Case 2061

Non-Hodgkin's primary muscular lymphoma: CT and MRI findings
Published on 18.02.2003

DOI: 10.1594/EURORAD/CASE.2061
ISSN: 1563-4086
Section: Abdominal imaging
Imaging Technique: CT
Imaging Technique: MR
Imaging Technique: MR
Imaging Technique: MR
Imaging Technique: MR
Imaging Technique: MR
Case Type: Clinical Cases
Authors: V. Cantisani, G.M. Andreoli, F. Pediconi, E. Pagliata, P. Sedati
Patient: 60 years, male

Clinical History:
The patient presented with an asymptomatic, tender, slow-growing mass detected at physical examination.

Imaging Findings:
The patient presented with an asymptomatic, tender, slow-growing mass arising from the left abdominal rectal muscle. A sonographic examination was performed, which revealed a solid, ill-marginated, hypoechoic mass with some hyperecoic fibrous septations, measuring 6.5cm x 6.2cm x 4.2cm. The mass arose from rectal abdominal muscle, apparently under the fascia, and was well separated from the underlying muscular plane. Colour-Doppler evaluation showed evident intralesional vascularisation. Subsequently, spiral CT confirmed the presence of the aforementioned mass, which appeared hyperattenuated after contrast medium injection. Another lesion was also present in the CT examination but it was missed for its characteristic of hypodense to isodense relative to normal muscle. For further evaluation, an MRI scan was performed. The presence of the suspected malignant lesion was confirmed, but another mass was also detected with similar findings arising from the contralateral ileopsoas. The masses were surgically removed and a diagnosis of diffuse, B-cell non-Hodgkin's lymphoma, with small and medium cells, was made histologically.

Discussion:
Non-Hodgkin's lymphoma more frequently involves extranodal sites, either at initial presentation or during relapse, than does Hodgkin's lymphoma. In fact, up to 25% of patients with non-Hodgkin's lymphoma show extranodal involvement. Although virtually any soft tissue site can be affected, involvement of skeletal muscle is rare. Three forms of skeletal lymphoma have been described: primary extranodal involvement, secondary involvement in patients with widespread disease, and secondary involvement by contiguous spread from osseous disease. All forms are rare, but primary involvement is exceptional, since large series have reported muscle involvement in 1.4% of patients, but primary involvement in only 0.14% of lymphoma patients. In the past, the following criteria have been proposed to identify a case of primary lymphoma: a large soft-tissue mass with normal adjacent bone marrow or with bone marrow abnormalities much less extensive than the soft tissue disease and the absence of systemic or nodal involvement at initial examination.
Muscle involvement by lymphoma may present as a discrete mass, or more commonly, as diffuse muscle enlargement. On unenhanced CT, lymphomatous muscle is hypodense to isodense relative to normal muscle, and contrast media administration has been reported to increase the visibility of the involved muscle, either by decreased enhancement relative to normal muscle or by diffuse enhancement of the lymphomatous muscle. The MR appearance of skeletal muscle lymphoma has only rarely been described. Characteristics are: a muscular soft-tissue mass with variable signal intensity on T1-weighted images, hyperintense relative to muscle and iso- to slightly hyperintense relative to fat on T2-weighted images, and homogeneously enhancing after Gd-DTPA injection, with preservation of the fat plane, and extension along muscle fascicles.

The differential diagnosis of muscle enlargement is lengthy and includes myopathies, muscle infarction, and post-denervation enlargement. The idiopathic inflammatory myopathies are characterised by proximal muscle weakness that is occasionally accompanied by muscle tenderness and rash. MR imaging usually reveals non-specific changes of oedema in affected muscles, in adjacent subcutaneous or intermuscular fat, and occasionally along myofascial planes. With chronic inflammation, atrophy and fatty replacement may be seen. One or several muscles may be affected by skeletal muscle infarction, which on T1-weighted imaging shows low to slightly increased signal intensity and on T2-weighted imaging shows increased signal intensity compared with muscle, but no contrast enhancement is evident. Conversely, denervated skeletal muscle typically atrophies and is replaced by fat. Occasionally, however, the muscle is enlarged and the patient may present with a mass or swelling.

**Differential Diagnosis List:** Non-Hodgkin's primary muscular lymphoma

**Final Diagnosis:** Non-Hodgkin's primary muscular lymphoma

**References:**


Description: Lower abdominal CT scan shows the presence of a mass arising from the left rectal muscle. On the unenhanced image the mass appears isodense to the muscle. Origin:

Description: After contrast medium administration the mass has homogeneous enhancement. Origin:
Figure 2

Description: On T1-weighted imaging the lesions show isointense to muscle. Origin:

Description: On T1-weighted imaging the lesions show isointense to muscle. Origin:
Description: T2-weighted coronal projection confirms the presence of the mass located on the left rectal muscle. The lesion appears hyperintense; the coronal projection demonstrates the presence of another mass located on the contralateral internal trasversalis muscle, with the same signal intensity characteristics. Origin:
Description: T2-weighted coronal projection confirms the presence of the mass located on the left rectal muscle. The lesion appears hyperintense; the coronal projection demonstrates the presence of another mass located on the contralateral internal transversalis muscle, with the same signal intensity characteristics. Origin:
**Figure 4**

**Description:** The lesions enhance after gadolinium administration on T1-weighted imaging. **Origin:**

**Figure 4b**

**Description:** The lesions enhance after gadolinium administration on T1-weighted imaging. **Origin:**
**Figure 5**

**a**

*Description:* On T1-weighted STIR imaging there is no drop in signal because of the absence of fat within the lesion. *Origin:*

**b**

*Description:* On T1-weighted STIR imaging there is no drop in signal because of the absence of fat within the lesion. *Origin:*