Spontaneous splenic rupture 1 week after laparoscopic appendectomy due to acute appendicitis

Jurij Janež¹,²

¹Department of Abdominal Surgery, University Medical Centre Ljubljana, Ljubljana, Slovenia, ²Department of Surgery, Faculty of Medicine, University of Ljubljana, Vrazov trg 2, 1104 Ljubljana, Slovenia

Abstract

Spontaneous splenic rupture is a rare entity that requires high index of suspicion for diagnosis. Usually, it occurs due to underlying pathology that could be inflammatory, neoplastic or infectious. However, there are also cases of spontaneous splenic rupture in a normal-sized spleen without obvious pathologic process. In our case, the patient suffered a spontaneous splenic rupture 1 week after laparoscopic appendectomy due to acute appendicitis. Histopathologic examination revealed a normal-sized spleen without any obvious pathology. In our patient, we did not found any explanation for a spontaneous splenic rupture, besides her primary inflammatory condition.

Keywords: Appendectomy, atraumatic splenic rupture, haemorrhagic shock, splenectomy, urgent surgery

INTRODUCTION

Splenic rupture usually follows blunt or rarely penetrant abdominal trauma, but there are also cases of spontaneous atraumatic splenic rupture. Most frequent causes of spontaneous splenic rupture are haematologic and malignant diseases or infectious diseases.[1] There are also some rare cases of spontaneous splenic rupture, described in the literature, such as ectopic pregnancy in the spleen.[2] This paper presents an unusual case of spontaneous atraumatic splenic rupture in a patient, who underwent laparoscopic appendectomy due to acute perforated appendicitis and diffuse peritonitis. The spontaneous splenic rupture occurred 7 days after laparoscopic appendectomy and presented with haemorrhagic shock. The urgent surgery and splenectomy were necessary.

CASE REPORT

A 60-year-old female patient was referred to the emergency unit due to lower abdominal pain, which lasted for the past 4 days. She had elevated body temperature, ranging between 38°C and 39°C. The laboratory tests showed elevated inflammatory parameters (leucocytes 19 × 10⁹/L and C-reactive protein 400 mg/L). The abdominal ultrasound (US) showed fluid collection (9 cm × 4 cm × 4 cm) in the Douglas pouch and signs of acute sigmoid diverticulitis with suspected perforation. Because US diagnosis was not completely reliable, abdominal computed tomography (CT) was performed. CT showed signs of appendicitis with perforation. The patient underwent emergency surgery. Laparoscopy was performed that confirmed acute appendicitis with perforation and pelvic abscess. Laparoscopic appendectomy was performed and pelvic...
abscess was evacuated and abdominal drain was inserted. At the beginning, the post-operative course was uneventful. Due to perforated appendicitis, the antibiotic therapy with gentamicin and metronidazole was prolonged. The inflammatory parameters started to decrease. She started to eat normal food, and she passed stool spontaneously. On the 5th post-operative day, the abdominal drain was removed. On the 7th post-operative day, the patient suddenly started to feel nausea, and she complained about abdominal pain. She was pale, tachycardic and hypotensive. Urgent abdominal US was performed that showed large perisplenic haematoma with suspected splenic rupture. She underwent emergency exploratory laparotomy. Splenic rupture with perisplenic haematoma was found. Splenectomy and haemostasis were performed, the haematoma was evacuated and abdominal drain was inserted. The abdominal drain was removed 2 day after surgery. Because elevated inflammatory parameters persisted despite antibiotic treatment, the abdominal US was repeated 7 days after the second surgery. Haematoma was seen in the left sub-phrenic space, which was evacuated with percutaneous drainage under US guidance. The rest of the post-operative course was uneventful. Thirteen days after the second surgery, the patient was discharged from hospital.

**DISCUSSION**

Spontaneous splenic rupture is otherwise rare condition, which most often occurs in patients with a haematologic or other malignant disease. Other causes of spontaneous splenic rupture are also known, such as infectious mononucleosis and ectopic pregnancy. Generally speaking, around 93% of spontaneous splenic rupture is attributed to pathologic causes and the remaining 7% is due to idiopathic causes.[9] The following are six major causes of non-traumatic splenic rupture: neoplasm (30%), infectious (30%), inflammatory disease (15%), medication and medical treatment (10%), mechanical causes (7%) and idiopathic (7%).[4] The pathogenesis of atraumatic splenic rupture is not well understood. Splenomegaly is present in almost all patients (~95%), although the rupture of normal spleens (both in size and underlying histology) has been reported.[9] In our case, spontaneous splenic rupture occurred 1 week after laparoscopic appendectomy, and according to our knowledge, this is the first such case, reported in the literature. The removed spleen was sent to histopathologic examination that revealed a normal-sized spleen without any evident pathology that would explain the sudden rupture. The surgical procedure was confined to the lower abdomen, and no surgical manoeuvres were performed in the left sub-phrenic space near the spleen that could explain a possible accidental splenic trauma during surgery. In our patient, we did not find any explanation for a spontaneous splenic rupture, besides her primary inflammatory condition. Our patient had a septic condition with high inflammatory parameters due to perforated acute appendicitis, and that septic condition was the probable cause of delayed spontaneous splenic rupture.

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

**REFERENCES**

1. Dessie A, Binder W. Spontaneous rupture of the spleen due to infectious mononucleosis. R I Med J (2013) 2017;100:33‑5.
2. Wu BQ, Zhu F, Jiang Y, Sun DL. Case of spontaneous splenic rupture caused by ectopic pregnancy in the spleen. J Obstet Gynaecol Res 2017;43:1778‑80.
3. Weaver H, Kumar V, Spencer K, Maatouk M, Malik S. Spontaneous splenic rupture: A rare life-threatening condition; diagnosed early and managed successfully. Am J Case Rep 2013;14:13‑5.
4. Kocael PC, Simsek O, Bilgin IA, Tutar O, Saribeyoglu K, Pekmezci S, et al. Characteristics of patients with spontaneous splenic rupture. Int Surg 2014;99:714‑8.
5. Maria V, Saad AM, Fardellas I. Spontaneous spleen rupture in a teenager: An uncommon cause of acute abdomen. Case Rep Med 2013;2013:675372.