Spontaneous rupture of the spleen resulting from infectious mononucleosis

Introduction

Infectious mononucleosis, widely termed glandular fever, is usually a self-limiting disease caused by the Epstein–Barr virus. Splenomegaly appears in 50–60% of cases, peaking in the second week of infection. Despite this, atraumatic splenic rupture is a rare complication with an occurrence that ranges between 0.1 and 0.5% of Epstein–Barr infections (Rutkow, 1978). This article describes the case of a young and previously fit male, who experienced spontaneous rupture of the spleen following a flu-like illness, later proven to be infectious mononucleosis.

Discussion

A review of 613 cases of splenic rupture in patients without risk factors or previously diagnosed diseases reported the commonest association was with infections, followed by haematological disorders and non-haematological malignancies (Aubrey-Bassler and Sowers, 2012). A wide range of infections, including bacterial, protozoal, rickettsial and viral, have been described as responsible for causing atraumatic splenic rupture (Debnath and Valerio, 2002). Viral infections include mumps (Massad et al, 1988), cytomegalovirus (Rogues et al, 1994) and rubella (Nishida et al, 1995), although the commonest cause of spontaneous rupture in the western world is reported to be infectious mononucleosis (Asgari and Begos, 1997). In the tropics, malaria is a common cause of pathological splenic rupture and may occur in up to 2% of cases.

Dr Parthipan Sivakumar *is Core Medical Trainee in Cardiology,* **Dr Simon W Dubrey** *is Consultant in Cardiology,* **Dr Shruti Goel** *is Specialist Registrar in Renal Medicine,* **Dr Leah Adler** *is Foundation Year House Officer in Surgery and* **Dr Emily Challenor** *is Foundation Year 2 in Emergency Medicine, Hillingdon Hospital, Middlesex UB8 3NN*

Correspondence to: Dr SW Dubrey (simon.dubrey@thh.nhs.uk)

Although a rare complication, splenic rupture is an important diagnosis to exclude in patients who present with abdominal pain and a history of viral illness. A clinical sign described in association with splenic rupture, although absent in this case, is left shoulder tip discomfort (Kehr's sign) related to irritation of the diaphragm from haematoperitoneum.

Both ultrasound and computed tomography scans are appropriate imaging methods, the latter having a 95% sensitivity and specificity for detecting splenic rupture.

In cases of haemodynamic instability, splenectomy is the treatment of choice. Stable patients with parenchymal spleen disruption can be managed conservatively, without surgery. However, a conservative management plan requires a definitive diagnosis, usually involving computed tomographic imaging with close clinical monitoring and minimal transfusions. BJHM

Asgari MM, Begos DG (1997) Spontaneous splenic rupture in infectious mononucleosis. *Yale J Biol Med* **70**(2): 175–82

Aubrey-Bassler FK, Sowers N (2012) 613 cases of splenic rupture without risk factors or previously diagnosed disease: a systemic review. *BMC Emerg Med* **12**: 11

Debnath D, Valerio D (2002) Atraumatic rupture of the spleen in adults. *J Roy Coll Surg Edin* **47**(1): 437–45

Massad M, Murr M, Razzouk B et al (1988) Spontaneous splenic rupture in an adult with mumps: a case report. *Surgery* **103**(3): 381–2

Nishida T, Ku Y, Saitoh Y (1995) Spontaneous splenic rupture during the course of a rubella infection: report of a case. *Surg Today* **25**(1): 83–5

Rogues AM, Dupon M, Cales V et al (1994) Spontaneous splenic rupture: an uncommon complication of cytomegalovirus infection. *J Infect* **29**(1): 83–5

Rutkow IM (1978) Rupture of the spleen in infectious mononucleosis: a critical review. *Arch Surg* **113**(6): 718–20

LEARNING POINTS

- Splenic rupture in Epstein–Barr viral infection is relatively unusual.
- An appreciation of splenic rupture and rapid recognition is essential to avoid potential haemodynamic collapse.
- Two recognized major complications of infectious mononucleosis are splenic rupture and secondary pneumonia.
- Owing to the risk of splenic rupture, patients with an Epstein–Barr viral infection are advised to abstain from contact sports for 8 weeks after infection.

Case Report

A 27-year-old man was admitted to the hospital following a 2-week history of non-specific flu-like symptoms and muscle pains. While at work he experienced a presyncopal episode and developed vague abdominal pain. On admission to the hospital, he was tachycardic and hypotensive with a blood pressure of 80/50 mmHg. His abdomen was distended with non-specific generalized tenderness. Blood tests were initially unremarkable, save for a low haemoglobin level of 10.1 g/dl and mildly elevated level of alanine aminotransferase at 90 U/litre (normal range 1–45 U/litre). The remaining liver function tests, including one indicating a gamma glutaryl transferase level of 36 U/litre, detected normal levels. Blood urea level was normal at 3.8 mmol/litre but the D-dimer level was elevated at 496 ug/litre (normal range is 0–275 ug/litre). There was no history of gastrointestinal tract bleeding or of trauma in the antecedent period.

Despite aggressive fluid resuscitation, his blood pressure failed to improve. His abdomen became increasingly distended and peritonitic. Blood tests repeated 1 hour after admission demonstrated a drop in haemoglobin to 5 g/dl.

He was then referred for an emergency laparotomy. The procedure revealed that his abdomen contained more than 4 litres of fresh blood, and splenic rupture was identified. He underwent splenectomy and recovered well.

An antibody screen demonstrated positive immunoglobulin M antibodies to Epstein–Barr viral capsid antigen, highly suggestive of current infection with Epstein–Barr virus and the cause of infectious mononucleosis ('glandular fever').