Calcific tendinitis of the vastus lateralis muscle

A report of three cases

F.A. Ramon, M.D., H.R. Degryse, M.D., A.M. De Schepper, M.D., Ph.D., and E.A. Van Marck, M.D., Ph.D.

Abstract. Three cases of calcific tendinitis occurring at an unusual site (vastus lateralis tendon) are described. Findings on conventional radiography and computed tomography together with the clinical history are characteristic for this disorder and reflect its natural evolution. The actual role of magnetic resonance imaging seems limited to excluding neoplasm and to demonstrating inflammatory changes better in the early stages of disease.

Key words: Calcific tendinitis - Vastus lateralis muscle - Parosteal soft tissue calcification - Computed tomography - Magnetic resonance imaging

Calcific tendinitis is rare except in the shoulder region [3, 4, 6, 15]. Although it can affect almost any tendon insertion, only a few other locations have been mentioned in the recent literature [2, 5, 7, 8, 11, 12]. Three patients with parosteal soft tissue calcifications at the back of the thigh on conventional radiographs were examined by computed tomography (CT) and magnetic resonance imaging (MRI) in order to rule out neoplasm. The final diagnosis of calcific tendinitis of the vastus lateralis muscle was proved by operation and histologic examination. The clinical history and the radiological findings with special emphasis on CT and MRI presentation are reported.

Case reports

Case 1

A 66-year-old man felt a sudden heavy pain at the back of the right thigh walking down the stairs. Physical examination on admission to the hospital revealed no abnormality. Conventional radiographs showed an egg-shell calcification at the lateral aspect of the femur below the lesser trochanter. CT showed this calcification to be located in the vastus lateralis. Edema of the adjacent muscular tissue was noted (Fig. 1A).

On T1- and T2-weighted SE images in MRI the lesion had a low signal intensity while the surrounding edema was of high signal intensity on T2 weighting (Fig. 1B, C). Microscopic examination of a biopsy specimen showed a large calcified area surrounded by dense fibrous tissue and numerous giant cells. The diagnosis of calcifying tendinitis was made.

Case 2

A 45-year-old man was admitted to the hospital with a painful induration at the back of the right thigh. Over a period of 4 months the lesion became harder while the pain decreased. There was no history of trauma. Laboratory examinations gave normal results. CT revealed a rounded calcified nodule at the posterior aspect of the femur at the level of the lesser trochanter. A minimal erosion of the cortex was seen (Fig. 2).

On MRI this lesion had a low signal intensity on both T1- and T2-weighted SE images with an increased signal intensity of the surrounding soft tissues on T2-weighted images. The adjacent femoral cortex and marrow showed no abnormality. Microscopic examination showed normal cortical bone covered with fibrous tendon tissue. This connective tissue was interspersed by calcifications appearing as shiny amorphous coins and surrounded by numerous giant cells and histiocytes. Histological diagnosis of calcifying tendinitis was made.

Case 3

A 45-year-old man presented with a 1-year history of pain in the right thigh, increasing on pressure. There was no prior trauma. Clinical examination revealed no further abnormalities.

On conventional radiographs, an amorphous calcification was noted behind the femur, beneath the lesser trochanter (Fig. 3A, B). CT showed an inhomogeneous, rounded calcified spot in the vastus lateralis muscle with slight demineralization of the adjacent cortex (Fig. 3C).

On MRI the lesion was of low signal intensity on both T1- and T2-weighted SE images without accompanying abnormalities in the adjacent bone and soft tissues. Microscopic examination showed hyaline connective tissue with histiocytes, giant cells, and calcified areas compatible with a diagnosis of calcifying tendinitis (Fig. 3D).
Fig. 1. A CT demonstrates an ill-defined calcified area with edema of the surrounding muscle tissue. B On axial T1-weighted MR image (SE 550/22; detail of the right thigh) the calcification has a low signal intensity. C This axial T2-weighted image (SE 2500/90) through the thigh demonstrates the low signal intensity calcified nodule with pronounced surrounding muscle edema (high signal intensity).

Fig. 2. CT slice showing irregular calcium deposit in the tendon of insertion of the vastus lateralis muscle with associated cortical erosion.

Fig. 3. A Frontal view of the right femur shows an amorphous calcification just below the lesser trochanter. B Frontal view, external rotation, shows the parosteal cloudlike calcifications below the lesser trochanter. C CT through the right thigh shows an inhomogeneous rounded calcification at the back of the femur. D Photomicrograph revealing a cell-rich fusocellular matrix with foreign-body giant cells (arrows) surrounding inhomogeneous calcifications. Hematoxylin-eosin, ×180.