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Synovial Hemangioma of the Knee Joint: Magnetic Resonance Imaging Findings

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Summary	
Background:	Synovial hemangioma is benign tumor of the joints and is seen relatively rare. The most affected joint is knee but should also be seen in other joints. The disease is usually symptomatic. They are classified as juxta-articular haemangioma, intra-articular haemangioma or an intermediate type of hemangioma with intra- and extraarticular components.
Case Report:	A 19-years-old male patient presented with swollen and painful knee. The laboratory findings and physical examination were normal. MRI demonstrated a large lesion that was filling the suprapatellar bursa.
Conclusions:	All radiologic examinations should be used in diagnosis but magnetic resonance imaging is the non-invasive method and excellent modality in the evaluation of soft tissues. In this paper, a 19-year-old male patient with the diagnosis of synovial hemangioma is reported and its radiologic findings are mentioned.
MeSH Keywords:	Bursa, Synovial • Hemangioma • Magnetic Resonance Imaging
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Background

Synovial hemangioma is a rare benign tumour of the joints and is located in the knee in most patient [1]. The disease affects children and young adults. It is usually symptomatic and the mostly seen symptoms are pain and swelling. The lesion is frequently misdiagnosed, leading to a delay in diagnosis. We reported a case of synovial hemangioma in the knee joint which was diagnosed with magnetic resonance imaging (MRI).

Case Report

A 19-year-old male patient presented with a swollen and painful knee. The laboratory findings and physical examination were normal, except for the tenderness and swelling in the anterior knee. The knee MRI (Siemens, Aera, Erlangen, Germany) was performed. A routine knee sequence including proton density imaging in 3 orthogonal planes, coronal T2-weighted image with fat saturation were obtained. Precontrast and postcontrast T1-weighted images were also included. MRI demonstrated a large lesion that was filling the suprapatellar bursa. The lesion

was extending to the surrounding muscles on and no bone involvement was seen. The lesion was hyperintense related to the muscles and including hypointense linear structures within the center on proton density and T2-weighted fat saturated images (Figure 1A, 1B). The lesion was isointense to the muscle on precontrast T1-weighted images and demonstrated heterogenous marked enhancement after contrast administration (Figure 1C, 1D).

Discussion

Synovial hemangiomas are benign knee tumours originating in the subsynovial mesenchyma of the synovial membrane. They are classified as juxta-articular haemangioma, intra-articular haemangioma or an intermediate type of hemangioma with intra- and extraarticular components [2]. Synovial hemangiomas constitute less than 1% of all haemangiomas and are most common in the knee, but have also been reported in other joints, including the elbow, ankle and wrist [3].

The clinical features include the pain and swelling in almost all patients. The tenderness, limitation of knee,



Figure 1. The lesion (thick arrows) was hyperintense related to the muscles (asteriks) and included hypointense linear structures (thin arrow) within the center on sagittal T2-weighted (A) and axial proton density fat-saturated images (B). The lesion (arrows) was isointense to the muscles (asteriks) on precontrast coronal T1-weighted images (C) and demonstrated heterogenous marked enhancement after contrast administration (arrows) (D).

quadriceps atrophy, joint effusions (hemarthrosis) are the other symptoms of the synovial hemangiomas. It can mimic the meniscal pathologies. Especially in patients with a history of recurrent pain and swelling with hemarthrosis, synovial hemangioma should be considered in the diagnosis [4,5].

Plain radiographies, gray-scale and color doppler ultrasonography (US), angiography and computed tomography or MRI can be used in the diagnosis of synovial hemangiomas. Plain radiographs are not diagnostic in half of the patients and could show the effusions and soft tissue masses. A periosteal reaction, phelobolits, and bone erosions are also identified with plain radiographs. Ultrasonographic

examinations show the vascular structures within the lesion and are helpful in the differentiation of cystic lesions from the solid ones. Computed tomography may demonstrate the lesion but this method is not specific in the diagnosis and especially in small lesions it is not able to differentiate the lesion from normal structures. Also, the radiation risk is another disadvantage. Angiography is an invasive method and should to be the initial procedure in the diagnostics. It is effective in showing the extent of the lesion and the vascular origin. The MRI is the best modality in evaluating soft tissues and should be considered as a diagnostic method. Synovial hemangiomas appear as intermediate signal intensity on T1-weighted images, isointense or slightly hyperintense than surrounding muscles.

The lesion appears hyperintense on T2-weighted and fat-suppressed images. Thin, serpentine and low-intensity septa are also detected on T2-weighted and fat-suppressed images. After contrast administration, the lesion shows marked enhancement. The MRI is also used to differentiate the lesion from other pathologies [2,6–10].

The differential diagnosis should include mainly pigmented villonodular synovitis, synovial sarcoma, arthropathies (rheumatoid arthritis, hemophilic arthropathy, synovial osteochondromatosis or lipoma arborescens) usually being distinguished clinically or after MRI interpretation [8,9,11].

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Conclusions

In conclusion, especially in patients with a history of recurrent pain and swelling, synovial hemangioma should be considered in the differential diagnosis. In such patients, radiological evaluation with MRI is diagnostic almost in all patients and should be used as an initial procedure.

Conflict of interest

The authors declare that they have no conflict of interest.