GIANT CELL TUMOR OF ACL TENDON SHEATH

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SUMMARY

The author presents a case report of Tumor Giant Cells (TGC) localized on the anterior cruciate ligament sheath, an extremely rare site for this kind of lesion. A 37 y-o female patient presented with knee pain, with no history of previous trauma. She underwent clinical examination, X-ray study and magnetic resonance of the region. The diagnostic hypothesis of Sheath TGC was provided, and the patient was treated with tumor arthroscopy resection. Diagnosis was confirmed by anatomicopathological examination. By the end point assessment, none of the pre-operative symptoms were reported.

Keywords: Anterior cruciate ligament; Giant cell tumors; Knee.

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INTRODUCTION

The Giant Cells Tumor of Tendon Sheath (GCTTS) is a histiocyte-simile benign tumor associated to multinucleated giant cells, taking circumscribed or polygonal shapes[1], with sizes ranging from 0.5 to 5.5cm[2,3]. Its etiology is not fully understood yet[4]. It is more commonly found on hands and feet, and more rarely on ankles and knees[1,5]. The GCTTS affects individuals at the age of 46 in average (6 – 71 years) and is more frequently found in women 1,6M:1H. Its annual incidence, according to Monaghan et.al is 1/50,000[4]. GCTTS localized at the knee corresponds to 2.8 – 3.9% of the total number of occurrences. In the knee, the most common sites are the suprapatelar recesses and the medial meniscal-capsular union[6]. Clinical manifestations are unspecific and include: complaints of pain and diffuse swelling, which can affect the range of movement of the involved[7]. X-ray images do not present specific findings[8], with NMR being the most accurate method for preoperative diagnosis[9]. The arthroscopic treatment has been shown to be effective, presenting low morbidity, and being clinically resolving[7].

The objective of this study is to report a GCTTS case on the Anterior Cruciate Ligament, a rare tumor, in a further rare site for this kind of lesion.

CASE REPORT

This was a 37 year-old female patient, complaining of knee pain in the previous 06 months, which started insidiously and presenting temporary improvement with the use of non-steroidal anti-inflammatory drugs (NSAIDs) worsening after repeated movements and increased knee flexion. That patient reported no missed step episodes or joint blockage, and did not present with recurrent swelling history or associated trauma. At physical examination, the patient showed good skin status, no edema or intra-joint swelling, and normal range of movement. She didn't present ligament instability, meniscal injuries or femoropatelar disorders upon specific tests.

The X-ray study (figure 1) showed no changes. A NMR was requested (figures 2 and 3), which evidenced a 15-mm oval, solid lesion next to the anterior cruciate ligament. She was submitted to surgical arthroscopy in June 2004 (figure 4), two months after the imaging diagnostic test, when marginal resection of the tumor was performed. Surgical time was 20 minutes, during which the patient was kept under general anesthesia, with mechanical ventilation by means of a laryngeal mask and with a pneumatic garrote at 250 mmHg on the operated limb. The piece was sent to anatomicoopathological analysis.

At gross examination of the surgical piece (figure 5), a 17-mm wide nodule was found, showing a smooth surface constituted of whitish and hard tissue, with some yellowish and soft areas. The microscopic examination (figure 6) evidenced a Giant-Cell Tumor of Tendon Sheath (GCTTS).

Postoperatively, the patient was allowed to freely gait, applying ice on surgical site whenever she decided so, and using NSAID for 01 week. On the fourth postoperative day, in an outpatient assessment, the patient was asymptomatic compared to the preoperative clinical picture. In that phase, conventional physical therapy was established with isometric exercises and muscular elongation. After 02 weeks of physical rehabilitation program, the patient resumed her usual daily activities.

Study conducted at the Orthopaedics and Traumatology Institute, Medical College, University of São Paulo, FMUSP, Brazil.

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DISCUSSION

Jaffe and cols. were the first authors to suggest that this pathology is part of a family of lesions including giant cell tumor of tendon sheath, diffuse and local pigmented villonodular synovitis, and the extra-joint pigmented villonodular synovitis, which develops inside bursas[10].

The etiopathogenesis of GCTTS is still unclear. Some authors suggest that this disease is resultant from a lipid metabolism change, inflammation or benign neoplasic process [11]. The potential of this disease being induced by trauma is described; Rodrigues et al. found a prevalence of previous trauma in 21% of patients with GCTTS[1, 2, 5].

The clinical and X-ray-based diagnosis of GCTTS is difficult, because anamnesis, physical examination and X-ray data are unspecific, requiring the establishment of differential diagnoses of potential causes for knee arthralgia. In this scenario, NMR is very important, examining if potential

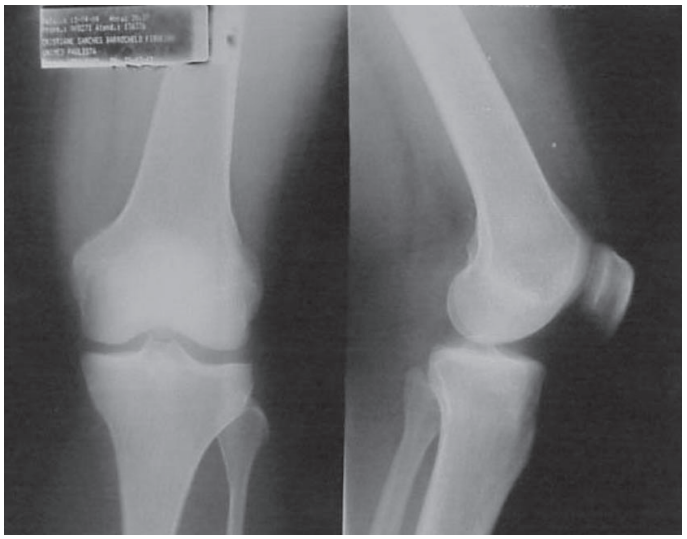

Figure 1 - *X-ray image of the left knee at AP and Lateral planes*

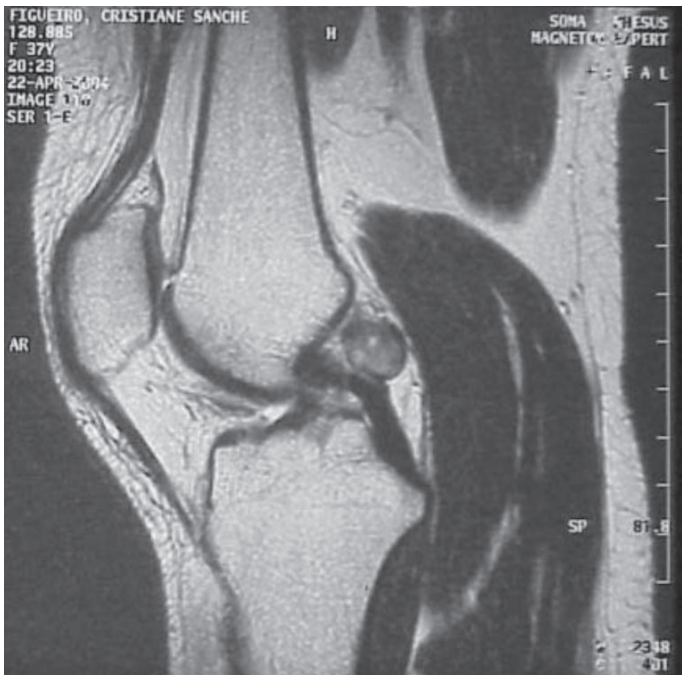

Figure 2 - *NMR capture in T1, saggital plane, showing a nodule near the ACL*

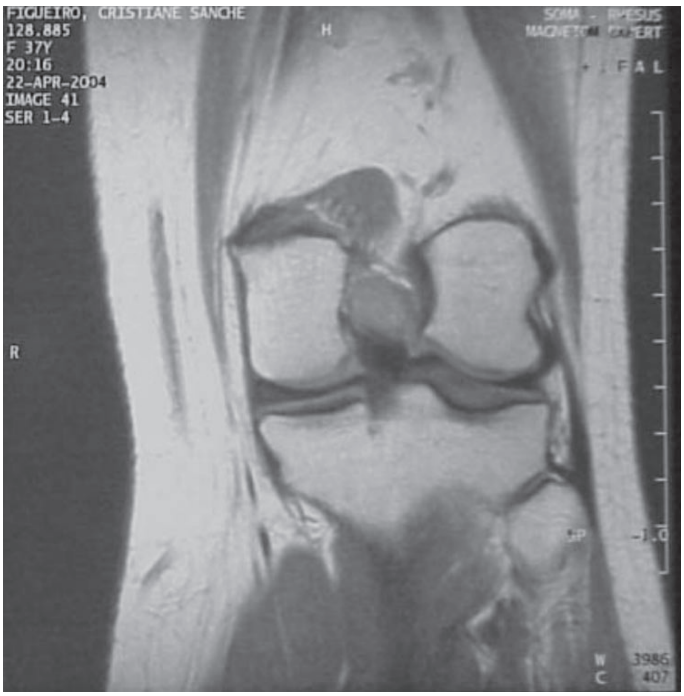

Figure 3 - *NMR capture in T1, coronal plane, showing localized nodule posterior to the ACL.*

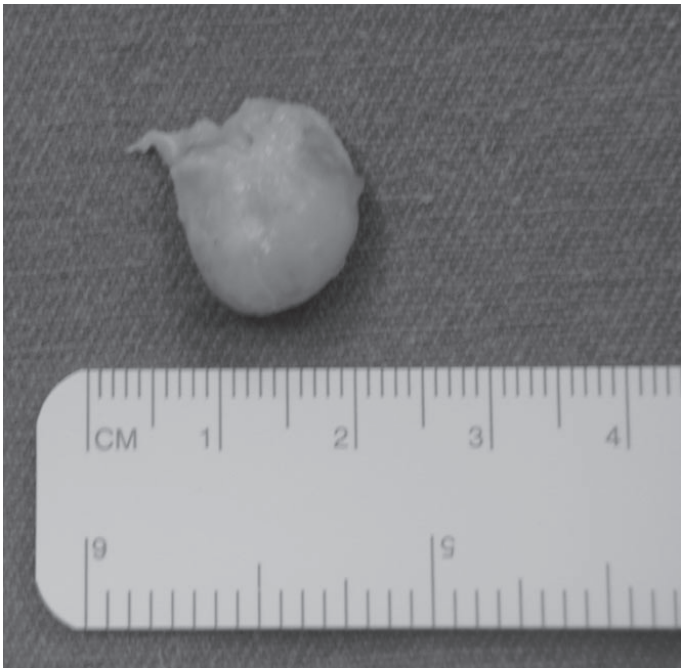

Figure 4 - *Gross image of the surgical piece*

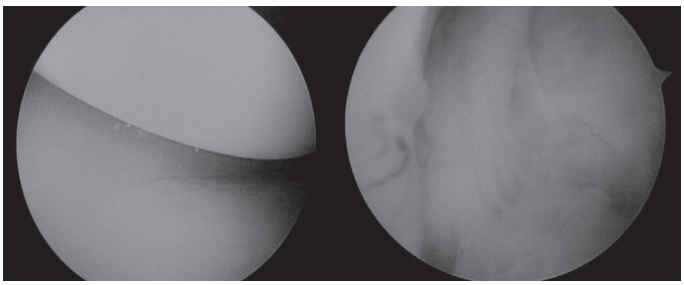

Figure 5 - *Arthroscopic aspect of the lesion.*

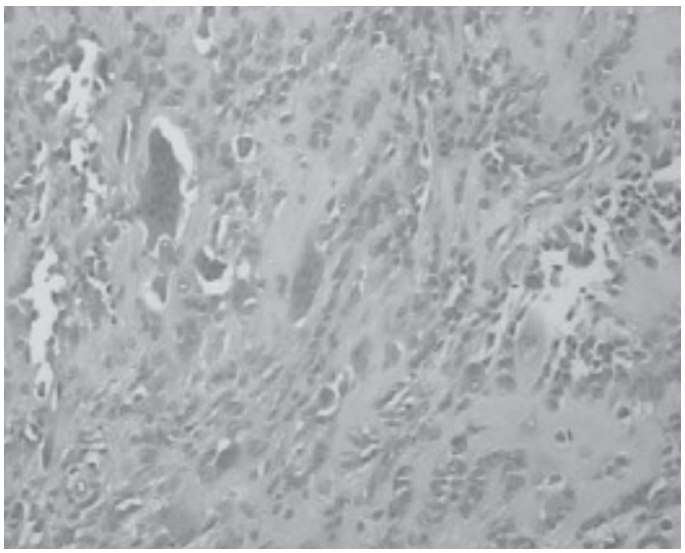

Figure 6 - *Surgical piece prepared and stained with hematoxylin-eosin showing tendon sheath with hyperplasic process characterized by spindle-like cells proliferation with characters of fibroblasts in interlaced bundles at various directions. Within the process, macrophages with hemosiderin accumulated in the cytoplasm, and multinucleated giant cells are found.*

meniscal, ligamentar, capsular injuries are present, as well as intra-joint masses.

On NMR, GCTTS presents as a heterogeneous mass in soft parts, with low T1 and T2 signal, corresponding to a hemosiderin deposit. Even with these findings, NMR is not regarded as a specific method for this pathology, which has as a differential diagnosis the synovial chondromatosis, the synovial hemangioma, the fibroxanthoma, and the synovial sarcoma[9].

Histologically, the GCTTS is well differentiated. It macroscopically presents a yellow, gray or white tissue, and, microscopically, a mix of mononuclear cells, spumous cells with hemosiderin granules, spindle cells and giant cells interlaced by connective tissue[12].

The treatment of choice in GCTTS is local excision with a normal tissue wedge without causing joint instability. According to Kim and cols., arthroscopy is a valuable method for diagnosing and treating GCTTS, being this technique less invasive than open surgery, and, additionally, occasional associated injuries can be treated during the same procedure[7].

Local recurrence of this pathology has been described in a rate of 25-50%, but inconsistencies are seen among studies in literature concerning postoperative follow-up time, resection quality and the presence of satellite lymphonodus[8,13].

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