



Clinical case

Giant cell tumor of the patella: first case described in Burkina Faso, evolution after six years of follow-up

Tumeur à cellules géantes de la patella : premier cas décrit au Burkina Faso, évolution après six ans de suivi

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Abstract

Introduction: Giant cell tumor (GCT) is a generally benign tumor. Localization to the patella is extremely rare. It affects young adults around 25 years-old.

Objective: To report a case of a primary benign giant cell tumor located in the patella in order to discuss the clinical, radio-histological, therapeutic and evolutionary particularities.

Observation: O.A, 29 years-old, male, shopkeeper and without pathological history. He consulted for an anterior swelling of the right knee evolving for a year. This swelling, gradually increasing in size and gradually becoming painful when walking. The x-ray of the knee showed an osteolytic cystic image with «honeycomb» trabeculations, the cortical puffed up with continuous edges, without invasion of the soft tissue, endplates, or femoral condyles. Surgical treatment consisted of a patellectomy. Macroscopic examination found an almost completely destroyed patella measuring 10×7×4 cm, very fragile and breaking at the slightest pressure. The histological examination concluded in a giant cell tumor of the patella. The postoperative consequences were simple. Evolution at six years, the functional result is excellent.

Conclusion: The giant cell tumor is a benign tumor that has a clear predilection for the knee region. Its treatment is surgical and its local recurrences are related to incomplete resection.

Keywords: Giant cells tumor - Benign - Patella - Patellectomy - Burkina Faso.

Résumé

Introduction : La tumeur à cellules géantes (TCG) est une tumeur généralement bénigne. La localisation à la patella (la rotule) est extrêmement rare. Elle touche les jeunes adultes autour de 25 ans.

Objectif : rapporter un cas de tumeur primitive bénigne à cellules géantes localisée au niveau de la rotule afin d'en discuter les particularités cliniques, radio-histologiques, thérapeutiques et évolutives.

Observation : O.A, 29 ans, homme, commerçant et sans antécédent pathologique. Il consulte pour une tuméfaction antérieure du genou droit évoluant depuis un an. Ce gonflement, augmentant progressivement de taille et devenant progressivement douloureux lors de la marche. La radiographie du genou montrait une image ostéolytique kystique avec des trabéculations en « nid d'abeilles », la corticale gonflée à bords continus, sans envahissement des tissus mous, des

plateaux vertébraux, ni des condyles fémoraux. Le traitement chirurgical a consisté en une patellectomie. L'examen macroscopique a retrouvé une rotule presque complètement détruite mesurant 10×7×4 cm, très fragile et se cassant à la moindre pression. L'examen histologique a conclu à une tumeur à cellules géantes de la rotule. Les suites postopératoires étaient simples. Evolution à six ans, le résultat fonctionnel est excellent.

Conclusion : La tumeur à cellules géantes est une tumeur bénigne qui a une nette prédilection pour la région du genou. Son traitement est chirurgical et ses récurrences locales sont liées à une résection incomplète.

Mots-clés : Tumeur à cellules géantes - Bénigne - Rotule - Patellectomie - Burkina Faso.

Introduction

Giant osteoclastic cells are locally aggressive, intraosseous of unknown origin, which can be benign or malignant [1, 2]. The location is preferably epiphyseal, especially around the knee, but isolated to the patella (or kneecap) is extremely rare [1, 3]. Patella tumors are frequently benign, and GCT is the most common benign patella tumor [4, 5]. The average age of onset is 30 years [1]. The aim of this work is to report our experience in the management of the first case of primary giant cell tumor of the patella diagnosed in our department.

Clinical case

Mr. O.A, 29 years old, male, merchant and with no personal or family pathological history of bone tumors. He consulted in July 2015 for an anterior and painful swelling of the right knee (figure 1), developed at the expense of the patella and had been evolving for a year. It was hard, non-fluctuating, the skin looking healthy. Increasing in size over the months and gradually becoming very painful and causing lameness when walking. The standard x-ray of the knee (Figure 2) showed an osteolytic image

with «honeycomb or soap bubble» trabeculations, the cortex blown out, continuous and thinned. Classified image stage 3 of Enneking and Campanacci. The biological assessment was normal. The CT scan (figure 3) showed an absence of invasion of the soft parts, nor of the femoral and tibial condyles. The frontal chest x-ray found no suspicious images of lung metastases. The clinical and paraclinical assessments led us to suggest a primary bone tumor of the patella, the diagnostic confirmation of which will be provided by pathological examination. The surgical treatment consisted of a total patellectomy, and a direct suture between the quadriceps and patellar tendon. A suction drainage and a posterior plaster splint 21 days at the end of the operation. Macroscopic examination (Figure 4) the patella showed a puffy appearance measuring 10×7×4 cm, containing non-coagulable serohaematic fluid and a very fragile shell that ruptured at the slightest pressure. The postoperative consequences were simple. Healing was obtained in 21 days. The patient received ten physiotherapy sessions for functional rehabilitation of the knee. The conventional histological (figures 5 and 6) examination of the patellar excisional piece noted: bony trabeculae without cytonuclear atypia and without osteoblastic activities on the surface and fibrous tissue containing numerous giant cells of the patella. The functional result after a follow-up of six years is excellent.



Figure 1 (A, B): Anterior swelling of the right knee (Arrows)

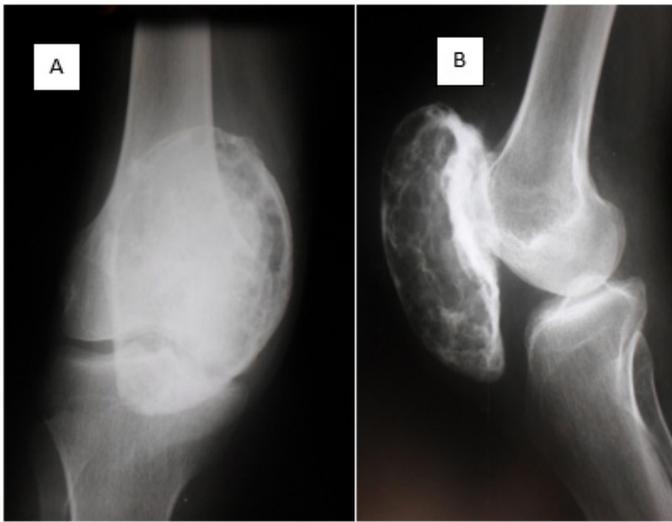


Figure 2: Standard AP (A) and profile (B) x-ray, showing the blown-out patella with a soap-bubble appearance.

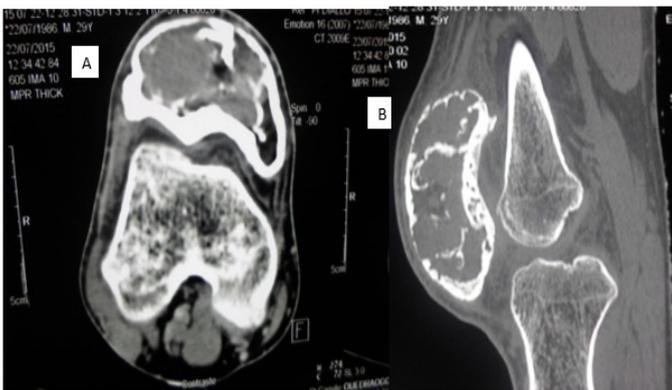


Figure 3: CT, Coronal (A) and sagittal (B) view of the patella and femoral condyles, showing the septate aspect and the matrix.

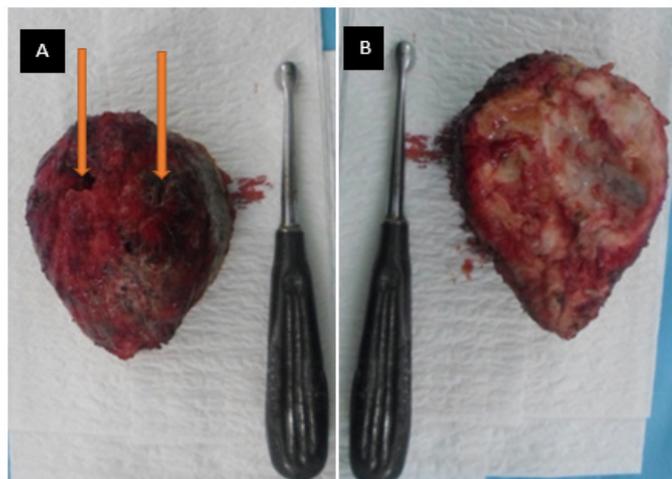


Figure 4: Macroscopic appearance anterior view (A) and articular surface (B), shell perforated in places (arrows)

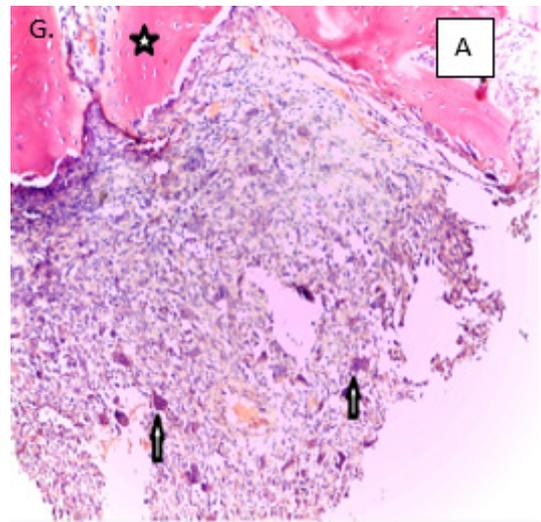


Figure 5. TCG: Haematein-eosin G $\times 100$ staining. Tumor proliferation made up of giant cells (arrows) destroying the bony spans (star)

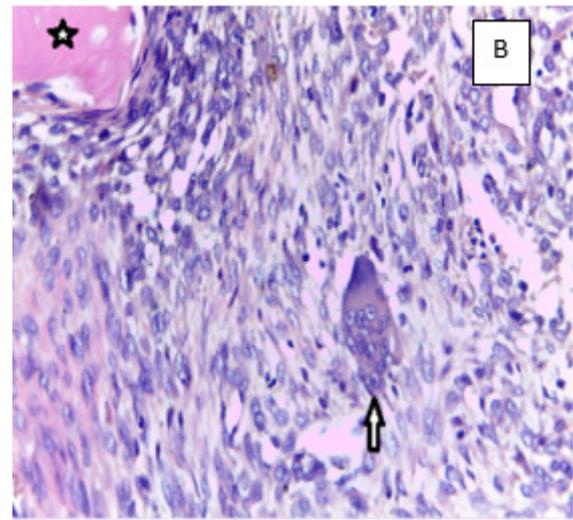


Figure 6. TCG: Haematein-eosin G $\times 400$ staining. Tumor proliferation made up of giant cells (arrows) destroying the bony spans (star)

Discussion

Epidemiological aspect

Our patient's age when the tumor was discovered was 29 years old. TCG affects adults-young people between the ages of 20 and 40. The mildness of this condition with a quiet insidious course means that it is rarely diagnosed before the age of 18. The male sex is affected in one in two cases [1, 4]. The patella is a sesamoid bone with ossification similar to the epiphyses and processes of long bones [3, 4]. In 90%

of cases, GCT sits in the metaphyseal-epiphyseal zone of long bones, indeed localization to the patella is an extremely rare phenomenon [1, 3-6]. General condition was good, with moderate pain, dodging lameness and anterior knee swelling. These two symptoms are also confirmed in the literature [1, 3, 5, 6].

Radiological aspects

The lesion was purely lytic with blistering of the cortex, without any periosteal reaction (since there is no periosteum in the patella). There were pseudo-septa inside the tumor that looked like a «honeycomb or soap bubble». This image corresponds to the radiological transposition of uneven erosions of healthy bone by the tumor producing ridges and valleys. In fact, GCT presents fairly characteristic radiological aspects that allow it to be mentioned, neither calcification nor ossification is found [1, 2, 5]. The very active bone destruction, the very deformed bone contour blown and punctured in places testifies to a chronic evolution of the lesion, hence the diagnosis at stage 3 of Enneking and Campancci. But there was no joint damage. Intra-articular involvement is exceptional, even in the event of a fracture. [1] Magnetic resonance imaging shows a sharp mass in the ligament. [7] Computed tomography (CT) and magnetic resonance imaging (MRI) bone scintigraphy can properly assess cortical involvement, tumor extension and detect the presence of pulmonary metastases and / or a multifocal form [1, 4, 5].

Differential diagnosis

Epidemiologically, GCT is the most common 33% of tumors of the patella [5], compared to the osteolytic image of the patella, two other benign tumors can be evoked: the aneurysmal bone cyst and chondroblastoma. Especially since these three benign tumors all have the same tendency to manifest themselves by an eccentric localization in the bone. But also discuss with malignant tumors such as: osteosarcoma rich in giant cells, osteogenic sarcoma ... [1, 4, 6]

The aneurysmal bone cyst prefers to localize to the metaphysis of long bones and the deformation of the

bone contour is more frequent and more marked in the aneurysmal bone cyst.

Chondroblastoma usually occurs in a younger patient whose physics are still open. It has a sharper sclera outline and contains calcifications.

Giant cell-rich osteosarcoma is a rare variety of osteogenic sarcoma that can be similar in location and appearance to giant cell tumors. Careful examination of the margins shows that the sarcoma has a more permeative appearance and less well-defined boundaries.

Osteogenic sarcoma in its highly osteolytic form, malignant fibrous histiocytoma, fibrosarcoma and plasmacytoma are all tumors that may resemble giant cell tumor, but their location is clearly more metaphysical. In the older patient, always think of a metastasis.

Anatomopathological aspect

The patella, macroscopically, was completely destroyed: blown out, deformed into an empty and very fragile shell containing a non-coagulable serohaematic fluid. GCTs are locally aggressive of the intraosseous neoplasm type. [2] The giant cell tumor may be associated with a secondary aneurysmal bone cyst, characterized by blood-filled cavities that are not lined by endothelial cells [1]. Tumor tissue consists of a stroma of giant cell tumors which represents the proliferative part of the tumor with secondary addition of mononuclear histiocytic cells and giant cells. [2] In our case, the histological examination showed bone trabeculae without cytonuclear atypia and without osteoblastic activities on the surface and fibrous tissue comprising many giant cells without atypia. An absence of signs of malignancy within the limits of this sample. The tumor is composed of mononuclear cells and multi-nucleated giant cells, mitoses being rare, the cells important for diagnosis are the mononuclear cells. Histological grading allows the differential diagnosis between a benign giant cell tumor and a giant cell sarcoma [1, 3].

Therapeutic aspects

Surgery is the first indication from the start, but the indication for surgery is variable and depends

on the radiographic classification of Enneking and Campanacci [6]. Our therapeutic attitude has been, en bloc resection of the patella, also called total patellectomy. It represents the indication in forms with severe bone destruction: stages 3 and especially for expendable bones such as the patella [1, 5, 6].

Evolutionary aspects

We followed our patient for until April 2018, that is to say three years. Every month for three months and once every six months. At each visit, a standard clinical and radiographic examination of the knee and lungs was performed. After months, the patient does not complain, he walks normally, and bone X-rays do not reveal any bone or lung damage.

Conclusion

The giant cell tumor is a benign tumor, which has a clear predilection for the knee region. Its radiographic appearance is purely lytic, without any periosteal reaction inside the tumor that looked like a «honeycomb or soap bubble». Its treatment is surgical and its local recurrences are related to incomplete excision.

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Conflict of interest : None

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