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# Utility of ultrasound in the diagnostic approach to lymphoma with splenic involvement

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**ABSTRACT**

This paper describes the clinical case of a patient diagnosed with diffuse large B-cell lymphoma with splenic involvement, focusing on the use of abdominal ultrasound. The patient experienced dyspepsia and progressive asthenia over several months so an abdominal ultrasound was performed. It showed multiple splenic heterogeneous and hypoechogenic focal lesions and a moderate left pleural effusion. Lymphoma was suspected and it was confirmed by the diagnostic tests that were performed. Treatment was then started and complete clinical remission was achieved. Therefore, this study highlights the role of abdominal ultrasound as a useful technique in the non-invasive assessment of this entity.

Dear Editor,

Focal splenic lesions are uncommon compared to renal or liver locations. These are detected in 0.1%-0.6% of abdominal ultrasound examinations. Despite this, due to

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extended use of abdominal ultrasound, it is important to be aware of the differential diagnosis of these lesions when they are found, especially when there is clinical suspicion of malignancy. Specifically concerning lymphomas, up to 30-40% of cases of systemic forms of these tumors can present with splenic involvement (1,2).

**CLINICAL CASE**

We present the case of a 73-year-old woman with dyspepsia and progressive asthenia. She developed pleuritic chest pain and dyspnea upon moderate exertion. Laboratory tests showed normocytic normochromic anemia (9 g/dL of hemoglobin) and elevated lactate dehydrogenase (519 UI/L). A gastroscopy was performed showing atrophic gastritis, followed by an abdominal ultrasound. Main ultrasonographic findings were a normal-sized spleen with multiple heterogeneous and hypoechogenic focal lesions with well-defined borders (Fig. 1) and a moderate left pleural effusion (Fig. 2). In this setting, lymphoma was suspected and the study was completed with a thoraco-abdominal computed tomography (CT) scan. A peritoneal thickening suggestive of malignant involvement was observed. Splenic and peritoneal biopsies were carried out, which revealed a lymphoid neoplastic proliferation of large cells with scant cytoplasm, large nuclei, intense immunohistochemical expression of CD20 and a tumor proliferation index (Ki-67) of 90%. The final diagnosis was a diffuse large B-cell lymphoma with metastatic disease (Fig. 3 and 4). Treatment was started with rituximab, cyclophosphamide, doxorubicin, vincristine and prednisone (R-CHOP) regimen and complete clinical remission was achieved.

**DISCUSSION**

Around 70% of splenic lymphomas present with multiple hypoechogenic, lesions on ultrasound. When large lesions (> 3 cm) are found, high-grade lymphoma must be ruled out. Hyperechogenic nodules or a diffuse infiltrative pattern have also been reported as alternative presentations. However, ultrasound has a limited ability to characterize solid splenic lesions, and the appearance of benign and malignant lesions frequently overlaps. A comprehensive understanding of the differential diagnosis when encountering a focal splenic lesion on ultrasound, combined with a thorough

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assessment of clinical symptoms and laboratory test results, enables a more accurate and prompt diagnosis of suspicion. However, if necessary, another test such as whole body CT scan, positron emission tomography or magnetic resonance imaging should be performed (3,4).

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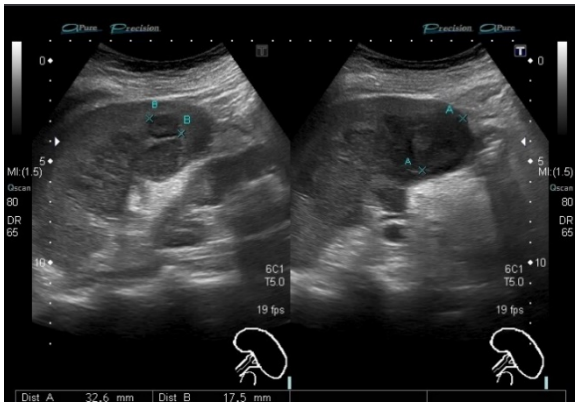

*Fig. 1. Ultrasound image with focal hypoechogenic lesions with irregular splenic borders*

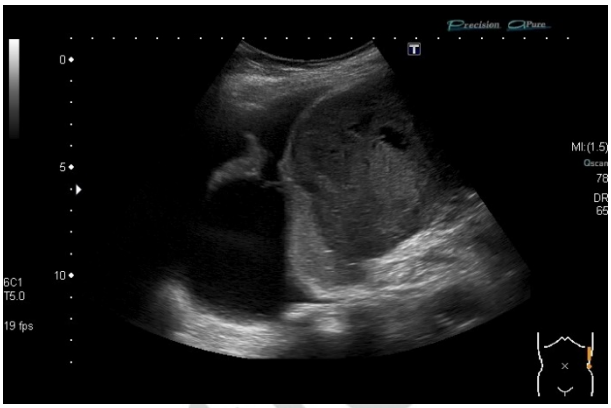

*Fig. 2. Ultrasound image with left pleural effusion*

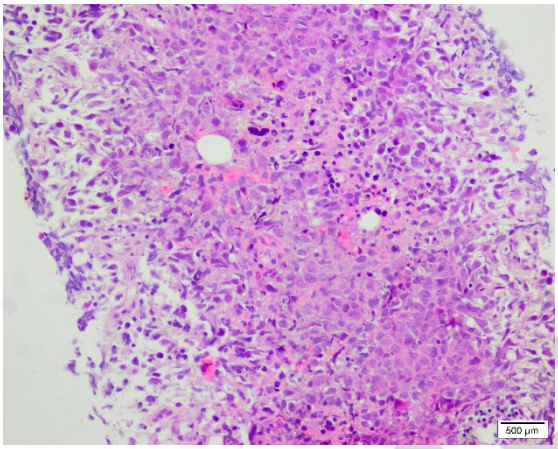

*Fig. 3. Lymphoid neoplastic proliferation: large cells with scant cytoplasm and vesicular nuclei (white arrow) and foci of necrosis (black arrow)*

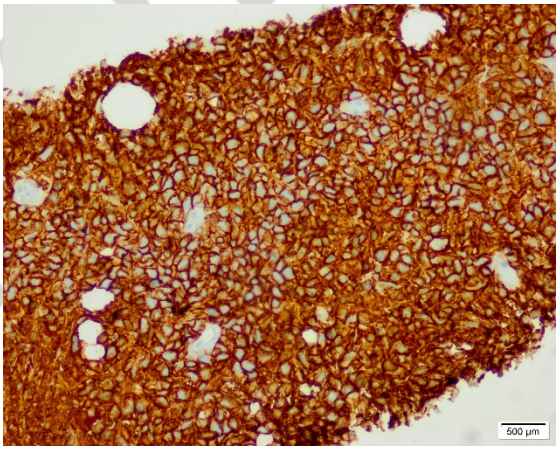

*Fig. 4. Immunohistochemical study with intense expression of CD20.*

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