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Pigmented Villonodular Synovitis

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Abstract

Pigmented villonodular synovitis is a benign proliferative synovial disorder of unknown origin that may affect the joints, bursae, or tendon sheaths, most frequently the knee. It can occur in diffuse or focal form. MR imaging is routinely used for diagnosis and follow-up in patients with pigmented villonodular synovitis. The lesions show hemosiderin deposition due to their tendency to bleed and a characteristic hypointense signal with all pulse sequences, an important diagnostic feature on MRI which helps in making the diagnosis in a young adult with monarticular involvement by synovial soft tissue mass without calcifications, with preserved joint space and normal juxtarticular bones.

Keywords: PVNS; Pigmented; Synovitis; Villonodular

Pigmented Villonodular Synovitis

Typical pigmented villonodular synovitis (PVNS) of the left knee in a 30-year-old man who presented with joint pain, swelling and limitation of motion of 1-year duration.

Anteroposterior (Figure 1) and lateral (Figure 2) radiographs of the left knee show a lobulated articular soft-tissue mass (thin white arrows) with distension of the suprapatellar pouch and displacement of suprapatellar muscle-fat planes. There is widening of the patellofemoral joint space. No articular erosions or periarticular osteopenia are seen.

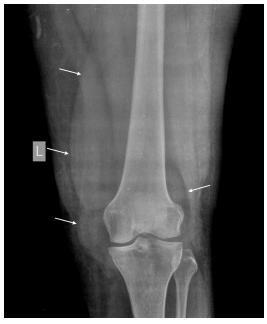

Figure 1: Anteroposterior radiographs.

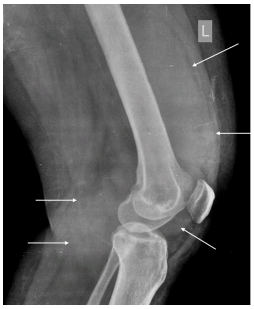

Figure 2: Lateral radiographs.

No calcifications or ossifications are seen within the mass. Axial T2 weighted MR image (Figure 3) at the level of patellofemoral joint shows lobulated synovial soft-tissue masses (thin white arrows) with a heterogenous, predominantly low signal intensity. Trace joint effusion is noted (thin black arrow).

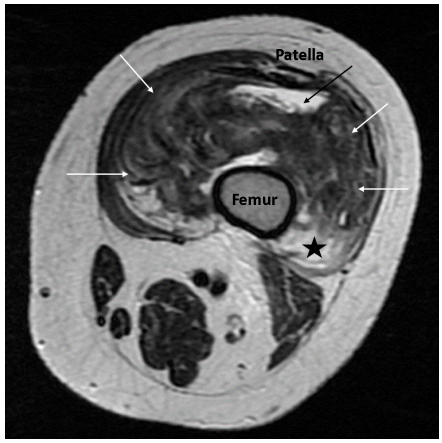

Figure 3: MR image.

Axial post gadolinium fat supressed T1 weighted MR image (Figure 4) at this level again shows a predominantly hypointense mass with avid enhancement in a synovial nodule along the lateral aspect which was hyperintense on T2 weighted image (star) and linear synovial enhancement along the surfaces of the rest of the nodules, representing inflamed synovium.

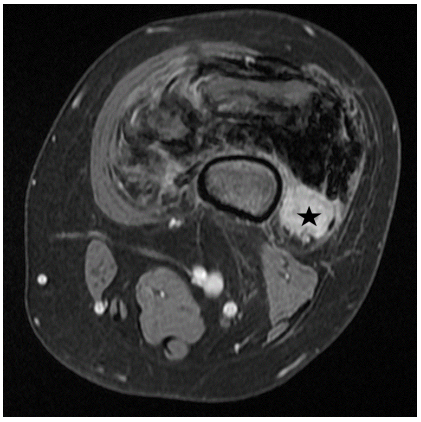

Figure 4: Axial post gadolinium.

Axial gradient echo MR image (Figure 5) shows "blooming" in the areas of T2 signal hypointensity owing to hemosiderin accumulation.

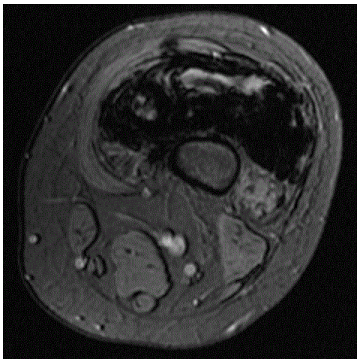

Figure 5: Axial gradient echo.

These MR findings, although not pathognomonic, are highly suggestive of the diagnosis.