

Acute abdominal pain, painful left shoulder and near collapse

L.E. van Manen^{1*}, J. Heidt²

¹Department of Intensive Care, Onze Lieve Vrouwe Gasthuis, Amsterdam, the Netherlands,

²Department of Intensive Care, Tergooi Hospital, Hilversum, the Netherlands, *corresponding author: tel.: +31(0)20-5993007, fax.: +31(0)20-5992128, e-mail: L.E.vanManen@olv.g.nl

CASE REPORT

A 28-year-old patient presented to the emergency department with acute pain in the left upper abdominal quadrant and left shoulder, and a near collapse. He had an unremarkable medical history, used no medication and had not experienced any recent trauma. During the previous two weeks he had been ill with flu-like symptoms. Physical examination showed blood pressure 120/65 mmHg, heart rate 85/minute, temperature 36.2 °C, supraclavicular lymphadenopathy and pain in the left upper abdominal quadrant without signs of peritonitis. Examination of the left shoulder was normal. Laboratory results showed a haemoglobin level of 8.8 mmol/l, leukocytosis $12.1 \times 10^9/l$, lymphocytosis $7.13 \times 10^9/l$ and elevated liver screen (aspartate aminotransferase 231 U/l, alanine

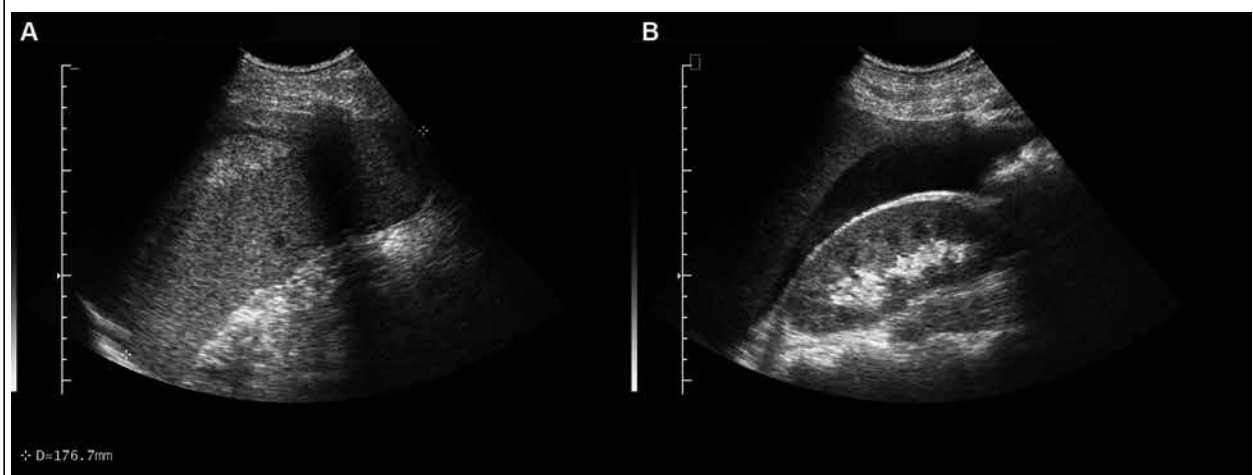
aminotransferase 424 U/l, alkaline phosphatase 468 U/l, gGT gamma glutamyl transpeptidase 387 U/l, and bilirubin 32 mmol/l). Chest X-ray was normal.

He was admitted to the general ward for observation. During the following hours his condition worsened with progressive abdominal pain and decreasing haemoglobin level from 8.8-6.3 mmol/l. An abdominal ultrasound was performed (*figure 1*).

WHAT IS YOUR DIAGNOSIS?

See page 286 for the answer to this photo quiz.

Figure 1. Abdominal ultrasound. Panel A shows an enlarged spleen with a cranial-caudal length of 17 cm, and cranial and lateral fluid collections with alternating ultrasound density. Panel B shows a fluid collection between the liver and the right kidney



DIAGNOSIS

Abdominal ultrasound showed an enlarged spleen and fluid collections suspicious for haematoma (*figure 1*). CT scan showed a subcapsular haematoma of the spleen and abdominal fluid collections suspicious for haematoma (*figure 2*). He was admitted to the intensive care unit for primary stabilisation. Exploratory laparotomy revealed a total rupture of the spleen capsule and a large abdominal haematoma. Due to ongoing haemorrhage a total splenectomy was performed.

Eventually serological results showed an acute Epstein-Barr virus infection. We diagnosed spontaneous splenic rupture due to infectious mononucleosis. He was vaccinated (Pneumovax® and Meningovax®), received a prescription for amoxicillin-clavulanate 'on demand' and was informed about annual flu vaccination and travelling to malaria endemic areas.

Spontaneous splenic rupture, the most severe complication of infectious mononucleosis, is rare.¹⁻⁵

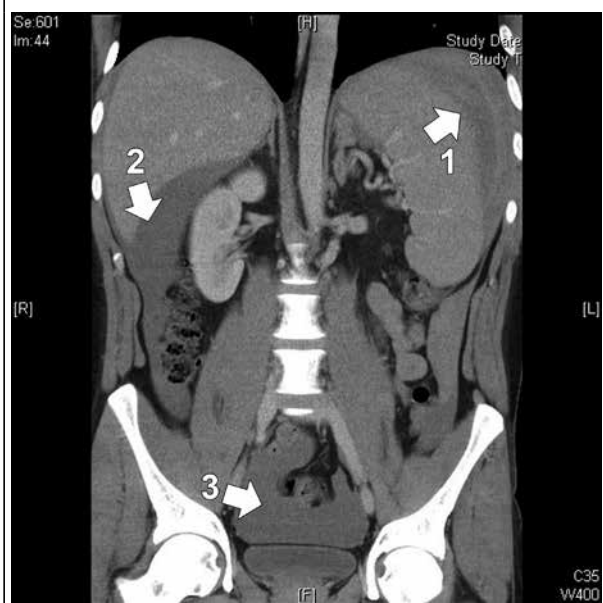
The reported incidence of clinically confirmed splenomegaly in patients with infectious mononucleosis differs from 10-50%.^{1,6} On ultrasound, 100% of patients show splenomegaly, with maximum enlargement in the second to third week of illness.¹ Splenomegaly develops due to infiltration of lymphoid cells into the red pulp, trabeculae, capsule and blood vessels. This leads to oedema, softening and weakening of the spleen parenchyma and capsule, with increased risk of rupture as result. Mild trauma or Valsalva manoeuvre can cause rupture.

The presentation of spontaneous splenic rupture is often aspecific and the diagnosis can be easily missed, as our case demonstrates.³ General symptoms are (sub)acute abdominal pain in the upper left quadrant and signs of shock. Pain in the left shoulder, the classical Kehr's sign, can be present and helpful for the diagnosis. This referred pain is the result of irritation of the diaphragm due to the presence of blood in the peritoneal cavity.²⁻⁴

Diagnostic tools are abdominal ultrasound and CT scan. First choice therapy has been splenectomy for years. The downside is the loss of immunological function and risk of post-splenectomy sepsis.¹⁻⁶ Therefore, some authors advocate conservative therapy in strictly selected cases without haemodynamic instability.^{1,2,5}

This case demonstrates the difficult and treacherous aspects of the atypical presentation of spontaneous splenic rupture, complicating infectious mononucleosis.

Figure 2. AP reconstruction of CT scan, showing an enlarged spleen with a subcapsular haematoma (arrow 1), a fluid collection between the liver and the right kidney extending in the paracolic area (arrow 2) and a fluid collection in the pelvic cavity (arrow 3), both suspicious for blood



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