Subcapsular liver haematoma as a complication of laparoscopic cholecystectomy

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Videosurgery Miniinv 2015; 10 (2): 320–323
DOI: 10.5114/wiitm.2015.52059

Abstract

Cholecystectomy is a common procedure for the treatment of symptomatic cholecystitis. A rare complication is the occurrence of subcapsular haematoma of the liver. In the literature, there are only a few case reports of this type. A 25-year-old woman was admitted to the Surgical Department for surgical treatment of cholecystitis. No complications were observed intra-operatively. On the first day after surgery, the patient manifested symptoms of hypovolaemic shock. The patient was qualified for surgical treatment in the mode of emergency surgery – a giant subcapsular haematoma was found. She was referred to the Clinic of General, Transplant and Liver Surgery of the Medical University of Warsaw for further treatment. This case shows the importance of monitoring the life parameters of patients who have undergone laparoscopic surgery due to symptomatic cholecystitis during the first day after surgery.

Key words: *complications, laparoscopic cholecystectomy, subcapsular haematoma.*

Introduction

Since the time of the first surgical removal of the gallbladder performed by a classic method in the second half of the 19th century, cholecystectomy has remained the most common treatment for symptomatic gallstones [1, 2]. However, the form of the surgery has changed, and consequently the complications related to it have as well. At present, the basic surgical technique is the laparoscopic method, first introduced in Germany in 1985. One of the first studies comparing both procedures, which was conducted in 1991 by the Southern Surgeons Club, showed a smaller number of surgical complications, as well as reduced mortality in the case of video surgical procedures [3]. Further, multi-centre studies confirmed these results. The main complications occurring during the peri- or early post-operative period include: damage to the bile duct, bleeding, bile duct leakage, damage to the intestine, perforation of the gallbladder and choledocholithiasis [4–9]. Subcapsular liver haematoma is among the most severe complications, but occurs rarely.

Case report

The patient, aged 25, previously untreated, was qualified for the procedure of surgical removal of the gallbladder in the mode of emergency surgery due to symptomatic cholelithiasis (March 2005), and operated on by the laparoscopic method with antibiotic prophylaxis (1st generation cephalosporin and metronidazole). Pneumoperitoneum was created using a Veress needle. The gallbladder was removed in a typical way. The duration of the procedure was 45 min. In the first 24 h after surgery

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there occurred symptoms of hypovolaemic shock and limited peritonitis in the right side of the subcostal region. Laboratory tests showed a decrease in the level of haemoglobin from 14.5g% to 10.9g%. Abdominal ultrasound examination revealed localized fluid collection in the gallbladder bed. A diffused subcapsular haematoma was also confirmed by computed tomography (Photos 1 A–C). The patient was qualified for emergency laparotomy. Intraoperatively, subcapsular haematoma was diagnosed, involving both lobes of the liver, without bleeding from the gallbladder bed or cystic artery stump. No free blood was observed in the peritoneal cavity. The decision was made concerning layered closure of the abdominal cavity leaving a drain, and transportation of the patient to the Clinic of General, Transplant and Liver Surgery at the Medical University of Warsaw. On the second day after cholecystectomy, considering an increasing inferior vena cava compression and the symptoms of right ventricular heart failure, relaparotomy was performed (Prof. M. Krawczyk). Detachment of Glisson's capsule was observed above both lobes of the liver by the haematoma, which, by compression, almost entirely obstructed the inferior vena cava. The site of damage to the capsule was not found, nor the site of haemorrhage from the hepatoduodenal ligament or any site of bleeding. The capsule was incised over the left and right lobes of the liver and the haematoma evacuated. A layer of blood clot was left over the entire surface of the liver as a haemostatic layer. Drains were inserted into the abdominal cavity, and the abdomen was closed. The post-operative course was uncomplicated. The patient was discharged from the Clinic of General, Transplant and Liver Surgery at the Medical University of Warsaw on the 13th day after surgery, and covered by ambulatory care without signs of damage to the liver.

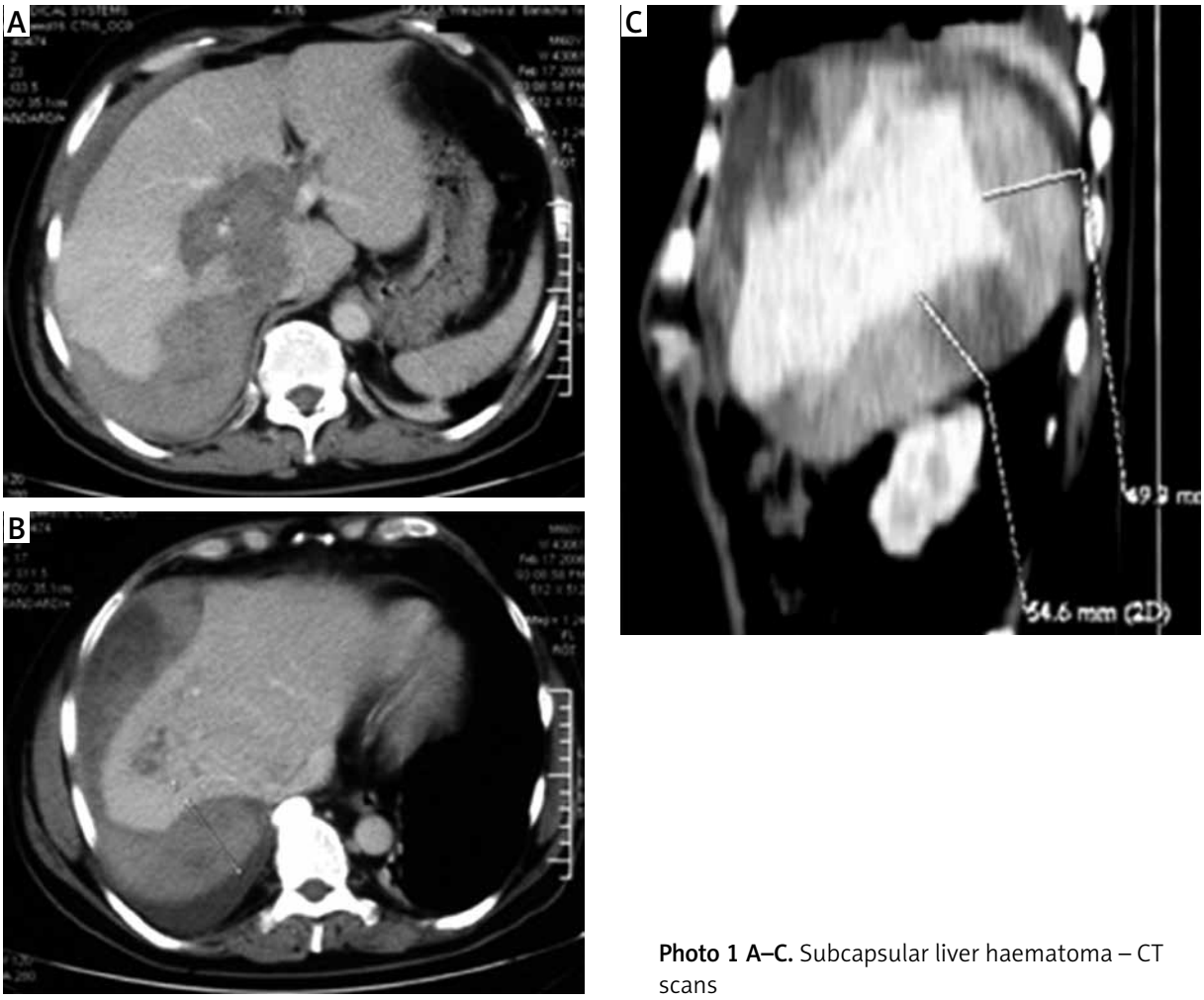

Photo 1 A–C. Subcapsular liver haematoma – CT scans

Discussion

In large cohort studies, complications after laparoscopic cholecystectomy occur in 2–6% of patients. Complications in the form of bleeding are observed in less than 1% of cases [10]. The most frequent sites of bleeding are: gallbladder bed after its removal, sites of introduction of trocars, cystic artery, falciform ligament and bleeding from the ruptured liver capsule [11].

Subcapsular liver haematoma is a rare, life-threatening complication [12]. In the literature, cases of occurrence of this complication are described, both early, i.e. up to 24 h after surgery, as well as several weeks after the procedure. In the first case, the most frequent symptoms are the symptoms of hypovolaemic shock with a decrease in morphological parameters of blood and limited peritonitis, whereas in the second case they are fever, non-specific pain in the abdominal cavity frequently described as discomfort, and fluid collection reported in the bed of the gallbladder after its removal.

Factors conducive to the development of subcapsular liver haematoma are the application of anti-inflammatory drugs – ketorolac [13–15], diclofenac or aspirin [16] – and damage to the capsule of the liver while pulling the gallbladder [17–20]. Pietra *et al.* [14] also report the possibility of hepatic haemangioma as a source of bleeding. The possibility of anatomical variations in the hepatic vascular system is also emphasized, which occur in 12% of patients – after the section of arterial connection there occurs a contraction of the hepatopetal vessel, which prevents intra-operative bleeding; however, it causes slow bleeding during the post-operative period, and the possibility of development of subcapsular as well as intrahepatic haematoma [20, 21]. The occurrence of pseudoaneurysm is considered a risk factor. In a case described in the literature, subcapsular haematoma developed a week after removal of the gallbladder. During selective angiography of the celiac artery the presence of pseudoaneurysm was confirmed in the right hepatic artery [22].

Subcapsular liver haematoma developing on the first day after gallbladder removal surgery is life threatening due to the tumultuous symptoms, most often hypovolaemic shock. The method of treatment is relaparotomy/relaparoscopy and management in accordance with the intra-operative situation. In the present patient, no damage to Glisson's capsule was found. Evacuation of the haematoma and drainage of the abdominal cavity were performed. In the case of fluid collection occuring in the later post-operative period, conservative treatment is applied considering a gradual intensification of symptoms. Antibiotic therapy is applied using broad-spectrum antibiotics, and evolution of the haematoma is controlled in ultrasound examination. In some cases, a percutaneous evacuation of fluid collection is possible under ultrasound control [12].

Laparoscopic cholecystectomy is a standard procedure in the treatment of symptomatic cholelithiasis. Haemorrhagic complications are rare; however, in the worst situation, they may lead even to the patient's death. One of the most dramatic complications is intrahepatic subcapsular haematoma (ISH). The cause of this complication is still unknown. The ISH can develop in either the early or the late post-operative period. Depending on the time of the development and the patient's symptoms, different therapy can be introduced – from expectant management to emergency surgical treatment. The above-described case emphasizes the necessity for thorough patient monitoring on the first day after surgical procedure and detailed follow-up in the policlinic after discharge from the hospital in order to avoid serious post-operative complications or, in the case of their occurrence, appropriate therapeutic management.

Conclusions

Despite laparoscopic cholecystectomy is one of the most common surgical procedures nowadays, it is not free of complications. A subcapsular liver hematoma is a very serious one of them. This case report describes its symptoms and methods of treatment, but most of all it points at the importance of monitoring the patient after the surgery.

Conflict of interest

The authors declare no conflict of interest.

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Received: 17.01.2015, **accepted:** 22.02.2015.