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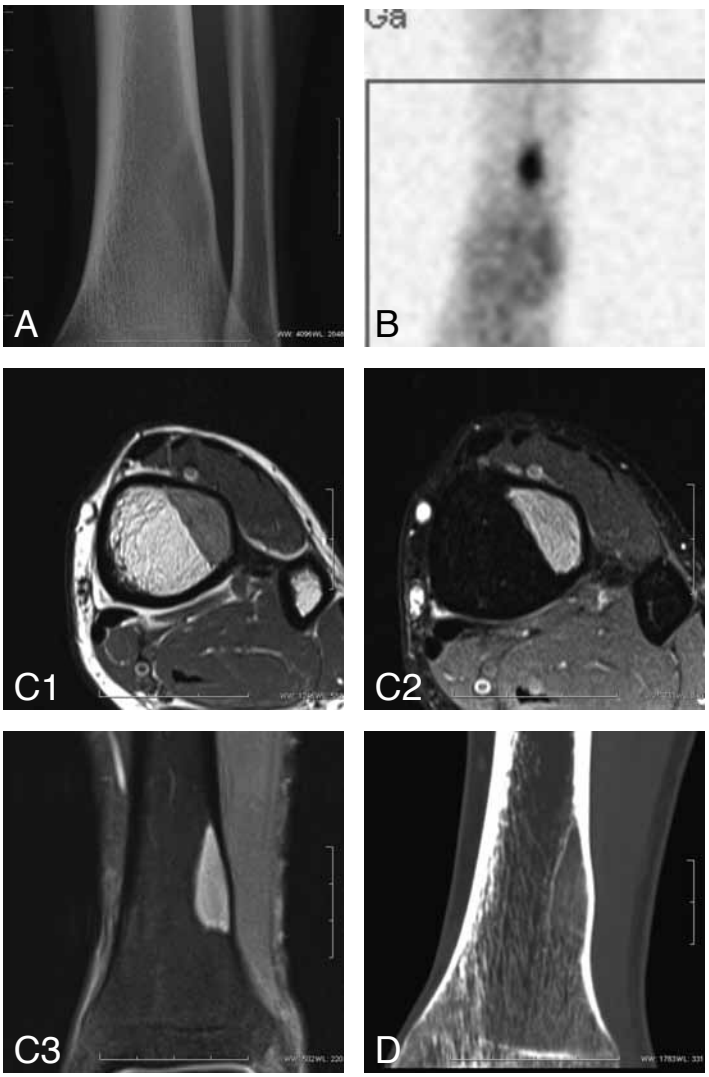
IMAGES IN CLINICAL RADIOLOGY



Fibrous dysplasia

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A 45-year-old man presented to the emergency room for left leg pain following after a fall. Standard X-Rays showed no fracture but revealed, at the distal extremity of the tibial diaphysis, a 3 cm long, ovoid intramedullary lesion with thinning the cortex on the lateral side. There was no focal calcification or septation (A).

The patient was referred to an oncologist. Technetium-99m–MDP bone scintigraphy and magnetic resonance imaging (MRI) were performed. The scintigraphy showed the lesion to be hypermetabolic (B). The MRI (C1: T1, TR 598/TE 14, 3M; C2: T1FS, TR 610/TE 14, 3M; C3: TSE, TR 3300/TE 28) showed a sharply delineated homogeneous lesion, hypointense on T1WI and hyperintense on T2WI, enhancing after injection of Gadolinium. There was no fluid-fluid level and no soft tissue mass outside the bone.

No specific diagnosis could be proposed on this basis and the patient underwent a ct scan for a better analysis of the bony structure. It showed an ovoid lesion with a "ground glass" pattern, which is a relatively hypodense area compared to the cortex, hyperdense to the fatty medulla, without trabeculation. Slightly sclerotic borders indicated a benign lesion (D). On the basis of those findings, the diagnosis of fibrous dysplasia was proposed.

Comment

Fibrous dysplasia is a congenital non-inherited benign bone lesion in which normal bone marrow is replaced by fibro-osseous tissue. It accounts for 2.5% of bone disease and for 5 to 7% of benign bone lesions, but the real incidence might be higher, as most of the patients are asymptomatic. Most of the lesions are discovered between 5 and 30 years.

It's a slowly growing lesion located in the diaphysis or metaphysis and able to extend into the epiphysis only after fusion. Malignant transformations into osteosarcoma, fibrosarcoma and chondrosarcoma can occur in rare cases.

The diagnostic is based on radiological imaging. Plain radiographs are the first-line study and are often sufficient to lead to the diagnosis when characteristic features are present. In complex lesion or site, CT-scanning might reveal "ground-glass pattern", specific to the diagnosis. MRI is not indicated when fibrous dysplasia is suspected, as it may reveal unspecific or even misleading like in our case. Nuclear imaging is not specific either.

In conclusion, fibrous dysplasia is a benign lesion for which conventional X-rays and CT are sufficient to assess the diagnosis. MRI and scintigraphy are not specific.

Reference

1. Shah Z.K., Peh W.C., Kog W.L., Shek T.W.: Magnetic resonance imaging appearances of fibrous dysplasia. *Br J Radiol*, 2005, 78: 936.

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