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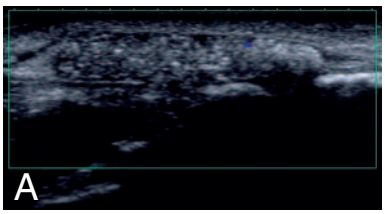
IMAGES IN CLINICAL RADIOLOGY



Calcific myonecrosis

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A 58-year-old man presented with a slowly growing painless mass at the anterolateral aspect of his left lower leg. His past history included a severe neurovascular damage of the left lower leg, due to an accidental dynamite explosion 34 years previously. During surgery following the accident, he developed compartmental ischemia of the left lower leg. Additionally, the involved leg became paralysed and atrophic and he suffered from neuralgic pain and numbness.

Initial ultrasound examination showed a liquified mass containing milk of calcium located in the subcutis (Fig. A). Echogenic foci with shadowing were seen within the deeper anterolateral and posterior compartments. Plain radiographs revealed linear, plaque-like soft tissue calcifications, arranged parallel to the long axis in the anterior and posterior deep compartments of the lower leg (Fig. B, curved white arrows). Furthermore, multiple metallic fragments were seen in the soft tissue of left upper and lower leg due to dynamite explosion. (Fig. B, short black arrows). CT clearly demonstrated the rim-like distribution of peripheral calcifications with central intermediate density, suggesting milk of calcium (Fig. C, straight white arrow). The calcific mass was intimately related to the adjacent tibia and fibula cortex (Fig. C, short black arrows).

Based on the imaging findings and the clinical history, the diagnosis of calcific myonecrosis was made.

Because the lesion remains painless, no further treatment was installed.

Comment

Calcific myonecrosis is a condition characterized by latent formation of a dystrophic calcified mass occurring 10 to 64 years after an initial injury of the lower leg. It typically presents as a slowly enlarging mass in one or more compartments, but location within the anterior compartment of the lower leg is most frequent. It has been suggested that the lesion is a late sequela of compartment syndrome, in which necrotic muscle undergoes central liquefaction and peripheral calcification. Neurovascular compromise seems to be the most important etiopathogenetic factor. Calcific myonecrosis can also occur after common peroneal nerve injury. The mass may enlarge slowly because of repeated intralesional hemorrhage with time.

As in most patients with calcific myonecrosis, our patient presented with a visible painless mass representing a late focal enlargement caused by herniation of necrotic tissue through the muscle fascia.

Imaging features of calcific myonecrosis have been well described in the literature.

Plain radiographs show well-defined mass with linear pattern of calcifications organized around the periphery of the lesion. Sonographic examination demonstrates peripheral, echogenic foci with acoustic shadowing consistent with calcification. The central part of the lesion is hypoechoic and often liquified. CT and MRI more readily identify the typical compartmental distribution. CT shows the predominantly rim-like morphology of the calcifications and may sometimes depict scattered calcifications within the mass, calcium-fluid levels or long-standing, smooth pressure erosions affecting the outer cortex of adjacent bone. On MRI, peripheral calcifications are of low signal intensity on both T1- and T2-Weighted Images(WI). On T2-WI, the mass is often heterogeneous in signal, with areas of bright signal intensity consistent with fluid, while other areas demonstrate intermediate signal intensity. On T1-WI, the central fluid region shows as a homogeneous low signal intensity area. Contrast enhanced CT and/or MRI may demonstrate peripheral enhancement due to anastomosizing small blood vessels around the mass.

The distinct radiological features of linear plaque-like calcifications, together with the clinical history of previous closed injury, are helpful to differentiate calcific myonecrosis from other (calcified) soft tissue masses such as sarcomas, myositis ossificans and abscesses.

Painless lesions are often left untreated.

Ultrasound-guided needle decompression of the cystic mass is a treatment option for the occasionally painful, calcific myonecrosis, with subsequent injection of a mixture of an antibiotic agent and an anesthetic. Surgical debridement remains the most commonly recommended treatment for pain resistant lesions.

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