

## Persistent abdominal pain after exercise: an unexpected diagnosis

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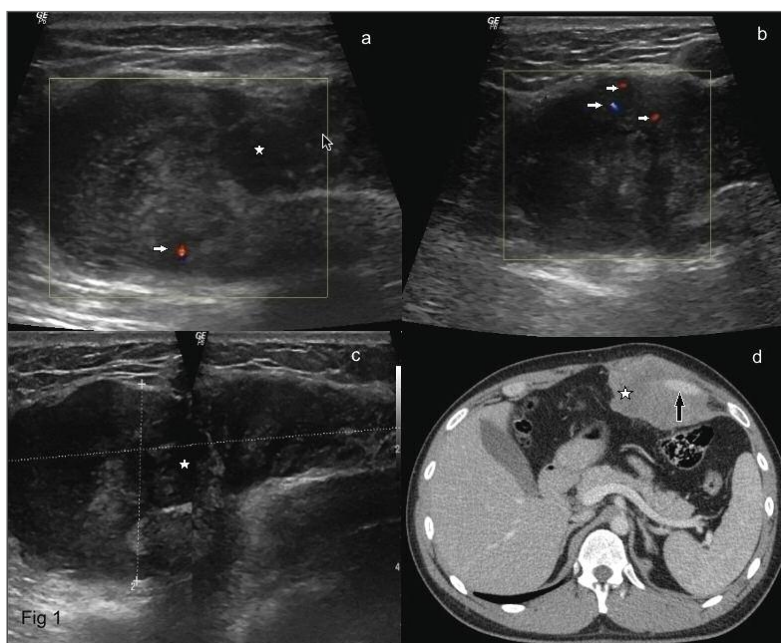
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A 33-year-old male patient presented with pain in the abdominal muscles for 2 weeks. His complaint appeared after beginning strengthening exercises of the trunk muscles, and gradually increased in severity. He had no history of trauma to the abdominal region, comorbidities, complaints related to the gastrointestinal system, or drug use. A physical examination found nothing significant, except for tenderness in the left hypogastric area during palpation. There was no localized

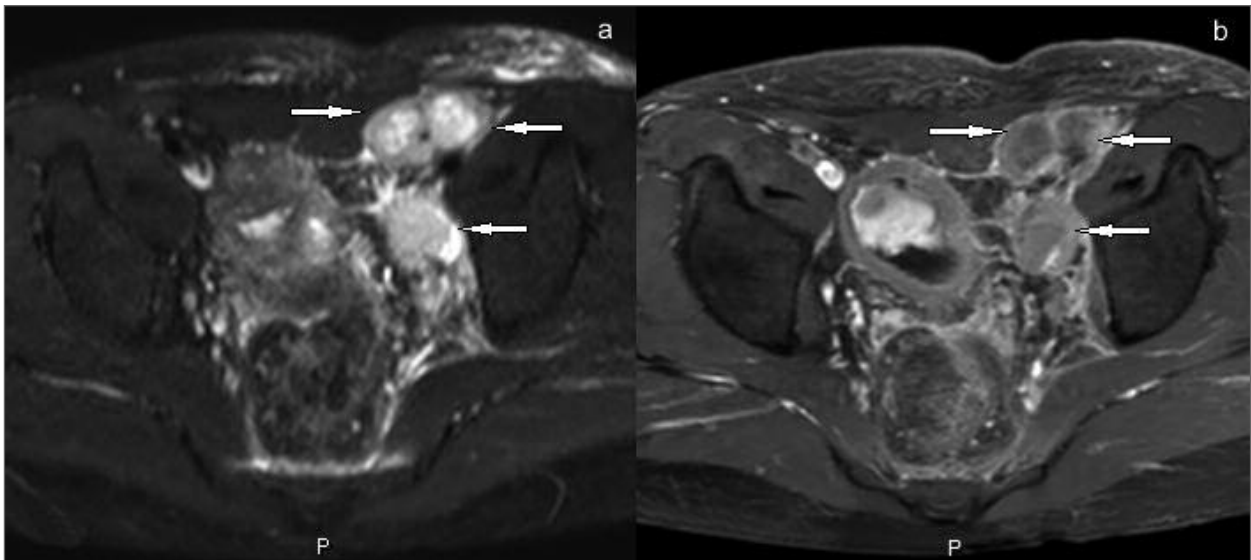
swelling or ecchymosis. The results of routine serological and biochemical tests were within the normal ranges. After the physical examination, ultrasonography performed by the same clinician (upon suspicion of costochondritis or hematoma) revealed an internally structured, heterogeneous hypoechoic lesion with lobulated borders extending from near the left lateral xyphoid bone subcostally towards the lateral and slightly inferior and into the rectus abdominis muscle (Figure 1a). Due to the lesion was superficial and partially compressible and it lacked the contour sharpness and vascularization of mass lesions, it was assumed to be a hematoma; the patient was administered analgesics

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**FIGURE 1.** A) Initial ultrasound revealed a heterogeneous, subtly compressible lesion with poorly defined borders in the anterior abdominal wall superficially. B-C) Follow-up ultrasound 3 weeks later revealed increased definition of the lesion borders and vascularization (white arrows). There was no evidence of liquefaction such as heterogeneous hypoechoic areas or increased compressibility that would be expected in a hematoma. D) The non-enhanced computed tomography image revealed mild central necrosis (star) partially encasing bone (black arrow) and extending into the peritoneum



**FIGURE 2.** A) Axial T2 spectral attenuated inversion recovery (SPAIR) and B) Axial post contrast T1 spectral presaturation with inversion recovery (SPIR) images show enlarged, markedly necrotic metastatic lymph nodes (arrows) in left external iliac lymph node group.

and rest was recommended. Three weeks later, a follow-up ultrasonography was performed by the same clinician, because of the confusing history and findings suggesting a hematoma on the first ultrasonography. The follow-up ultrasound revealed increased definition of the lesion borders and vascularization. There was no evidence of a liquid-like appearance or increased compressibility that would be expected with a hematoma (Figures 1b-c). Primarily, a tru-cut biopsy was performed via ultrasonography. The histopathological examination of the lesion determined that it was a rhabdomyosarcoma (embryonal subtype). And later on, computed tomography (CT) and magnetic resonance imaging (MRI) were then performed in order to determine the dimensions and potential spread of the lesion. CT revealed that it surrounded the neighboring ribs and extended into the abdomen (Figure 1d). MRI of his abdomen identified enlarged, markedly necrotic, metastatic lymph nodes (Figures 2a-b). Following an evaluation of metastatic dissemination, the patient underwent four courses of chemotherapy and surgery.

Rhabdomyosarcoma (RMS) is a rare malignant mesenchymal tumor originating from the skeletal muscles. Most RMS cases occur in children, while it is extremely rare in adults<sup>1</sup>. RMS can occur in any area of the body as a primary tumor or as a metastasis, especially in the head, neck, pelvic-urogenital area, trunk,

and extremities<sup>2,3</sup>. It frequently presents as a painful mass with symptoms specific to the anatomical site<sup>3</sup>. While no radiological or ultrasonographic findings are specific to RMS, it may be suggested by a hyper- or hypo-echoic visualization within a solid component, inside of which there is hemorrhage or necrosis<sup>2</sup>.

Differential diagnosis of soft tissue sarcomas and hematoma based on radiological findings is quite difficult. Evaluation of the clinical clues such as a history of trauma, palpable mass, or ecchymosis might prevent misdiagnosis, late diagnosis, or insufficient management<sup>4</sup>. Ultrasonography is an important clinical instrument that can be used to diagnose musculoskeletal complaints<sup>5</sup>. This report emphasizes the role of musculoskeletal ultrasonography, which can be performed readily in the clinic, repeated frequently, and applied easily, in the early diagnosis of these lesions.

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