Case 18638

Eurorad

Pes anserine exostosis

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Section: Musculoskeletal system
Area of Interest: Bones Extremities Musculoskeletal bone
Procedure: Normal variants
Imaging Technique: CT
Imaging Technique: Digital radiography
Imaging Technique: MR
Case Type: Clinical Case
Authors: Domnica Calin 1, Filip Vanhoenacker 2
Patient: 13 years, male

Clinical History:

A 13-year-old male patient presented with bilateral non-specific anterior knee pain at the apex of the patellae. He was referred for further imaging.

Imaging Findings:

Radiographs of the right knee were unremarkable, whereas a well-defined inverted comma-shaped bony outgrowth was seen at the medial aspect of the proximal diaphysis of the left tibia. The lesion pointed away from the knee joint (Figure 1).

Computed tomography (CT) provided more detailed information regarding the size and morphology of the lesion. Bone windows revealed continuity of the cortex and the trabecular bone of the lesion and adjacent tibia (Figure 2a). Soft tissue windows showed close contact of the lesion with the superficial medial collateral ligament and the gracilis tendon (Figures 2b and 2c).

The bony spur was barely visible on magnetic resonance imaging (MRI) as a hypointense stalk pointing away from the joint on the T1-weighted images (WI) (Figure 3a). Fat-suppressed T2-WI showed no overlying cartilage cap. There was a subtle thickening of the superficial medial collateral ligament (Figure 3b).

Discussion:

Pes anserine exostosis is a benign bony outgrowth from the outer cortex at the medial aspect of the proximal tibia, which lacks a cartilage cap [1,2]. The lesion points away from the knee joint and is in close vicinity with the pes anserine and medial collateral ligament, although these structures do not insert on it [1].

The average incidence of this type of exostosis is 1/1500 patients undergoing radiographs of the knee [1]. It is still debated whether the lesion has a post-traumatic origin like a Pelligrini–Stieda lesion at the medial femoral condyle or might be developmental in origin [2]. Clinical manifestations are usually absent and mostly the lesion is an incidental finding on imaging performed for other reasons. However, a catching/locking sensation has been reported as well [1].

Radiographs show a bony spur at the medial proximal tibia resembling a rose thorn or small icicle, pointing away from the knee joint.

CT is superior to evaluating the continuity of the spongiosa and cortex of the lesion with the underlying bone.

Studies on MRI revealed that the lesion runs between the tibial component of the superficial medial collateral ligament and the gracilis tendon but is not attached to these structures [1]. Unlike an osteochondroma, there is no associated cartilage cap on imaging and histopathological examination.

The differential diagnoses include osteochondroma, tug lesion, bizarre parosteal osteochondromatous proliferation (BPOP) and florid reactive periostitis ossificans. An osteochondroma—also known as a cartilaginous exostosis—is covered by a cartilage cap, which is absent in pes anserine exostosis [1]. Tug lesions result from chronic repetitive traction at the origin of the insertion of tendons to bones. In case of a tug lesion at the insertion of the pes anserinus, one should expect the bony spur to project towards the joint space rather than away from it [1]. In addition, there is no trabecular continuity between a tug lesion and the underlying host bone. BPOP typically involves hands and feet and is continuous with the adjacent cortex but without continuity with the medullary bone. Florid reactive periostitis ossificans is a similar lesion, also predominantly involving hands and feet. Periosteal reaction is a typical sign which matures over weeks to months [3].

In case the lesion represents an incidental finding on imaging, like in our case, treatment is not required. In symptomatic cases, surgical resection may be performed [4].

Differential Diagnosis List: Osteochondroma, Tug lesion, Pes anserine exostosis, Bizarre parosteal osteochondromatous proliferation, Florid reactive periostitis ossificans

Final Diagnosis: Pes anserine exostosis

References:

Davies M, Botchu R, James S (2021) An assessment of the incidence and significance of pes anserine exostoses. Indian J Musculoskelet Radiol 3(1):10-3. doi:10.25259/IJMSR_65_2020
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Gitto S, Serpi F, Messina C, Albano D, Di Bernardo A, Armiraglio E, Cannavò L, Mazzoli S, Luzzati A, Parafioriti A, Sconfienza LM (2023) Bizarre parosteal osteochondromatous proliferation: an educational review. Insights Imaging 14(1):109. doi: 10.1186/s13244-023-01455-0. (PMID: 37336832)
Sakamoto A, Matsuda S (2017) Pes Anserinus Syndrome Caused by Osteochondroma in Paediatrics: A Case Series Study. Open Orthop J 11:397-403. doi: 10.2174/1874325001711010397. (PMID: 28603571)

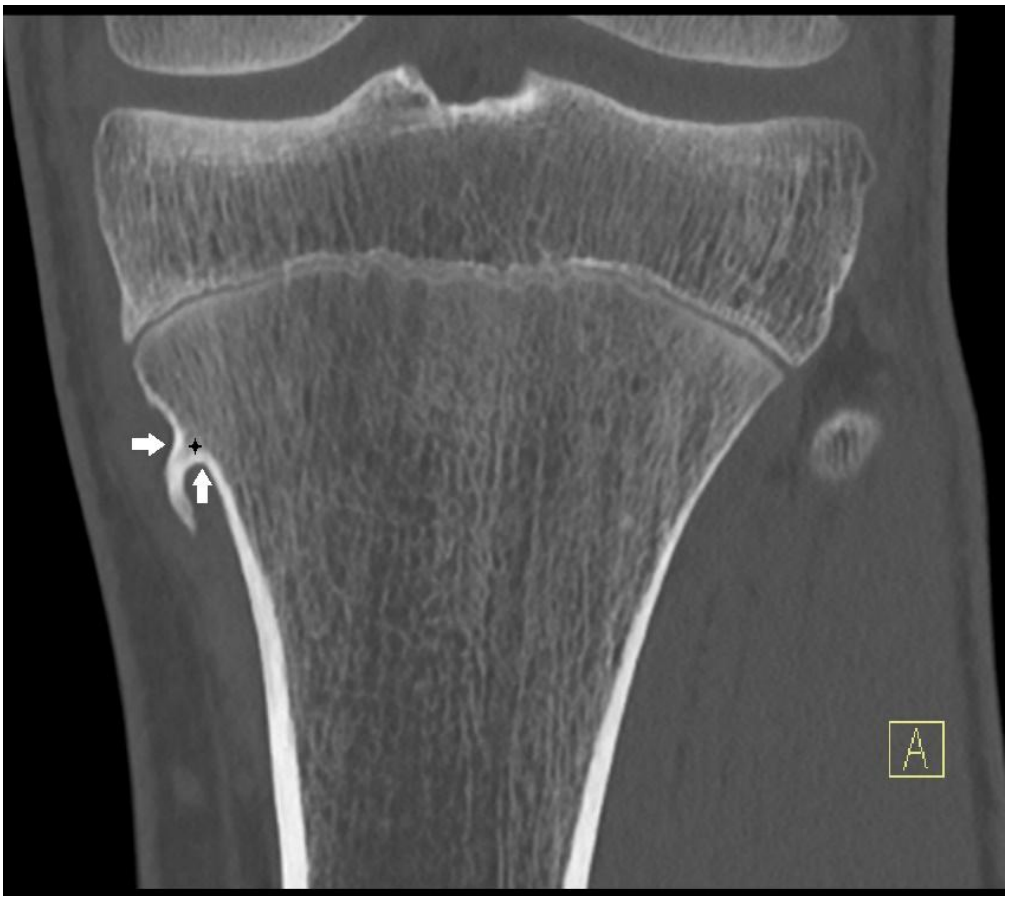
Figure 1

a

Description: The radiograph of the left knee shows a bony spur projecting away from the joint (white arrow) at the medial proximal tibia. **Origin:** © Filip Vanhoenacker, Department of Radiology, AZ Sint-Maarten, Mechelen, Belgium, 2024

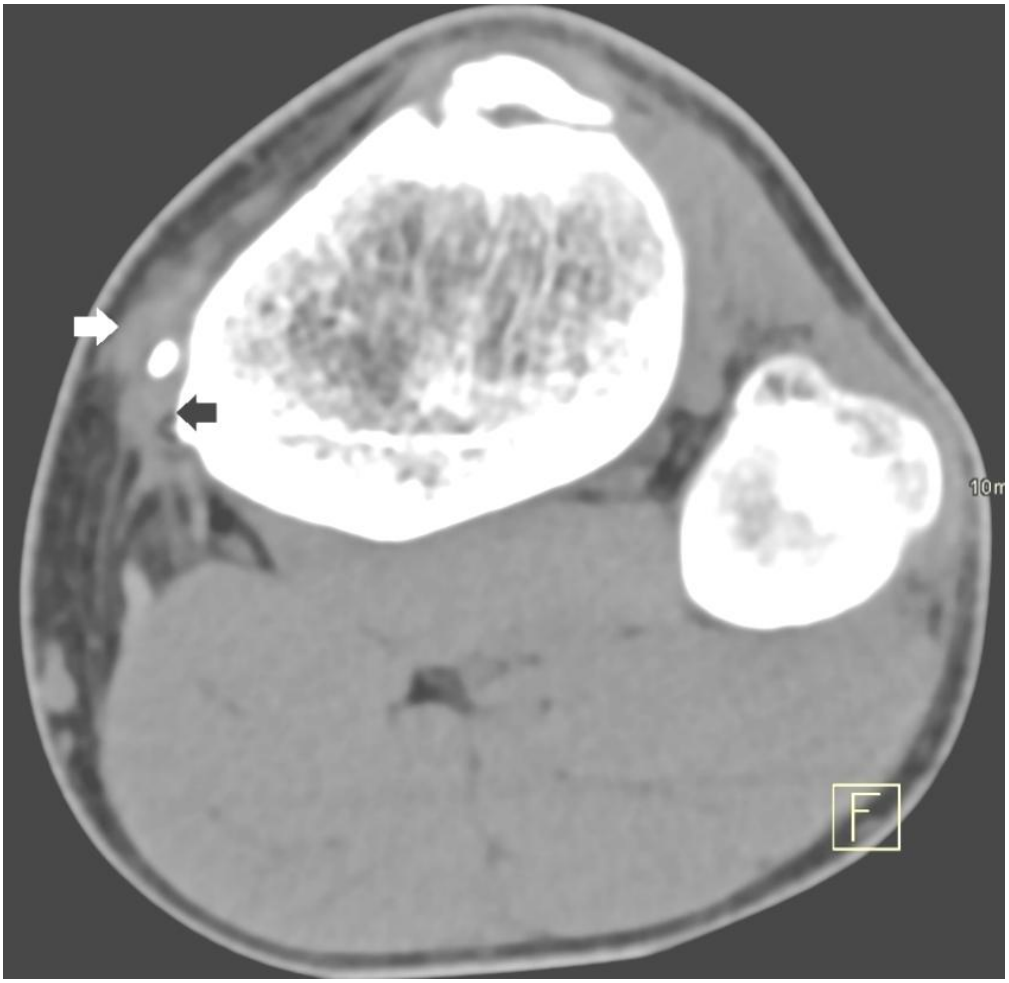
Figure 2

a



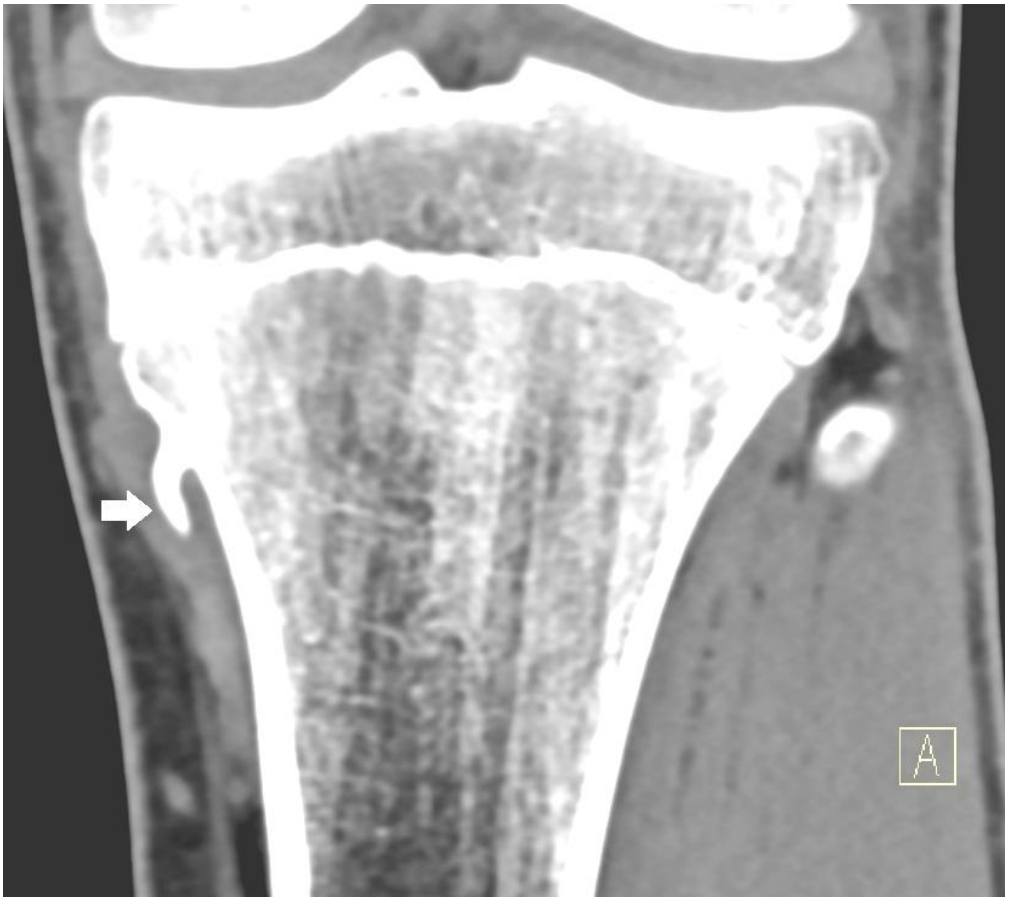
Description: Coronal reformatted CT image (bone window) confirming the bony spur. Note the continuity of the cortex (white arrows) and trabecular bone (black asterisk) of the lesion and the adjacent host bone. **Origin:** © Filip Vanhoenacker, Department of Radiology, AZ Sint-Maarten, Mechelen, Belgium, 2024

b



Description: Axial CT image (soft tissue window) shows close contact of the lesion with the superficial medial collateral ligament (white arrow) and the gracilis tendon (black arrow). **Origin:** © Filip Vanhoenacker, Department of Radiology, AZ Sint-Maarten, Mechelen, Belgium, 2024

c



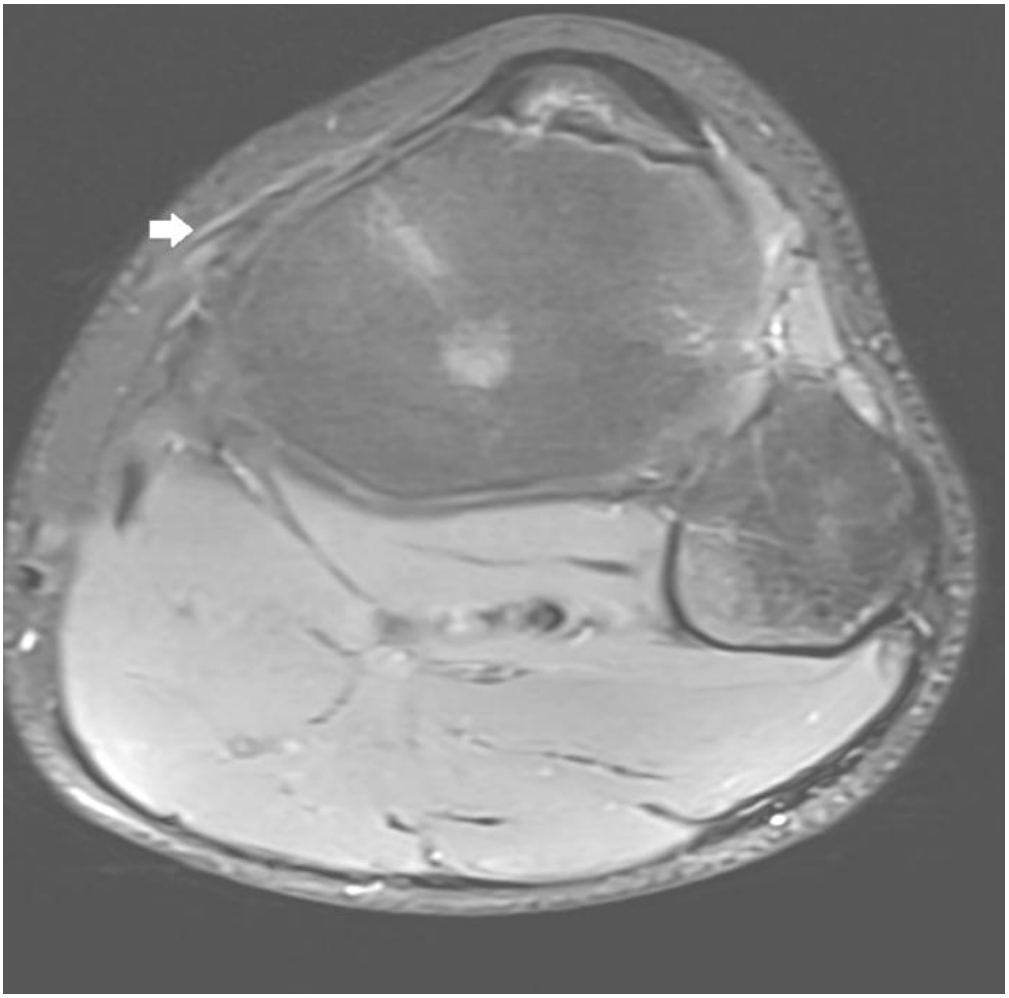
Description: Coronal reformatted CT image (soft tissue window) shows close contact of the lesion with the superficial medial collateral ligament (white arrow). **Origin:** © Filip Vanhoenacker, Department of Radiology, AZ Sint-Maarten, Mechelen, Belgium, 2024

Figure 3

a

Description: Coronal T1-WI. The lesion is barely visible (white arrow). **Origin:** © Filip Vanhoenacker, Department of Radiology, AZ Sint-Maarten, Mechelen, Belgium, 2024

b



Description: Axial fat-suppressed T2-WI. There is no overlying cartilage cap. There is a subtle thickening of the superficial medial collateral ligament (white arrow). **Origin:** © Filip Vanhoenacker, Department of Radiology, AZ Sint-Maarten, Mechelen, Belgium, 2024