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INTRAOSSEOUS DISSECTING GANGLION OF THE KNEE

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Key-word: Knee, cysts

Background: A 66-year-old man consulted the orthopedic surgeon for persisting pain in the right knee after moving flower pots one month previously. There was no history of trauma and clinical findings were consistent with meniscal problems. At the time of the examination there was no joint effusion and the knee was stable.

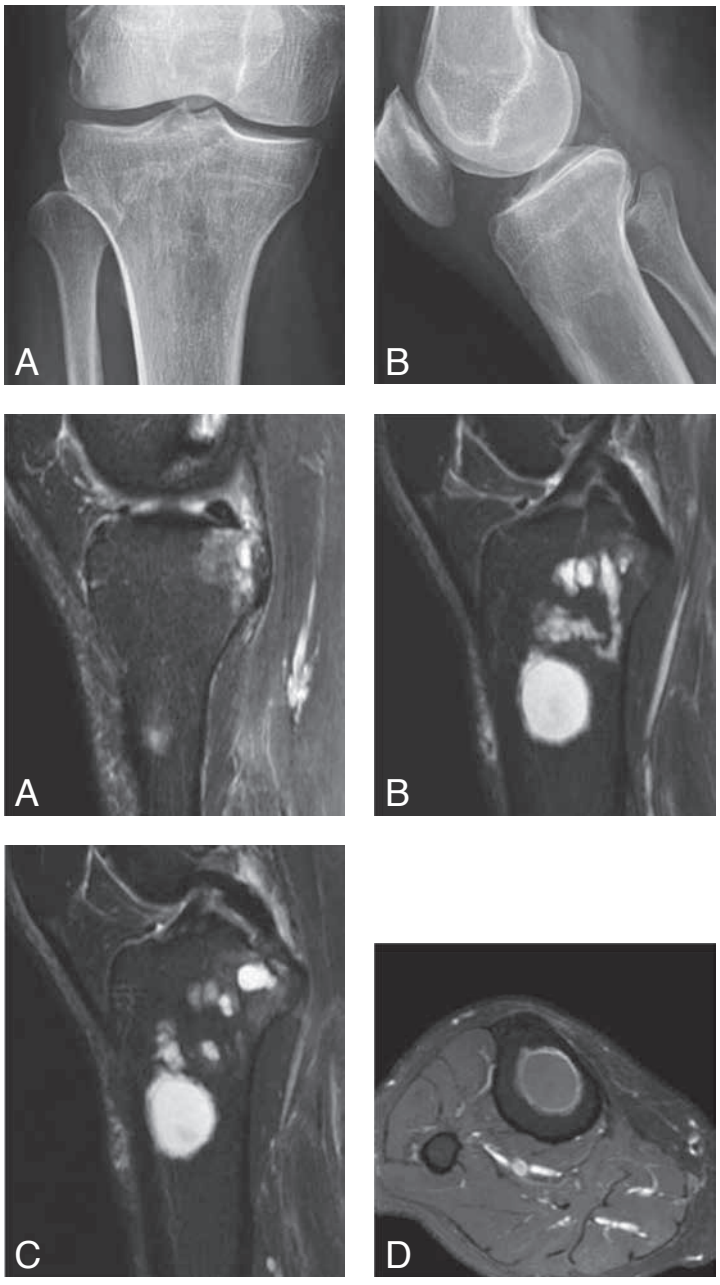

Fig. 1A 1B 2A 2B 2C 2D

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Work-up

On radiographies of the right knee (Fig. 1, A: AP and B: lateral views) two fairly visible osteolytic lesions in the proximal part of the tibial diaphysis are seen. These are unsharply delineated, located side by side, the largest lesion more distally. The knee joint is normal.

MRI of the right (Fig. 2) knee consisted of sagittal T2-weighted STIR images (A-C). A shows an unsharply delineated,high-intensity lesion located posteromedially in the tibial plateau, suggestive of bone marrow edema. On B and C, a serpiginous, multilocular, high-intensity lesion extending from the posteromedial side of the tibial plateau up to the diaphysis. Remark the smaller hyperintense cysts along its course, ending in a large cyst in the tibial diaphysis. On the gadolinium-enhanced axial T1-weighted image (D), peripheral contrast enhancement is seen, proving the cystic nature of the lesion in the tibia.

Radiological diagnosis

The diagnosis *of intraosseous dissecting ganglion* was made. The serpiginous trajectory in the proximal tibia corresponds to synovial fluid creating multiple cysts that are filled with synovial fluid.

Discussion

Intraosseous ganglion cysts (IOGC) are quite common and often published as case reports in orthopedic, plastic surgical and radiological literature. Different names have been given since the first description of a 'subchondral synovial cyst' as a separate entity by Hicks in 1956. In 1966 Crabbe was the first to use the name 'intraosseous ganglion'.

The clinical features are aspecific. The most common presentation is pain, aggravated by activity. The lesions may remain asymptomatic for several years. Pathological fractures may occur. Most frequent sites for IOGCare long tubular bones (subchondral region, especially femoral head and tibia), the acetabulum and the carpal bones (especially the lunate).

Most investigators regard IOGC as distinctive entities, other than posttraumatic or degenerative bone cysts. Histologically IOGC are identical with cutaneous myxoid cysts and soft tissue ganglion cysts, which consist of a capsule-like wall surrounding an acellular gelatinous fluid. Calcification, periosteal reaction or remodelling has not been described in IOGC.

The pathogenesis remains uncertain. We believe that a meniscal tear might cause recurrent joint effusions. The abundant synovial fluid might then follow the line of the least resistance through a small cartilaginous fissure into the subchondral bone, or through a small cortical interruption of the joint (bare area). In the presented case the 'entrance area' of the cyst is visible in the proximal part of the tibia (Fig. 2a). More distally the smaller cysts fuse into a larger intraosseous ganglion.

Radiologically the differential diagnosis includes simple bone cyst (should have sharp borders and a sclerous rim), giant cell tumor (should be located in the epiphysis) and fibrous dysplasia (the cystic form should have a groundglass appearance), multiple myeloma and metastasis.

MRI shows multiple communicating lesions extending from the joint onwards, and branching in the epiphyseal and metaphyseal regions. The lesions have the same signal intensity as joint fluid on all sequences. Increasing window level and window width to very high values only showed remaining high signal intensity of both synovial fluid and the cystic content. This pleads for a synovial fluid filled structure and against a tumor. On T1-weighted images there is low signal intensity, with peripheral rim enhancement following Gadolinium administration.

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