

Traumatic rupture of the gallbladder after blunt abdominal trauma

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Abstract

The extremely rare case of 83-year old woman with rupture of the gallbladder due to blunt abdominal trauma is presented. Patient's general condition was complicated because of coagulopathy caused by oral anticoagulant what has contributed to intra-abdominal haemorrhage. The rupture of the gallbladder and rupture of the liver were found during operation. The diagnosis of rupture of the gallbladder due to blunt abdominal trauma is difficult to establish before exploration and often coexists with injury to the liver. The treatment of choice in rupture of the gallbladder is cholecystectomy. In patients after abdominal trauma, beside damage of parenchymatous organs, the injury to other organs should be taken into consideration, even if they occur very rarely.

Key words: gallbladder rupture, gallbladder trauma, blunt abdominal trauma.

Introduction

There are relatively few cases of traumatic rupture of the gallbladder that has been published. The increasing amount of traffic accidents causes the great necessity of improvement diagnostic and therapeutic standards. Parenchymatous organs such as liver and spleen are usually injured during blunt abdominal trauma. The gallbladder is sheltered from trauma by anatomic localisation. It is partly surrounded by the liver

and ribs, omentum and intestine protect it. Reported prevalence of injury to the gallbladder in blunt or penetrating abdominal trauma range from 1 to 2% [1-5]. Injuries of the gallbladder are usually associated with damage to other abdominal organs. The aim of this study is to report extremely rare case with rupture of the gallbladder due to blunt abdominal trauma in 83-year old woman.

Case report

A 83-year old woman was admitted to our Department with acute abdominal pain after blunt abdominal trauma caused by fall on the floor. The patient sustained simultaneously superficial trauma of right eyebrow arch. She was chronically treated because of atrial fibrillation, arterial hypertension and coronary insufficiency and she has been taking oral anticoagulant.

The physical examination revealed the abdomen wall tense and painful in all four quadrants with positive Blumberg's sign and palpable mass in right hypochondrium. The patient was in haemorrhagic shock. The measured blood pressure was 90/50 mm Hg. The pulse was arrhythmic with rate 120 beats/minute.

Laboratory findings showed: leucocytosis – $17.7 \times 10^3/\mu\text{l}$, hemoglobin – 7.8 g/dl, hematocrit value – 22.8%. Blood clotting tests revealed coagulopathy: kaolin-kephalin time (APTT) – 60.1 seconds and International Normalised Ratio (INR) – 2.05. Abdominal ultrasonography demonstrated free liquid below margin of right liver flap, around spleen and between intestinal loops, moreover, there was a difficulty in identification of not homogeneous structure below margin of the liver. Abdominal roentgenogram showed some fluid – filled dilated small bowel loops.

Three units of fresh frozen plasma and two units phenotype – matched packed red blood cells have been transfused to the patient. Afterwards the patient was qualified for emergency laparotomy. During surgery, 2000 ml of liquid blood and clots were recognized; furthermore free irregular sharp – edged gallstones were found intraperitoneally (*Fig. 1*). Then

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Figure 1. Gall stones

approximately 4 cm in length rupture of the gallbladder with thickened wall in its fundus area and bleeding deep rupture of fifth liver segment 7 cm in length were found (*Fig. 2*). The liver was sutured and cholecystectomy was performed. The abdomen was cleaned, drained and closed in layers. The patient was transferred from operating theatre to the Intensive Care Unit because of signs of circulatory and respiratory insufficiency. Histopathological examination revealed gangrenous inflammation of the gallbladder.

Discussion

Most of the reported cases of injuries to the gallbladder up to the present are results of falls (as in our case), kicks and blows, and nowadays as well of sports and motor vehicle traumas [1,6]. The classification traumatic gallbladder injury includes lacerations, avulsion, contusion and the acute inflammatory condition of traumatic cholecystitis [1].

The diagnosis of rupture of the gallbladder due to blunt abdominal trauma is difficult to establish before exploration and often coexists with injury to the liver. Usually getting worse patient's general condition does not give much time for full diagnosis. Contrast enhanced computed tomography is a sensitive method for diagnosis of abdominal trauma and is very helpful for diagnosis gallbladder rupture [6], but the first line of diagnosis, especially when we have urgent situation should be ultrasonography, even if its sensitivity is not 100% [6-8]. Biliary isotope scintigraphy can reveal free intra-abdominal leakage of bile when the gallbladder is ruptured [6]. Some authors suggest that non-visualization of the gallbladder at ultrasonography or at computer tomography scans should raise the suspicion of traumatic gallbladder avulsion or rupture [9]. Another method

Figure 2. Rupture of the gallbladder and rupture of the liver

which quickly helps to diagnose the character of intraperitoneal fluid after blunt abdominal trauma is peritoneal puncture and diagnostic peritoneal lavage. If there are diagnostic difficulties in stable patients laparoscopy can be performed. It is useful as diagnostic as well as therapeutic method [6]. The laparoscopy enables to perform hemostasis of small liver injuries with electrocoagulation and it gives possibility for cholecystectomy when gallbladder is ruptured. When laparoscopy does not give therapeutic success it should be converted for laparotomy.

The treatment of choice in rupture of the gallbladder is cholecystectomy [9]. In patients after abdominal trauma, beside damage of parenchymatous organs, the injury to other organs should be taken into consideration, even if they occur very rarely.

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