hepatic necrosis may develop after the injury or occlusion of hepatic artery [4,6]. Wong and Lucas presented the first case of hepatic infarction due to the injury of the right hepatic artery and portal vein after laparoscopic cholecystectomy [7]. The incidence of serious vascular injury in laparoscopic cholecystectomy is reported as 0.08-0.25% [2,5]. Definitely vascular injury rates are lower in open cholecystectomy. In literature review, we could not find any case of hepatic necrosis following open cholecystectomy that survived without any treatment and without any life threatening condition.

In the acute phase, hepatic necrosis can be identified with abnormally elevated liver enzymes and Doppler ultrasonography [6,10]. In the treatment of hepatic necrosis, various treatment modalities such as dopamine infusion, portal venous arterializations, hepatectomy or liver transplantation can be performed according to the degree of hepatic ischemia [6,8,10].

Kayaalp et al reported two cases that had hepatic necrosis after laparoscopic cholecystectomy. He stated that right regular hepatectomy was applied to both patients, one patient died and the other patient has been living without significant problems [10].

Our case had an open cholecystectomy. There had been bloody, malodorous, necrotic discharge from surgical drain for about one month, however this had been overlooked or ignored. By chance, the patient recovered without any intervention except postoperative care.

To our knowledge, this is the first case of hepatic atrophy due to the hepatic necrosis associated with right hepatic artery injury after an open cholecystectomy. We concluded that all centers that perform cholecystectomy should be cautious about vascular complications and also it should be kept in mind that vascular structures could be damaged even during open cholecystectomy.

References