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Case Report

Proximal Superior Tibio-Fibular Joint Ganglion Cyst with Posterio Horn of Lateral Meniscus Injury - A Case Report

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Abstract

Ganglion cysts are fluid filled sacs which develop near joints and tendons and are usually asymptomatic. Lower limb ganglion cysts are rare occurrences especially those situated around joint spaces causing nerve compression. We present the case of a 21 years male sports person presented with acute onset pain in left knee, non-radiating pain, localized to knee joint more on lateral side with difficulty in squatting. All stress tests were negative except pain on full flexion which is located postero-laterally in left knee. Paraesthesia on anterolateral aspect of leg. Magnetic resonance imaging (MRI) revealed a ACL tear, injury to anterior horn of medial meniscus and large proximal tibiofibular joint ganglion cyst causing peroneal nerve compression. We discuss etiology, symptoms, and management of lower limb ganglion cysts.

Keywords: Ganglion cyst, tibio-fibular joint, cystic lesion, common peroneal nerve, nerve compression.
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Introduction

Ganglion cysts are fluid filled structures which develop near joints and tendons. They are usually asymptomatic and rarely require any treatment [1]. Neuronal compression can be particularly troublesome resulting in palsies, paraesthesia or loss of function depending on the degree of compression and the particular nerve affected. The proximal tibiofibular joint is a rare site for ganglion cyst development and thus, compression of the common peroneal nerve due to a ganglion cyst is a poorly documented occurrence [2,3].

An average of 15–20 % of all ganglion cysts occur on the lower limb, with 33 % involving the knee. The articular theory proposes that all ganglion cysts, including extra neural and intra-neural, originate from the synovial joint [4,5]. Prompt recognition and treatment are essential in managing this condition and its complications. In this paper, we report a patient with a ganglion cyst as a rare cause of peroneal nerve palsy with other ligaments and meniscus injury and discuss its pathology, imaging findings and management.

Case report: 21 years, Male Sports person, presented with acute onset pain in left knee, non-radiating pain, localized to knee joint more on postero-lateral side with difficulty in squatting. Additionally, the patient began to experience localized sensory symptoms over the anterolateral aspect of left leg. The patient has no prior history of knee surgery and no past medical history. Clinical examination – Mcmurray's test positive and all other stress tests were negative along with pain on full Flexion which is located postero-laterally in left knee.

There were no signs of joint effusion and the knee was stable on both collateral and cruciate ligament testing. There was some mild lateral joint line tenderness but no medial joint line tenderness. Lower limb neurological examination revealed with grade 5 power in her ankle dorsiflexion and EHL, using the Medical Research Council's scale (MRC scale) of muscle power. Sensory examination was done and there is paraesthesia over anterolateral aspect of left leg .Hip, Ankle and foot were normal. Spine and neurological examination was done and excluded.

He was advised X-ray left knee joint AP lateral which was normal (Fig.1).

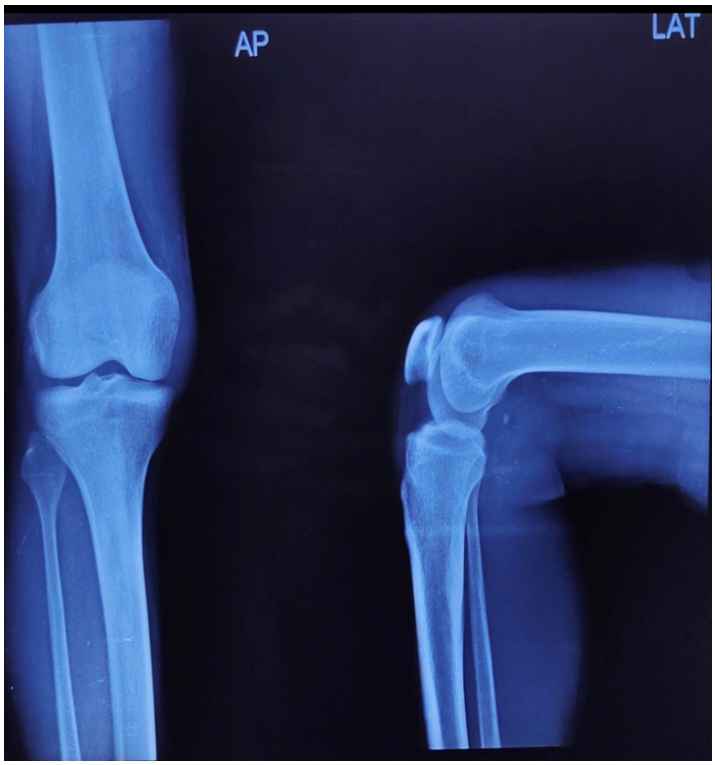

Figure 1: X-ray image

Physiotherapy analgesics didn't relieved him of symptom and as he was a sports person he was doing light exercises still no relief. Hence we adviced MRI of left knee joint. Magnetic resonance imaging (MRI) of the left knee without contrast was performed a protocol of T1-weighted and Proton Density Fat Suppressed weighted images, in the sagittal, coronal, and axial planes.

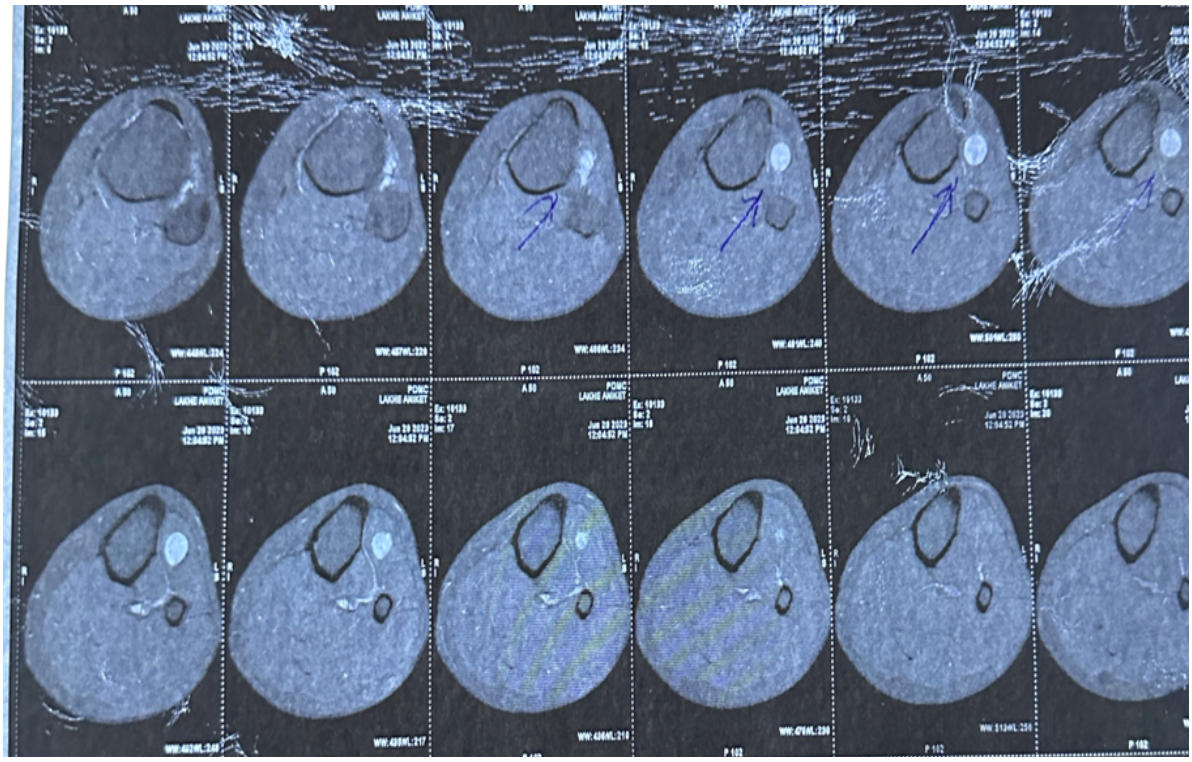

Figure 2: MRI left knee -Axial sections

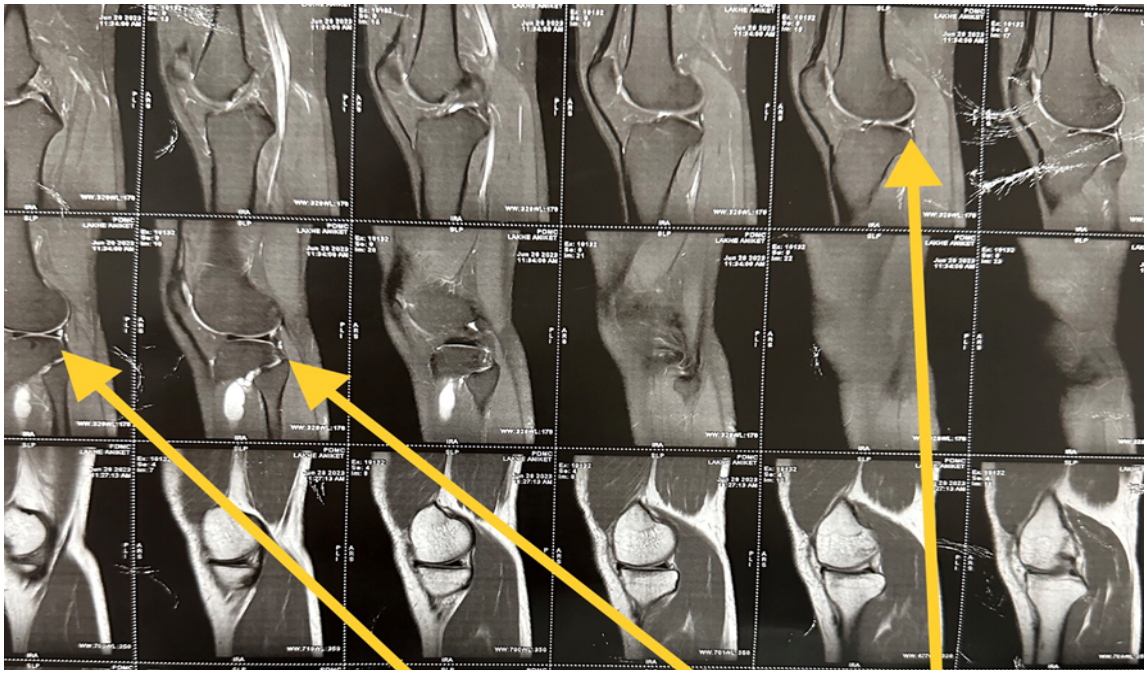

Figure 3: MRI left knee-Sagittal sections

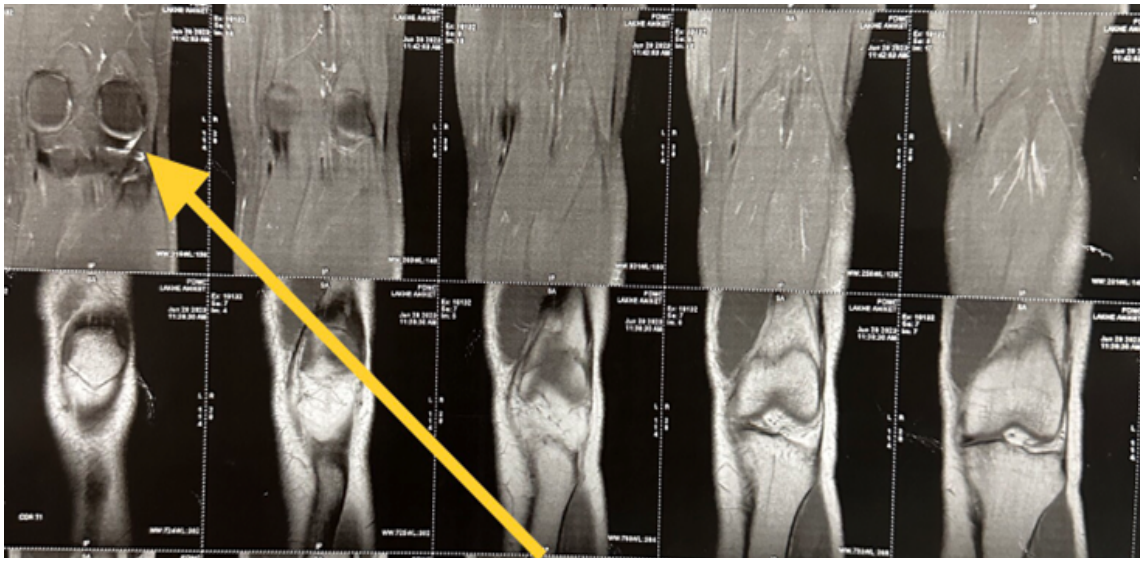

Figure 4: MRI left knee-Coronal sections

Images revealed few cystic lesions noted along tibialis anterior anterolateral to the proximal fibula, measuring 1.1cm (anteroposterior) by 1.2 cm (transverse) by 3.0 cm (cranio-caudal), (Fig. 2,3). Additionally, there were ACL (Anterior Cruciate Ligament) tear and mild buckling of PCL (Posterior Cruciate Ligament). There was also a small incidental tear in the medial meniscus.

Table 1:

Clinically	Radiologically
ACL is normal	Torn ACL
Paraesthesia on anterolateral aspect with normal lumbar spine	Medial meniscus anterior horn signals
Only terminal flexion painful in internal rotation	Ganglion cyst in tibialis anterior

Following the clinical examination and MRI, the results were discussed with the patient, and it was agreed that the patient would undergo surgical excision. Diagnostic arthroscopy was done and we found horizontal tear in body and junction of posterior horn of lateral meniscus (Fig.5). Lateral meniscus tear was repaired with fast fix suture material and was confirmed (Fig.6).

Figure 5: Lateral meniscus tear

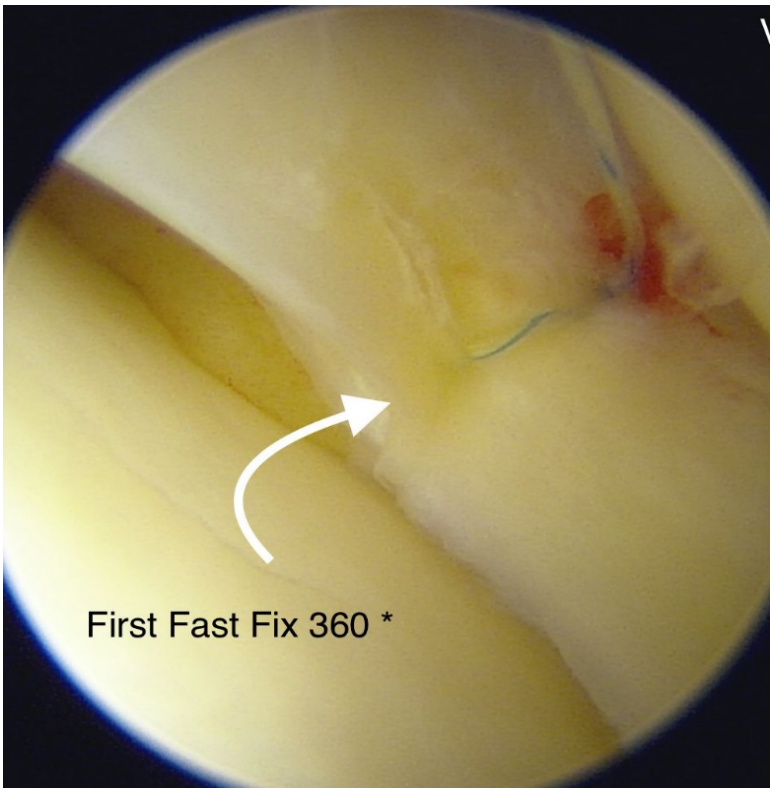

Figure 6: Meniscus repaired by Fast Fix

After diagnostic arthroscopy we made anterolateral incision and ganglion cyst was removed (Fig. 7,8). Histopathology report confirmed ganglion cyst.

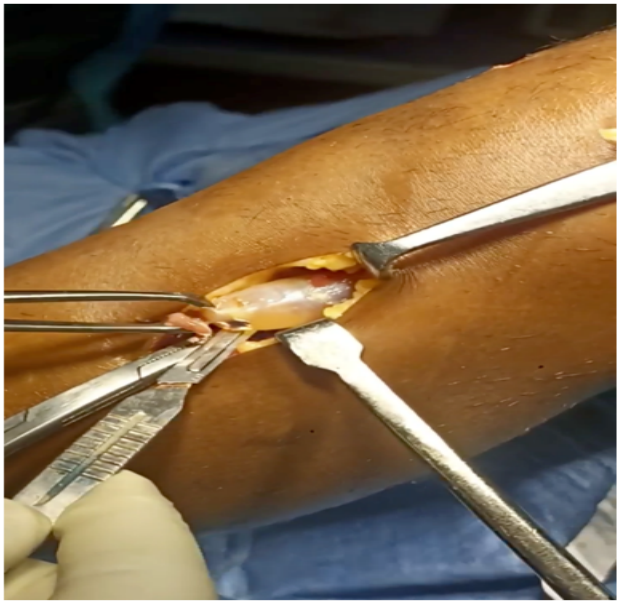

Figure 7: Cyst exposure

Figure 8: Cyst extraction

Discussion

The proximal tibiofibular joint, also known as the superior tibiofibular joint, is a plane type joint which consists of the intersection between the head of the fibula and the lateral condyle of the tibia. There is some gliding motion able to take place at this joint however, the main function of the joint is to assist in stability of the lower limb while weight bearing [6].

The joint is contained within a joint capsule alongside three ligaments: anterior superior tibiofibular ligament, posterior superior tibiofibular ligament and lateral collateral ligament of the knee. Furthermore, neurovascular structures are present near the joint. These include the common peroneal nerve and the popliteal artery which may be affected in cases of joint pathology and/or injury [6,7]. The most common pathology of the proximal tibiofibular joint is joint instability characterized by either subluxation or dislocation. Other less common pathologies include ligamentous diseases, muscle weakness and peroneal nerve compression [6]. Ganglion cysts are non-malignant, fluid-filled sacs that commonly present in the hand and wrist [8]. Those originating from the proximal tibiofibular joint are much rarer with an estimated prevalence of just 0.76%. The cause of ganglion cysts remains unclear, but is believed to be a result of degenerative changes within the connective

tissue associated with joint capsules and tendon sheaths. Histologically they appear as translucent masses, with a thin connective tissue capsule filled with mucinous material, that give rise to focal areas of chronic inflammation [9]. A number of risk factors have been identified that include female gender and repeated traumatic exposure [10,11]. They present as smooth lumps under the skin and are often painless. However, in some cases they can cause pain and discomfort.

Involvement of the common peroneal nerve due to compression leading to neuropathy is a rare event with very few cases reported in the literature [12], [13], [14], [15]. One case report described a 50-year-old woman with progressive foot drop and swelling over the fibular head which was confirmed to be ganglion cyst on imaging. This produced a peroneal nerve palsy which was relieved following surgical removal of the cyst [14]. A second review focused on two cases of peroneal nerve neuropathy due to compression via ganglion cysts. The two patients had similar findings of unilateral muscle weakness leading to loss of ankle dorsiflexion. Both patients had surgical excision of their respective cysts however, only one of the patients made a full recovery with the other continuing to have symptoms 18 months after surgery [13]. Similarly, a case report of a 50-year-old male with acute foot drop reported a compressive ganglion cyst affecting the peroneal nerve.

MRI is the preferred diagnostic test for ganglion cysts. It provides accurate localization and delineation of the lesion and distribution of the muscles supplying the peroneal nerve, due to the excellent soft tissue contrast. This is important for surgical planning. Lesions appear as unilocular or multilocular, lobular fluid collections and present with low signal intensity on T1-weighted sequences and high signal intensity on T2-weighted sequences [9]. In cases of common peroneal nerve palsy, denervated muscle demonstrates hyperintense T2 signal. Nerve conduction studies using EMG are a helpful adjunct to imaging tests as it allows clinical findings to be correlated, by eliciting the extent of sensory and motor impairment that may be present.

Ganglion cysts do not usually require treatment, and many will resolve on their own. For painful cysts, aspiration or surgery may be recommended [16]. Surgery generally involves excision of the ganglia and the mass in its entirety. This is not without risk.

The most common adverse effect associated with surgical resection is local recurrence. This can be avoided through articular branch ligation [12]. Other rarer complications include perineural fibrosis, traction injuries and in the most severe cases, complete nerve transection resulting in loss of function [9]. This is likely due to proximity of the peroneal nerve to the origin of ganglion cysts within the proximal tibiofibular joint.

Conclusion

While ganglion cysts arising in the upper limb are common and well documented in the literature, a lower limb ganglionic cyst arising in the tibiofibular joint space is a rare finding that should be noted on routine imaging, especially when causing symptomatic peroneal nerve compression. These can be debilitating, and surgical excision is the preferred treatment. This however carries the risk of nerve damage, and risk of recurrence.

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