

CASE REPORT

INTRA-ARTICULAR SYNOVIAL GIANT CELL TUMOR PRESENTING WITH MORRANT BAKER CYST- A CASE REPORT

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ABSTRACT: The giant cell tumor of the synovium (GCT-) is a benign growth, which rarely occurs intra articularly. In this report, we describe a case of intra-articular GCT in the left knee joint. Clinically, the patient presented to our orthopedic clinic with anterior knee pain, accompanied by suprapatellar fullness and popliteal swelling, provisionally diagnosed as chronic synovitis of knee and Morrants Baker cyst X-ray didn't show any bony abnormality, USG confirmed Morrants- Baker cyst. The final diagnosis of GCT was made from evidence of typical histological findings revealing giant cells and hemosiderin-laden foam cells within a matrix of ovoid to polygonal cells. In this case report we stress that intra-articular GCT should be included in the differential diagnosis of a knee swelling, is encountered in patients presenting with knee pain and swelling in popliteal fossa.

KEYWORDS: Giant cell tumor of synovium, knee, ultrasonography.

INTRODUCTION: Giant cell tumor of the synovium (GCT), also called nodular synovitis, refers to a benign growth of ovoid or polygonal histiocyte-like cells associated with multinucleated giant, foam and hemosiderin-laden cells.

Most lesions involve the tendon sheath or the small joints of the fingers or toes, while involvement of large joints such as the ankle, knee, and hip is less common. Intra articular GCT of the knee should be differentiated from pigmented villonodular synovitis (PVNS), which more frequently involves the knee joint. Although both diagnostic entities share similar histological features, intra-articular GCT and PVNS are distinguished somewhat by differences in clinical and imaging manifestations, and particularly in treatment planning and outcome. In this report, we describe a 22-year-old male, who presented with an intra-articular GCT in the patellofemoral recess, with the principal symptom of anterior knee pain. The characteristic CT and MR imaging features for this particular mass may facilitate correct diagnosis for other cases of this type.

CASE REPORT: A 22-year-old man was admitted with a two-year history of pain in the anterior aspect of the left knee associated with suprapatellar and popliteal swelling. Any history of fever, chills, night sweats, weight loss, or antecedent trauma was denied.

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Fig. 1: Clinical profile

Physical examination revealed a soft-tissue mass in popliteal region, non-trans illuminant, non-pulsatile, compressible and fluctuant. Suprapatellar swelling was present demonstrating patellar tap. Laboratory examinations and conventional radiographs of the knee were unremarkable.



Fig. 2: knee from anterior aspect

Patient underwent arthroscopic synovectomy with excision of MB cyst. The synovium was hypertrophied with numerous villi, cyst wall was thickened.



Fig. 3: Profile of the involved knee

Histological examination of the resected specimen revealed numerous ovoid and polygonal cells, with scattered giant cells and hemosiderin-laden foam cells.

Finally, a diagnosis of intra-articular giant cell tumor of the synovium was made.

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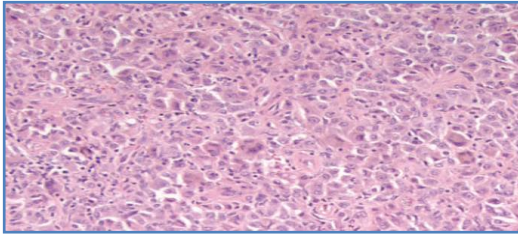


Fig. 4: HPE suggestive of GCT

DISCUSSION: GCT is composed of a proliferation of ovoid or polygonal histiocyte-like cells associated with multinucleated giant, foam and hemosiderin-laden cells¹. Tumors of this type involve the digits more often than large joints such as the knee and ankle.^{1,2} When they occur in the knee joint, they should be distinguished from PVNS, which involves the knee more commonly. Although sharing some similar features, PVNS is distinguished histologically by its frond-like projection of proliferated synovial membrane.^{3,4} By contrast to PVNS, intra-articular GCT of the synovium of the knee joint tends to present as a single nodule, without the villous projection of synovial membrane.^{1, 3, 5}

Patients who have an intra-articular GCT of the knee may present with pain, a palpable soft-tissue mass, or locking of the joint. Frequently, joint effusion is absent or mild^{5,6}. Some of the cases reported had a history of antecedent trauma⁵, however, definite etiology and causative factors remain unclear.

MRI signal intensity is low-to-intermediate on T1- weighted images for both GCT and PVNS. Depending on the amount/composition of hemosiderin (visible as areas of low or dark signal), however, signal intensity on T2-weighted images varies for both. Following intravenous injection of a contrast agent, both GCT and PVNS are enhanced.^{3,6} Based on the histological features, GCT usually presents as a single nodular lesion in the intra articular space without diffuse synovial thickening evident on MR images. By contrast, PVNS is recognized by diffuse, irregular synovial thickening, with or without nodular lesions.^{1, 5, 7-9}

MRI findings for intra-articular GCT have received little mention in the literature^{3, 4, 6, 10, 11}. Including the current case, few cases of intra-articular GCT have been reported so far. Intra-articular GCT occurs more commonly in the knee joint, with only one reported in the posterior subtalar joint of the ankle. Homogeneous low/intermediate signal intensity on T1-weighted images has been noted for most of these lesions; however, intermediate-to slightly high signal intensities have been noted for two lesions. On T2-weighted images, the signal characteristics are more variable, ranging from low to high in signal intensity, with heterogeneous signal intensities noted for the two lesions, including the presented variant.

It seems reasonable to suggest that recognition of the hemosiderin deposits would be enhanced as they would be much more pronounced on gradient-echo imaging due to the magnetic-susceptibility effect^{3,6} as has been reported by Llauger.

In a review of the PVNS-related literature, intra-lesional foci on T2-weighted or gradient-echo images is a common finding,⁷⁻⁹ however, this characteristic has been noted for only two of the eight reported cases of intra-articular GCT. Although the findings of intra-lesional foci on T2-weighted or gradient-echo images are similar for both intra-articular GCT and PVNS, the two can be differentiated on the basis of differences in morphological characteristics on MR imaging.

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The treatment of choice for GCT-TS is local excision, whether the lesion occurs in the digits or in the large joints.¹

In a study of 207 cases of GCT (182 digit type and 25 large-joint type), recurrence occurred in 16 of 182 and 1 of 25 cases, respectively¹. By contrast, PVNS is a difficult disease to eradicate surgically because of its diffuse synovial involvement. Treatment usually consists of surgical or arthroscopic synovectomy. Local recurrence is common, and may be seen in approximately 50% of cases.^{3,5}

In summary, intra-articular GCT is an uncommon disease that may cause knee pain. The nodular mass may be difficult to visualize on plain radiography. Cross-sectional imaging, including both CT and MR variants, is helpful for location and identification of the nodular mass. Importantly, MR imaging may provide important information, notably the absence of diffuse synovial thickening and the presence of hemosiderin deposition, facilitating correct preoperative diagnosis.

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