Rare disease

Calcific myonecrosis: a case report and review of the literature

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Summary

Calcific myonecrosis is a rare post-traumatic sequel of the lower limb, presenting in a delayed manner several years after the initial injury. We report a case of a 43-year-old gentleman who presented emergently with an enlarging painful mass in the lateral side of his left leg, that although present for several years had recently worsened with respect to the pain and erythema. Following laboratory and radiological investigations this was diagnosed to be calcific myonecrosis, which was then treated conservatively, and patient discharged when symptomatically improved.

BACKGROUND

Calcific myonecrosis is a rare entity noted in the lower limb that is characterised by the development of a slowly enlarging dystrophic calcified mass, following an initial traumatic event along with compartment syndrome. The clinical picture of a calcified cystic soft-tissue mass occurring almost exclusively within the muscle compartments of the lower limb and can be frequently confused with an aneurysm or malignant soft-tissue tumours. Failure to distinguish calcific myonecrosis from other malignant and non-malignant conditions with a similar clinical appearance can lead to serious complications following inappropriate management.

CASE PRESENTATION

A 43-year-old gentleman presented acutely with a month-long history of a gradually enlarging mass in the postero-lateral side of his left leg, with associated rubor and pain. He denied any recent trauma to the limb. The swelling was situated at the site of a closed fracture of the tibia and fibula, sustained in a skiing accident 20 years ago. The fractures had been treated by reduction and internal fixation. The patient had noticed that the left leg had become grossly larger in size than the right leg, but while he remained asymptomatic, he did not give it too much thought. With the onset of new symptoms, he was initially treated by his primary care practitioner, with a course of antibiotics for a presumptive diagnosis of cellulitis. His medical history was significant for epilepsy and hepatitis C.

The clinical examination revealed a fairly well-built middle-aged gentleman with normal vital signs. A 15 cm (13 cm non-tender, non-pulsatile, soft -tissue mass was noted in the posterior compartment of the left lower limb (figure 1)), with some erythema on the lateral aspect of the leg overlying the swelling. A longitudinal keloid scar was seen anteriorly over the lower leg, marking previous

surgery. Arterial pulsations were felt normally in the femoral, popliteal and distal ankle arteries. There was no focal neurological deficit over the limb.

Figure 1 A photograph of both legs showing the swollen left leg and signs of the previous trauma and operation.

Figure 2 X-Ray images showing the fusiform mass with wall calcification.

INVESTIGATIONS

Radiographs (figure 2) showed a fusiform radiolucent mass over the lower leg with peripheral linear calcifications.

Ultrasound scan (figure 3) revealed a large focal area of low attenuation in the region of the calf measuring

Figure 3 Ultrasound scan showing a cystic lesion with low attenuation.

14 cm×16 cm in axial dimensions. The lesion appeared cystic with no evidence of colour flow within.

A CT scan (figure 4) done subsequently confirmed a fusiform cystic lesion within the muscle compartment with few peripheral calcification, but not easily distinguishable from a large saccular popliteal aneurysm with a calcified wall.

An antegrade femoral angiogram (figure 5) clearly identified normal arterial circulation with no aneurysmal dilatation. The cystic lesion did not enhance with contrast.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of calcific myonecrosis includes haematoma, pseudo-aneurysms, diabetic myonecrosis, dermatomyositis and malignant tumours such as soft-tissue osteosarcoma, synovial sarcoma, epitheloid sarcoma and parosteal osteosarcoma.

TREATMENT

Although complete debridement is the advised treatment for calcific myonecrosis by few authors,¹ conservative management of symptoms is recommended for calcific myonecrosis.^{1–5} Although lesions can be disfiguring and discomforting for patients, calcific myonecrosis remains a benign lesion, and biopsy of the mass has been reported to cause serious complications, such as secondary infection and chronic fistula formation, sometimes even

Figure 4 CT scan images showing a cystic lesion with wall calcifications (mimicking calcified wall aneurysm).

Figure 5 Antegrade femoral angiogram showing normal arteries with no aneurysmal dilatation.

necessitating a below knee amputation. Complete surgical excision is definitive treatment, and biopsy is not advised unless a full surgical debridement is contemplated.

DISCUSSION

Calcific myonecrosis is a rare late sequel of limb trauma, usually of the lower extremity. Cases involving the forearm have also been described.⁶ The pre-requisite for development of calcific myonecrosis appears to be compartment syndrome.^{7 8} Calcific myonecrosis was first reported by Gallie and Thompson in 1960.⁷ The pathophysiology is not well understood; however, it is believed that initial compartment syndrome causes post-traumatic ischaemia and liquefactive degeneration of the muscle, with recurrent intralesional haemorrhage over the years causing the mass to enlarge and calcify. Peripheral nerve injury, particularly the peroneal, has also been implicated in the development of calcific myonecrosis, based on the muscle involvement in some of the reported cases of calcific myonecrosis.

Learning points

- ▶ Calcific myonecrosis should be considered foremost in the differential diagnosis of calcified soft-tissue mass of the lower extremity.
- ▶ Radiological appearances of a fusiform cystic lesion with peripheral calcification within the muscle compartment of the extremity are characteristic.
- ▶ Treatment is conservative and biopsy considered only when surgical excision is envisaged.

Competing interests None.

Patient consent Obtained.

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