Case 16429

Diffuse large B-cell lymphoma mimicking a peripheral nerve sheath tumour
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Section: Musculoskeletal system
Area of Interest: Haematologic Head and neck Musculoskeletal soft tissue
Imaging Technique: CT
Imaging Technique: MR
Imaging Technique: Ultrasound
Special Focus: Lymphoma Neoplasia Tissue characterisation Case Type: Clinical Cases
Authors: Rocio Auban Pariente, Eva Llopis San Juan
Patient: 62 years, female

Clinical History:

A 62-year-old woman with no significant past medical history presented with a large, painless left supraclavicular lump. It had grown in the course of 5 weeks and at physical examination it was firm and apparently fixed to the deep planes. An ultrasound was performed.

Imaging Findings:

Ultrasound revealed a well-defined, ovoid mass of 42 x 30 x 34 mm located at the left supraclavicular fossa. This mass was predominantly hypoechogetic with some focal hyperechoic areas and Doppler signal inside the lesion (Fig. 1).

The patient subsequently underwent a CT scan of the head, neck, chest and abdomen to complete the study. CT showed no systemic lymphadenopathy or other mass-like lesions suspicious for a primary tumour. On CT the mass was homogeneous and isoattenuating to normal muscle, without infiltration of adjacent structures (Fig. 2).

On MRI, the mass was isointense to muscle on T1WI and slightly hyperintense to muscle on T2WI, without fat, haemosiderin or calcification components (Fig. 3). It also showed avid enhancement in post-contrast images and restricted diffusion on DWI (Fig. 4, 5). The lesion was located anterior to the subclavian artery and contacted the brachial plexus on its lower slope.

The patient underwent an US-guided needle biopsy, which revealed diffuse large B-cell lymphoma (Fig. 6).

Discussion:

Supraclavicular soft tissue masses are unspecific and a challenge for imaging diagnosis. A systematic approach should be made combining the location and infiltration of the adjacent structures together with the radiological features.

In this case our differential diagnosis included peripheral nerve sheath tumours, (PNSTs), enlarged lymph node, synovial sarcoma, nodular fasciitis and fibrous solitary tumour.
Due to the course of the brachial plexus one of the main differential diagnoses is PNSTs, especially because some of them are indolent on its clinical symptoms [1]. The elongated morphology, well-defined margins, direct relation with nerves and imaging features on US/TC/MRI were concordant with a benign PNST. However, some common signs associated with neurinoma such as split fat sign or target sign were not present [1].

The next diagnosis suggested was a large supraclavicular lymph node, since large lymph nodes are one of the most common causes of neck masses. The markedly restricted diffusion and high FDG avidity on PET support the diagnosis of malignant lymph node [2]. Diffuse large B-cell lymphoma is the most common type of non-Hodgkin lymphoma in the head and neck and usually presents as a rapidly enlarging, single nodal or extranodal mass [2]. Imaging features that are important to closely rule out in soft tissue masses are calcifications for vascular tumours, macroscopic fat for liposarcoma, haemosiderin deposition for a haemorrhagic mass and low signal intensity on T2 that could suggest mature fibrous tissue [3].

Soft tissue sarcomas are unfortunately unspecific in their radiological features: low signal intensity on T1, high signal intensity on T2 and strong enhancement after contrast injection [3]. Because of the smooth margins of the mass, synovial sarcoma was the more suggestive subtype.

The history of a rapidly-growing, well-circumscribed soft tissue mass and the localisation in deep subcutaneous tissue are characteristics seen on nodular fasciitis. In spite of being a benign condition, often nodular fasciitis is misdiagnosis as a sarcoma, because of its similar pathologic and clinical presentation [4].

Solitary fibrous tumour could also be considered because, as in our case, it is usually a well-demarcated, solid and lobulated mass. However, it is a very rare lesion with few cases described in the supraclavicular region and generally has a slow-growing clinical history [5].

When imaging features are nonspecific, as the therapeutic management of the differential pathologies is markedly different, it is mandatory to biopsy in order to exclude malignancy.

Written informed patient consent for publication has been obtained.

**Differential Diagnosis List:** Diffuse large B cell lymphoma, Peripheral nerve sheath tumours (PNSTs), Synovial sarcoma, Nodular fasciitis, Fibrous solitary tumour

**Final Diagnosis:** Diffuse large B cell lymphoma

**References:**


**Figure 1**

**Description:** Ultrasound in B-mode and colour Doppler evaluation shows a lobulated and well-defined mass in the left supraclavicular fossa. It is predominantly hypoechoogenic with posterior acoustic shadow and internal vascularity. **Origin:** © Department of Radiology, Hospital de la Ribera, Spain, 2019
Description: Ultrasound in B-mode and colour Doppler evaluation shows a lobulated and well-defined mass in the left supraclavicular fossa. It is predominantly hypoechogenic with posterior acoustic shadow and internal vascularity. Origin: © Department of Radiology, Hospital de la Ribera, Spain, 2019
Figure 2

Description: CT revealed that the mass is isoattenuating to normal muscle, without infiltration of adjacent structures. It is located on the course of the brachial plexus, and it seems to contact with it on its lower slope. Origin: © Department of Radiology, Hospital de la Ribera, Spain, 2019
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Description: Axial images show the lesion to be homogeneous and isointense to muscle on T1-weighted image (a) and hyperintense on T2-weighted image (b), without signal suppression on fat suppression image (c). Coronal plane STIR image (d) shows that the lesion is oriented in an oblique direction along the long axis of the brachial plexus (green arrow, brachial plexus; red arrow, subclavian artery; blue arrow, subclavian vein). Origin: © Department of Radiology, Hospital de la Ribera, Spain, 2019
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Description: Video of axial dynamic contrast-enhanced T1WI shows strong enhancement of the mass.
Origin: © Department of Radiology, Hospital de la Ribera, Spain, 2019
Figure 5

Description: ADC map shows restricted diffusion in the mass. Origin: © Department of Radiology, Hospital de la Ribera, Spain, 2019
Description: Haematoxylin and eosin stain (a, b) of the mass biopsy sample shows diffuse infiltration of atypical lymphoid cells whose nuclei are large and irregular with coarsely reticulated chromatin (compare with normal lymphocyte). Image c showing expression of the B-cell receptor molecule CD20 positive cells. Image d showing expression of the proliferation marker Ki-67 which is a very general marker for actively proliferating cells. Origin: © Department of Pathology, Hospital de la Ribera, Spain, 2019
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