

SPONTANEOUS SPLENIC RUPTURE IN INFECTIOUS MONONUCLEOSIS

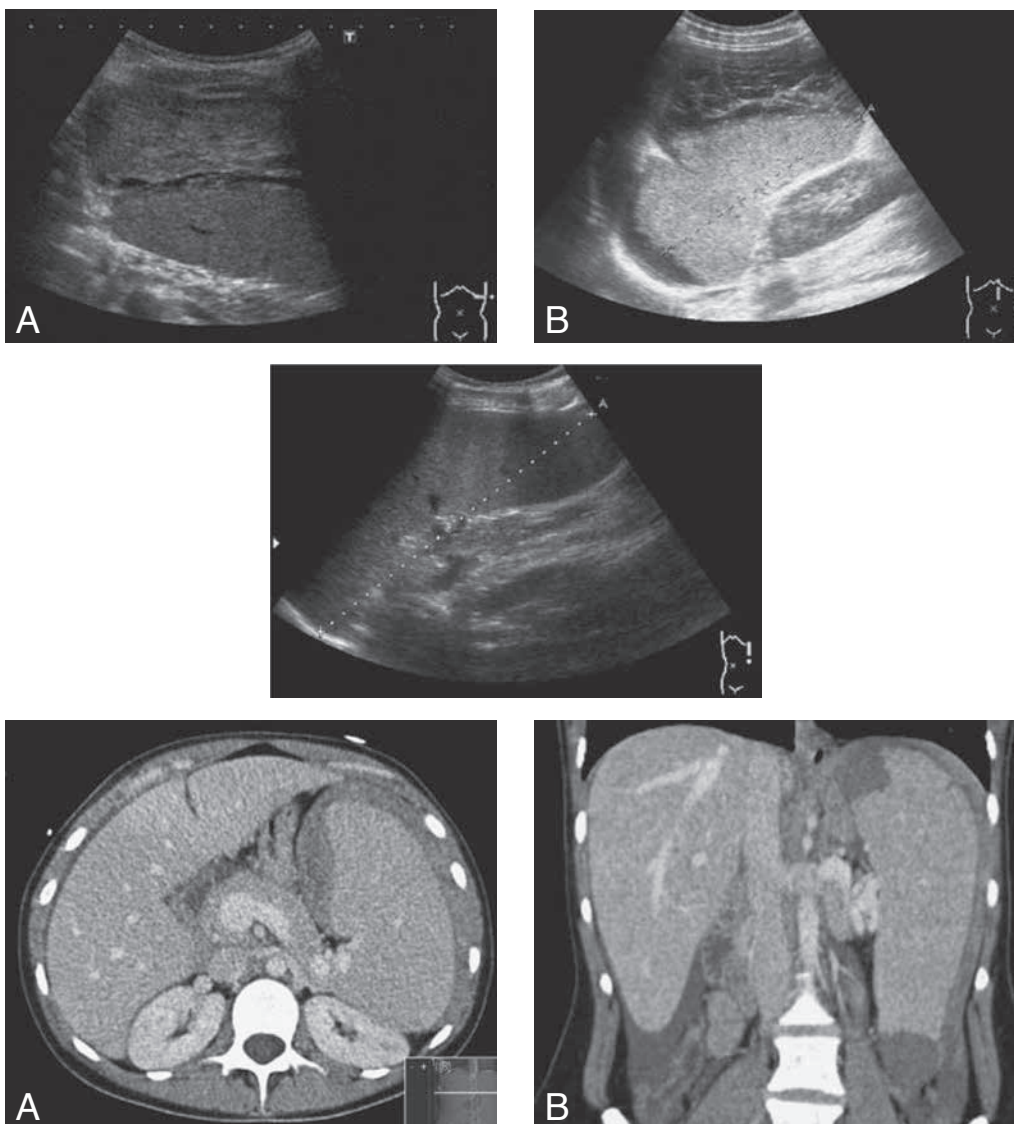
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Key-word: Mononucleosis, infectious

Background: Two cases are presented:

A 16-year-old female (patient A), presented at the emergency department with a continuously stabbing abdominal pain in the upper left abdomen. Since 1 month, she suffered from a sore throat, fatigue and weight loss. Physical examination revealed a sick girl with clear consciousness and no paleness. Her heart rate was 100 beats per minute (bpm) and blood pressure was 110/60 mmHg. Blood analysis showed a decreased hemoglobin level of 5.3 mmol/L.

Another, before healthy, 22-year-old female (patient B), presented at her family doctor, complaining of abdominal pain, fever and fatigue. At physical examination a clear conscious, pale, young women with a heart frequency of 110 bpm and a blood pressure of 90/49 mmHg was seen. Laboratory investigation showed a decreased hemoglobin level of 4.8 mmol/L.



	1A	1B
Fig.	2	
	3A	3B

Work-up

On ultrasonography of the spleen in patient A (Fig. 1, A: on admission), an inhomogeneous and irregular enlarged spleen with an obvious rupture and free fluid surrounding the spleen is seen. Follow-up examination (B) demonstrates a hematoma surrounding the spleen, combined with a thin subcapsular hematoma. The spleen appears homogeneous. The splenic rupture cannot be visualised.

Ultrasonography of the spleen in patient B (Fig. 2) shows an enlarged spleen, without signs of splenic rupture nor subcapsular hematoma. Contrast-enhanced CT scan of the upper abdomen in patient B (Fig. 3, A: transverse section) visualizes the hematoma surrounding the enlarged spleen, with free intra-abdominal fluid in the Douglas pouch. The variety of densities in the hematoma and interruption of the splenic parenchyma indicate the occurrence of multiple splenic hemorrhages. On reformatted image in the coronal plane (B), caudal splenic capsule interruption is diagnosed.

Radiological diagnosis

Upon serological examination Epstein-Barr virus (EBV) was detected in both patients.

The images plus the serological evidence of EBV infection led to the diagnosis of *spontaneous splenic rupture as a complication of infectious mononucleosis*.

Discussion

An Epstein-Barr Virus (EBV) infection rarely causes a spontaneous splenic rupture, the incidence being 1-2 per 1000 patients per year. If splenic rupture occurs, it usually occurs 4 to 21 days after the diagnosis of EBV infection. The majority of these spontaneous splenic ruptures affect males without previous trauma.

EBV infection causes infiltration of the spleen with lymphocytes and atypical lymphoid cells that lead to change of the structure in the splenic parenchyma. The invasion of these cells induces compression of the supporting splenic tissue and increases the pressure on the splenic capsule. The capsule becomes thinner, which, together with the

raised pressure, increases the risk of spleen rupture.

The exact etiology of spontaneous splenic rupture due to EBV infection remains unclear. Several hypotheses are described: vascular congestion with acute increase of portal venous pressure (e.g. Valsalva), sudden compression of the enlarged spleen due to contraction of the diaphragm, abdominal wall trauma or another, small, unnoticed trauma.

The treatment of a spontaneous splenic rupture is still subject to discussion. In the past, the standard treatment was splenectomy. This resulted in a life-long increased morbidity and mortality, caused by an increased risk of infections with encapsulated bacteria such as *Streptococcus pneumoniae*, *Haemophilus influenzae* and *Neisseria meningitidis*. For this reason all patients are vaccinated against these bacteria 2 weeks after splenectomy. Other possible complications of splenectomy are pancreatitis, pneumonia and the risk of wound infections.

In recent literature, a number of case reports describe spleen-conserving surgery or even a conservative approach. The authors recommend conservative treatment in hemodynamically stable patients and monitoring of the patient at the intensive care unit with strict bed rest and pain treatment. If the patient becomes hemodynamically unstable, splenectomy is a legitimate option, although spleen-conserving surgery sometimes remains possible.

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