

## Intraosseous ganglion cyst (ECR 2013 Case of the Day)

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**Section:** Musculoskeletal system

**Area of Interest:** Musculoskeletal joint

**Procedure:** Diagnostic procedure

**Imaging Technique:** MR

**Imaging Technique:** Ultrasound

**Special Focus:** Acute Case Type: Clinical Cases

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**Patient:** 34 years, female

### **Clinical History:**

Indistinct pain lasting for four months in the lower limb at the level of the right knee.

### **Imaging Findings:**

The patient reported during the medical interview to be a professional ballet dancer suggesting the possibility of overuse or degenerative joint disease. Imaging set included knee radiographs, magnetic resonance imaging and ultrasound imaging of the knee.

### **Discussion:**

Intraosseous ganglion cysts are benign lesions located in the subchondral bone adjacent to the joint and are usually found in adults [1]. Commonly these lesions are found just beneath the attachments of the cruciate ligaments and are frequently associated with similar appearing soft-tissue ganglia nearby or with additional intraosseous ganglia in the vicinity [2]. The aetiology of ganglion cysts is still unknown. The proposed theories and hypotheses include synovial hernia, displacement of synovial tissues during embryogenesis, idiopathic mucoid degeneration of collagen and connective tissues, proliferation of pluripotent mesenchymal cells, aseptic necrosis and also post-traumatic degeneration of the connective tissues as a key factor responsible for cyst formation [3]. In the patients with osteoarthritis of the knee, degenerative subchondral cysts may become large and mimic a neoplasm (despite their dimensions they are smaller than the average malignant tumour). These cysts usually do not pose a diagnostic dilemma when associated with additional degenerative changes. Similar-appearing lesions, however, may be seen in young middle-aged adults without visible degenerative changes. These benign intraosseous ganglionic cysts are usually found incidentally because the majority are clinically silent. This lesion has been described with two different morphologies: simple or loculated [4]. They are typically of homogeneously low fluid signal intensity on T1 weighted MRI images and typically of homogeneously high fluid signal intensity on T2 weighted images. Although the gelatinous cyst contents should not enhance after IV gadolinium administration, it is possible to observe a peripheral rim of enhancement due to surrounding connective tissue. Subsequent high-resolution ultrasound demonstrated a communication with the nearby tibio-fibular joint, suggesting an intraosseous ganglion cyst. US-guided needle-aspiration confirmed the diagnosis [5].

The patient was a professional ballet dancer and her daily physical activity with continuous loading-stress on the joint lead to subsequent fluid production. It is possible that the synovial fluid slowly reached the ganglia with a one-

way valve-mechanism.

**Differential Diagnosis List:** Intraosseous ganglion cyst, Intraosseous ganglion cyst, Non-ossifying fibroma, Benign fibrous histiocytoma, Brodie's abscesses, Giant bone tumour

**Final Diagnosis:** Intraosseous ganglion cyst

**References:**

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**Figure 1**

a



**Description:** Eccentric radiolucent lobulated lesion in the proximal tibial epiphysis with sclerotic rim

**Origin:** Tagliafico A\_ UNIGE

**Figure 2**

a



**Description:** T1w MRI:shows a well-defined rounded lesion in the proximal tibial plateau with lower signal intensity and sclerotic boundaries **Origin:** Tagliafico A\_UNIGE

b



**Description:** T2w MRI: demonstrates the fluid content of the lesion and the sclerotic rim **Origin:** Tagliafico A\_UNIGE

**Figure 3**

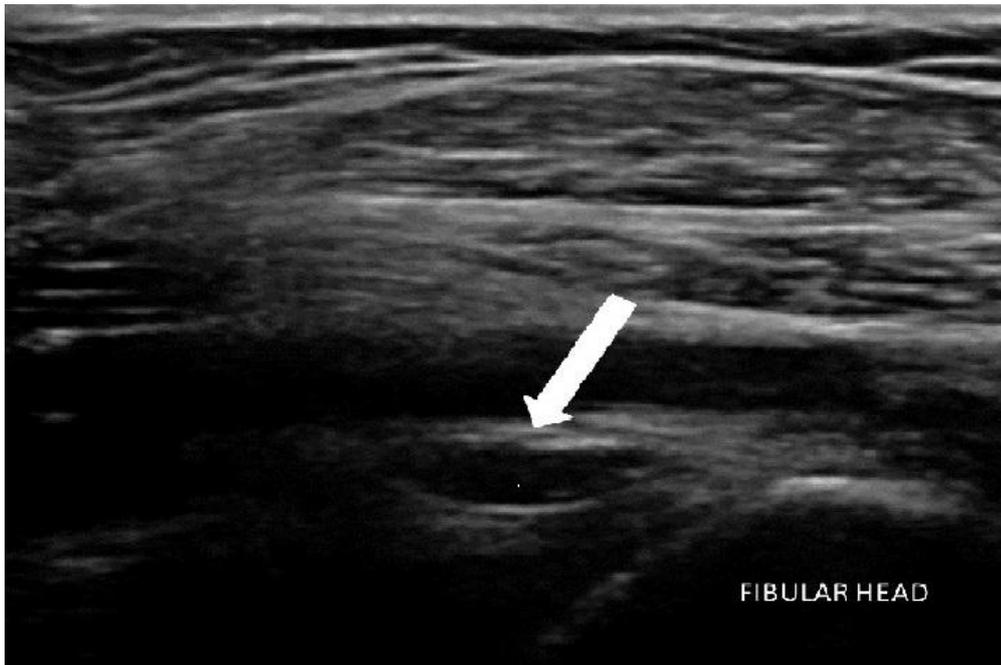
a



**Description:** Note the contiguity of the lesion with the superior tibio-fibular joint **Origin:** Tagliafico  
A\_UNIGE

## Figure 4

a



**Description:** This frame obtained at the level of the posterolateral knee demonstrated a fluid collection near the tibio-fibular joint **Origin:** Tagliafico A\_UNIGE