**Calcific myonecrosis**

Published on 24.01.2011

**DOI:** 10.1594/EURORAD/CASE.9086  
**ISSN:** 1563-4086  
**Section:** Musculoskeletal system  
**Area of Interest:** Musculoskeletal soft tissue  
**Case Type:** Clinical Cases  
**Authors:** Eyselbergs M1, 2, Catry F2, Scharpé P3, Vanhoenacker FM1, 2 1. Department of Radiology, University Hospital Antwerp, Wilrijkstraat 10, B-2650 Edegem, Belgium2. Department of Radiology, AZ St-Maarten, campus Duffel, Rooienberg 25, B-2570 Duffel, Belgium3. Department of Orthopedic Surgery, AZ St-Maarten, campus Duffel, Rooienberg 25, B-2570 Duffel, Belgium  
**Patient:** 61 years, female

**Clinical History:**

A 61-year-old woman was referred to the radiology department for imaging of her right lower leg because of a painless slowly enlarging mass. Clinical examination also revealed a less pronounced mass in the left antetibial region. Anamnesis revealed a remote trauma 34 years ago during rock and roll dancing.

**Imaging Findings:**

- **Fig. 1.** Anteroposterior (Fig. 1.a) and lateral (Fig. 1.b) radiographs show plaque-like soft tissue calcifications parallel in the anterior compartment of the lower leg.

- **Fig. 2.** Ultrasound shows echogenic foci (arrowheads) with retro-acoustic shadowing.

- **Fig. 3.** Axial (Fig. 3.a) computed tomography images of both legs demonstrate bilateral calcifications in the anterior compartment of the lower leg. The peripheral rim (arrows) of the lesions is denser than the central part. Sagittal reformatted image of the right leg (Fig. 3.b) shows the plaque-like calcifications.

- **Fig. 4.** Axial T1-weighted images (WI) without (Fig. 4.a) and with (Fig. 4.b) fat suppression show areas of intermediate signal intensity in the mass (arrows) left more than right because of the higher calcified content. A low intensity rim is present at the periphery of the lesion (arrowheads) on T1-WI. Coronal T2-WI (Fig. 4.c) shows the fusiform shaped mass with heterogeneous signal intensities in both lesions (arrows).

**Discussion:**

Calcific myonecrosis is a rare benign post-traumatic lesion, which may mimic a soft tissue tumour [1]. Anamnestic information of a remote trauma is usually present. Time of onset ranges between 10 and 64 years [2]. Reduced circulation due to compartment syndrome leads to necrosis and fibrosis within a confined area in the muscle and central liquefaction may occur. Enlargement and calcification of the intramuscular mass is attributed to repeated haemorrhages or herniation of the mass through the muscle fascia [3]. The most frequently involved muscles are those located in the anterior compartment of the lower leg. The lesion typically involves one limb, but bilateral presentation - as in our case - has been described occasionally [4]. Plain radiographs show a fusiform mass along with the long axis of the muscles with peripheral calcifications, often
with a linear plate-like configuration. Ultrasound demonstrates scattered but predominantly peripherally located calcifications visible as echogenic foci with retro-acoustic shadowing. Central areas of liquefaction or mobile calcium debris may also be seen. Computed tomography (CT) clearly depicts the compartmental distribution with peripheral calcifications and sometimes fluid calcium levels or bone erosions due to chronic pressure effect. On MRI the periphery of the lesion shows a low intensity rim on T1-WI because of abundant calcification. T1- and T2-WI demonstrate the heterogeneity of the lesion explained by repeated intrallesional haemorrhage with accumulation of blood (breakdown) products, liquefaction necrosis and calcified areas. Hyperintensity on T1-WI is the result of subacute haemorrhage with subsequent haemoglobin degradation to methaemoglobin or the presence of a proteinaceous content of cystic parts in the lesion. The lesion may also show hyperintense areas on T2-WI corresponding with cystic parts or liquefaction necrosis. Other parts of the lesion demonstrate intermediate to low signal intensity according to the degree of calcification [1, 3, 4].

The differentiation between a calcified soft tissue tumour and pseudotumoural calcifications within the soft tissue is crucial. The former category includes synovial sarcoma, epithelioid sarcoma, soft tissue osteosarcoma and the latter myositis ossificans, posttraumatic pseudoaneurysms, tumoural calcinosis, calcified abscess and systemic disease such as dermatomyositis, polymyositis and diabetic myonecrosis [3, 5].

Treatment is conservative for painless and asymptomatic lesions but surgery remains the treatment of choice for pain resistant lesions [6].

Key imaging features for diagnosis consist of the fusiform morphology of the lesion with typical plate- or plaque-like peripheral calcifications with central liquefaction, the location of the lesion and the history of a remote traumatic event.

Differential Diagnosis List: Calcific myonecrosis, Synovial sarcoma, Myositis ossificans, Diabetic myonecrosis, Tumoural calcinosis, Calcific myonecrosis

Final Diagnosis: Calcific myonecrosis

References:

Description: Anteroposterior radiograph showing plaque-like soft tissue calcifications parallel in the anterior compartment of the lower leg. Origin:
Description: Lateral radiograph showing plaque-like soft tissue calcifications parallel in the anterior compartment of the lower leg. Origin:
Figure 2

Description: Ultrasound shows echogenic foci (arrowheads) with retro-acoustic shadowing.

Origin:
Figure 3

Description: Axial computed tomography of both legs demonstrates bilateral calcifications in the anterior compartment of the lower leg. The peripheral rim (arrows) of the lesions is denser than the central part. Origin:
Description: Sagittal reformatted image of the right leg shows the plaque-like morphology of the calcifications. Origin:
**Figure 4**

**a**

**Description:** Axial T1-weighted image showing areas of intermediate signal intensity in the mass at the left lower leg (arrow). **Origin:**

**b**

**Description:** Axial fat-suppressed T1-weighted image shows areas of intermediate signal intensity in the mass at the left leg (arrow). A low intensity rim is present at the periphery of the lesion (arrowhead). **Origin:**
Description: Coronal fat-suppressed T2-WI shows the fusiform shaped mass with heterogeneous signal intensities in both lesions (arrows). Origin: