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Knee Stiffness Explained by a Neglected giant Synovial Chondromatosis (Historical Case)

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ABSTRACT

Synovial chondromatosis of the knee is a benign synovial dystrophy characterized by the formation of cartilaginous nodules (chondromas). Their early diagnosis and treatment are primordial to preserve the joint and prevent its degeneration. Its treatment remains controversial, adopting many attitudes, arthroscopic chondromas extraction or arthrotomy, arthroscopic synovectomy, high tibial osteotomies or even a prosthetic replacement. The literature reports many sporadic cases of synovial chondromatosis of the knee each one with its clinical and therapeutic particularity ; In this sense we report our historical case of giant synovial chondromatosis neglected source of knee stiffness, operated by open surgery anterior and posterior approachs allow to extract 600 grams of chondromas agglomerated into several diffuse masses.

Introduction

Synovial chondromatosis of the knee is a synovial dystrophy characterized by the formation of cartilaginous nodules (chondromas) which can be secondary ossified (osteochondromas). The knee and hip are the most frequent locations (75% of the cases), followed by the elbow, ankle and shoulder [1]. Our case to discuss corresponds to chondromatosis of the knee in a patient of 55 years who complained of a painful mass of the right knee from 5 years ago becoming stiff in flexion from which we extract, by open surgery, a quantity of 600 g of intra-articular foreign bodies (figure 1).

Case presentation

A man of 55 years, limit of young adult, plowman as a profession, without a special pathologic history who has complained from 5 years of several diffuse and hard swellings on the anterior surface of the right knee, subsequently the knee became stiff in flexion of 10 ° (figure 2) leading to lameness at walking as its perimeter was 500 m. His radiographs (face and profile) under load (figure 3) did not show any radio-opaque foreign bodies or enlarged joint spaces or geodes, while an increase peri-articular density was evident. The MRI of this knee (figure 4) has demonstrated thickened synovial plaques on all articular surfaces in the T1 hyperintense signal with contrast and T2 hyperintense signal. The pseudo-tumor hard aspect of the mass obliges us to do a biopsy by mini-antero-internal approach and whose histology has confirmed the diagnosis of synovial chondromatosis (figure 5). The enormous mass leads us to favor the open surgery of arthroscopy; The excision of all foreign bodies was made by two approachs, firstly posterior approach of Trickey (figure 6) and then a second antero-internal time (figure 6). Intraoperatively, we were surprised by the conglomerates of diffuse intra-articular chondromas, and spectacular cartilaginous detachments (figure 7). Note that more ACL and PCL are not found. Immediately postoperatively, the knee was free extension 0° / flexion 100 °, the operative follow-up was simple and the patient was taken out of the hospital on the day of removal of the drain (D+2) carried out a rehabilitation sheet for physiotherapy, strengthening the quadriceps and hamstring and maintaining joint amplitudes. We have prescribed for this patient analgesics and indomethacin, providing for him to be taken up by a total knee prosthesis. He was seen in consultation on D+15, D+30, and D+60 ; He walks without crutches, amplitudes 0, 0, 80 ° with slight walking pain.

Figure 1 . Total quantity of foreign bodies resected.

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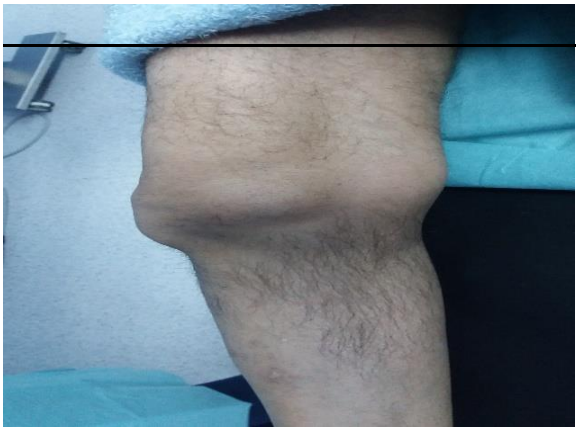

Figure 2 . Knee stiffened in flessum 10 °.

Figure 3 . Standard radiological aspect.

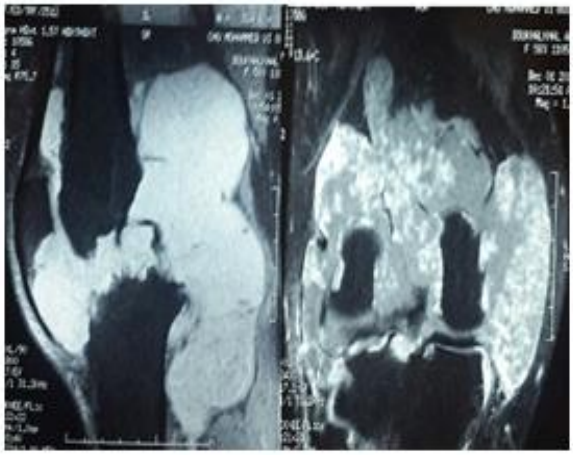

Figure. 4 . MRI aspect.

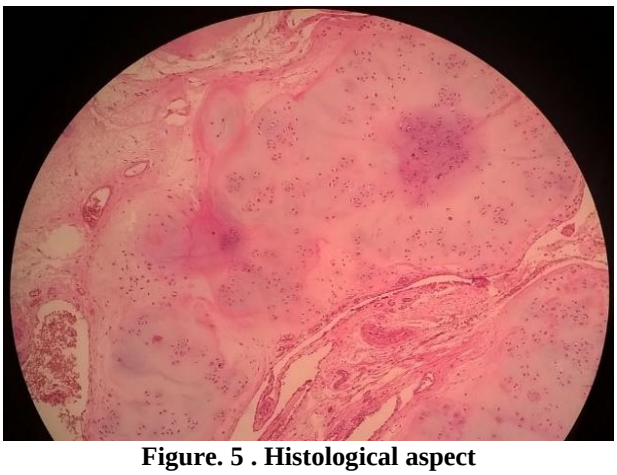

Figure. 5 . Histological aspect

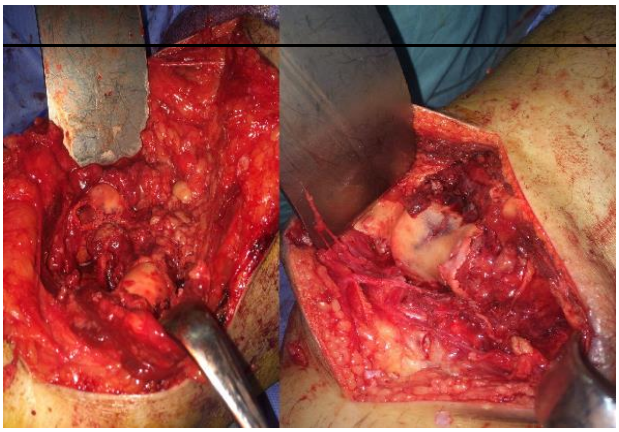

Figure 6. Trickey's posterior approach / Antero-internal approach.

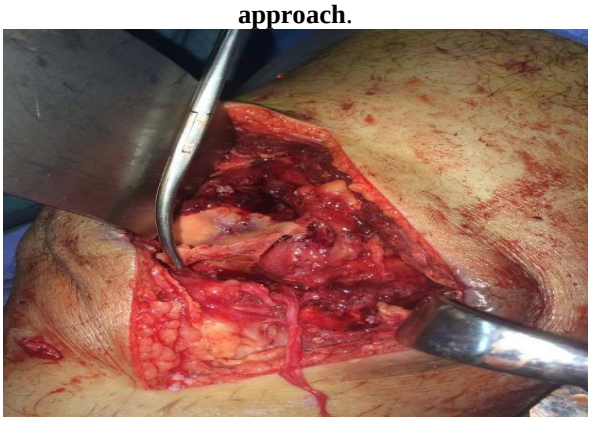

Figure 7. Peroperative appearance of cartilage detachments.

Discussion

The presence of intra-articular foreign bodies is not sufficient to define the affection. Its nature has been perfectly defined by Jaffé, its a metaplasia of the synovial tissue such as this produces small rounded cartilaginous bodies which protrude from the internal surface of the synovium, pediculate and then detach themselves becoming free foreign bodies In the joint. This definition therefore involves the production of cartilage from the synovium by a metaplasic process [2]. It is necessary to distinguish between primary chondromatosis which is rare and it is the appanage of the young adult and the secondaryone by far the most frequent form interested old persons with gonarthrosis in general [3].

The histological knowledge of the disease is easy and these foreign bodies are easily differentiated from those of a dissecting osteochondritis or aseptic necrosis by the fact that the relationships between the cartilaginous tissue and the bone are less organoids than in these affections. Differential diagnoses also include chronic joint infection, arthrosis, pigmented villonodular synovitis, monoarticular inflammatory arthritis and periarticular neoplasia such as synovialosarcoma [4]. In contrast, synovial chondromatosis may be secondary to trauma, avascular necrosis, arthrosis, rheumatoid arthritis or dissecting osteochondritis [5].

Its clinical presentation varies according to the phase of the disease and the extent of synovial involvement; Milgram [6], in1977, described three phases of its proliferation progressing in time: 1. there is only an active synovial involvement, without loose bodies; 2. there is both active synovial proliferation and free bodies; 3. where multiple osteochondral bodies are free, without synovial abnormalities. Edeiken completed this classification in 1994 by adding giant synovialosteochondroma as the final stage of synovialchondromatosis [7]. The first phase is presented as pain and edema of the knee, while the other phases can give a form of blockage and joint stiffness.

The typic characteristics of chondroid meniralization in ring-and-arc and bone erosions on MRI suggest synovial chondromatosis [8]. Tomography represents, clearly, calcified bodies and allows better visualization of bone erosion, which is present in 20-50% of cases [9]. MRI results are more variable than tomography, but the typical form (77% of cases) shows a low to intermediate intensity signal in T1 and a very high T2 signal with hypointense calcifications [9].

The treatment of synovial chondromatosis remains controversial. The literature has revealed that radiotherapy and chemotherapy have no interest, therefore surgical excision remains the reference treatment [10-11]. Dorfmann [12] and Shpitzer [13] consider that only the elimination of loose bodies was sufficient. However, others have suggested that arthroscopic synovectomy is useful for the prevention of recurrence [14]. The largest serie of Maurice and al. reported an overall recurrence rate of 11.5% [15], concluding that arthroscopic synovectomy was no better than the simple removal of loose bodies. Our therapeutic attitude, in front of our patient with hard masses and stiffness of the knee, is to make a first biopsy with the intention of diagnosing a tumor, and then, after having known the anatomopathological result and meticulous analysis of MRI, the open surgery is the only choice to extracted all intra-articular giant chondromas and to achieve total synovectomy in order to prevent recurrences and degeneration, although the literature reports only 33 cases of malignant transformation [16]; With a relative risk of malignant transformation of 5%, synovial chondrosarcoma is a decisive differential diagnosis of prognostic importance for the patient [17]. Shearer et al. in 2007 [18] stated that a distinction between these two entities can be difficult because of its clinical and radiographic similarities.

Our surgical planning was similar to Shailendra et al. [19] for the treatment of a case of synovial chondromatosis of the knee extended in Baker's cyst for a 32-year-old woman, the only difference that they positioned the patient in lateral decubitus to approach the knee in anterior then posterior. She recovered painless good functions of the knee.

Conclusion

Although knee synovial chondromatosis is a benign pathology, its management remains controversial, adopting several attitudes, arthroscopic chondromas extraction or arthrotomy, arthroscopic synovectomy, high tibial osteotomies or even a prosthetic replacement. The challenge is to prevent recurrence and degeneration.

The literature reports many sporadic cases of synovial chondromatosis of the knee each one with its clinical and therapeutic particularity, in this sense we report our historical case of giant synovial chondromatosis neglected source of knee stiffness.

Conflicts of interest

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

Declaration

The article represents original work and has not been publishedelsewhere.Therearenoconflictsofinterests.Nooutside funding source was utilized in preparation of this article.

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