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Case Report

Patellar osteochondroma: case report☆,☆☆

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ABSTRACT

The aim was to report on a rare case of patellar osteochondroma. A 60-year-old man presented a tumor on his left patella that had developed over a 10-year period, which is a rare occurrence, considering the patient's age and the site at which the tumor appeared. The clinical condition comprised mild pain and the presence of a mass, without limitation of flexion–extension or any neurovascular deficit. The tumor dimensions were 8 cm longitudinally × 6 cm transversally × 3 cm anteroposteriorly. It was hardened and was adhering to the patellar bone plane. On radiographs and tomographic scans, we observed areas of greater density corresponding to bone and other less dense areas that could correspond to slow-growing cartilage, with irregularities on the patellofemoral joint surface. Simple resection of the tumor was performed, and the anatomopathological examination confirmed that it was a patellar osteochondroma. Osteochondroma, or osteocartilaginous exostosis, includes a large proportion of the benign bone tumors. It results from cell alterations that trigger unregulated production of spongy bone. It is basically treated by means of surgical removal of the tumor mass. This is not essential, but is recommended in order to avoid lesions caused by contiguity and the risk of malignant transformation.

Osteocondroma patelar: relato de caso

Palavras-chave:
Neoplasias ósseas
Patela
Osteocondroma

RESUMO

Relato de um caso raro de osteocondroma patelar. Homem de 60 anos apresentou tumor na patela esquerda que tem se desenvolvido por 10 anos, fato raro, considerando-se a idade do paciente e o local de surgimento do tumor. Dor leve e a presença da massa compunham o quadro clínico, sem limitação da flexoextensão ou déficit neurovascular. O tumor apresentava 8 cm longitudinal × 6 cm transversal × 3 cm anteroposterior, endurecido, aderido ao plano ósseo patelar. Nas radiografias e tomografias observamos áreas mais densas correspondentes de osso e outras menos densas, que podem corresponder à cartilagem, de crescimento lento, e irregularidades na superfície articular patelofemoral. Foi feita ressecção simples do tumor e o anatomopatológico confirmou osteocondroma da patela.

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Osteocondroma, ou exostose osteocartilaginosa, abrange uma grande parte dos tumores ósseos benignos. Ele resulta de alterações celulares que desencadeiam a produção desregulada de osso esponjoso. Seu tratamento é feito basicamente pela retirada cirúrgica da massa tumoral. Não é essencial, mas recomendada para evitar lesões por contiguidade e risco de malignização.

Introduction

Osteochondroma is the commonest benign tumor and accounts for 10% of all bone tumors and 30% of benign tumors. This osteocartilaginous exostosis tends to be detected during childhood and adolescence and is less frequent in adults.[1] It results from modification to the growth direction of the growth plate, which starts to produce histologically disorganized spongy bone covered by a cartilaginous coating and, at its base, by the adjacent periosteum. The thickness of the cartilaginous coating is related to the malignity of the tumor, especially in adults.

The diagnosis of osteochondroma is predominantly radiographic, but it may be discovered incidentally during palpation of a mass in the region affected, which causes pain.[2] This pain originates from direct trauma to the tumor, or from the inflammatory process triggered by the lesion. In the case of osteochondromas located in the scapular belt, pelvic belt, spine or limb roots, ordinary radiographs may not show the cartilaginous coating. Axial computed tomography is needed in order to delimit its real extent. Tumors in the patella are very rare.[3–5] The objective of the present study was to report on a rare case of patellar osteochondroma.

Case report

The patient was a 60-year-old man. He reported that around 10 years earlier, he had noted a slow and painless tumor formation in his left knee, laterally on the patella. On physical examination, a hardened tumor measuring 8 cm longitudinally × 6 cm transversally × 3 cm anteroposteriorly was observed, adhering to the patellar bone plane, without other phlogistic signs. It moved together with the patella when flexion–extension knee movements were made. There was no neurovascular deficit and the range of motion of the knee was not impaired (Fig. 1).

In the radiological evaluation, tumor formation of bone density in the lower center of the patella of the left knee was shown. On radiographs, we observed denser areas corresponding to bone and other, less dense areas that might correspond to cartilage (Fig. 2).

Tomography showed a primary tumor at the lower center of the patella, with osteocartilaginous characteristics and slow grow, and with irregularities in the patellofemoral joint surface, which suggested that there was arthrosis in this region (Fig. 3).

The diagnostic hypothesis of patellar osteochondroma was made, and surgical resection was indicated because of the tumor growth. During the operation, we observed that there was a bone lesion surrounded by a cartilaginous coating, and simple resection of the tumor was performed (Fig. 4). From anatomopathological examination, the diagnosis of patellar osteochondroma without signs of malignant transformation was confirmed. Over the course of the follow-up, the patient did not present any signs of recurrence for five years.

Discussion

Osteochondromas occur in adolescents and in bones that present endochondral ossification. The main location is the knee region, in the distal metaphysis of the femur and proximal metaphysis of the tibia; this is followed by locations in the proximal region of the humerus and the proximal femur. The lesions are located in the metaphyseal region of the bone and tend to grow in the direction of the diaphysis, while moving away from the epiphysis.[6] The case reported here is very unusual, for two main reasons: the patient's age, 60 years, which was much greater than what tends to be observed; and the location from which the tumor originated, the patella, which is also very unusual.

Osteochondromas of the knee develop slowly over a period of several years, generally 10–20 years, but there have been some reports of tumors that evolved in not more than six months.[7] Some symptoms in the knee may arise as a consequence of patellar tumors, such as tendinitis, joint locking, limitation of flexion–extension, degenerative arthritis and, rarely, even neurovascular compression.[8–11] Our patient presented mild symptoms of pain, but what inconvenienced him most was the growth of the tumor. However, he also presented degenerative arthritis on examination, which may have been a frequent occurrence because of his older age.

It has been shown that the exostosis is covered by a thin layer of perichondrium that adheres to the cartilage and continues with the periosteum of the adjacent bone. It can be sessile or pedunculate. The cartilaginous coating tends to vary from 1 to 3 mm in thickness. The younger the patient is, the thicker the coating is. The interior of the exostosis formed by normal spongy bone, which is continuous with the adjacent metaphyseal bone. A pouch may form over the osteochondroma and generally results from the inflammatory process, which occurs through irritation of the adjacent muscles and tendons. The pouch may contain fluid and fibrous bodies, sometimes calcified. Microscopic examination reveals normal endochondral ossification; foci of proliferative cartilage are found in the deep layers. There may be fibrotic bone marrow, impregnated with detritus from calcified cartilage. The bone marrow from inside the exostosis is predominantly fatty.[1,2,12]

Strictly speaking, the exostosis is not a neoplasm, since the growth of the lesion generally ceases with closure of the

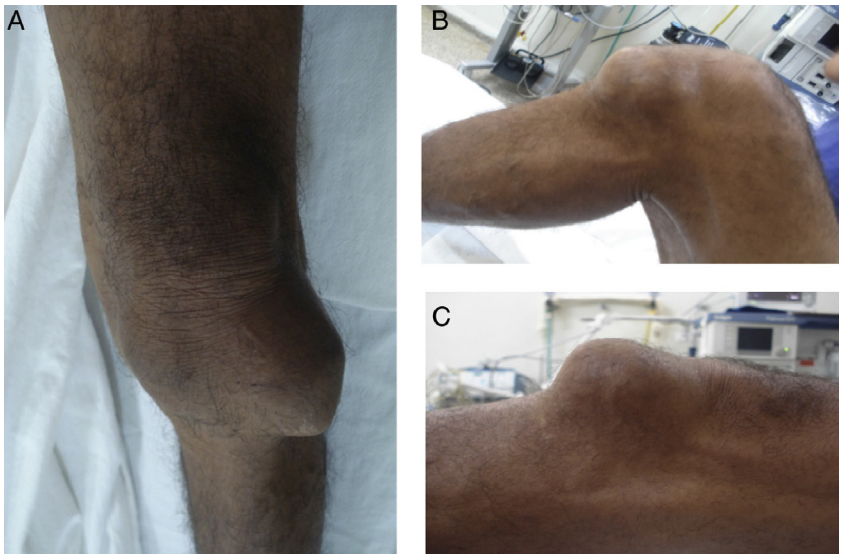

Fig. 1 – Clinical appearance of the left knee in anterior view (A) and lateral view (B), showing tumor formation measuring 8 cm longitudinally × 6 cm transversally × 3 cm anteroposteriorly, with hardened consistency, adhering to the patella, which did not limit the patient's flexion–extension (C).

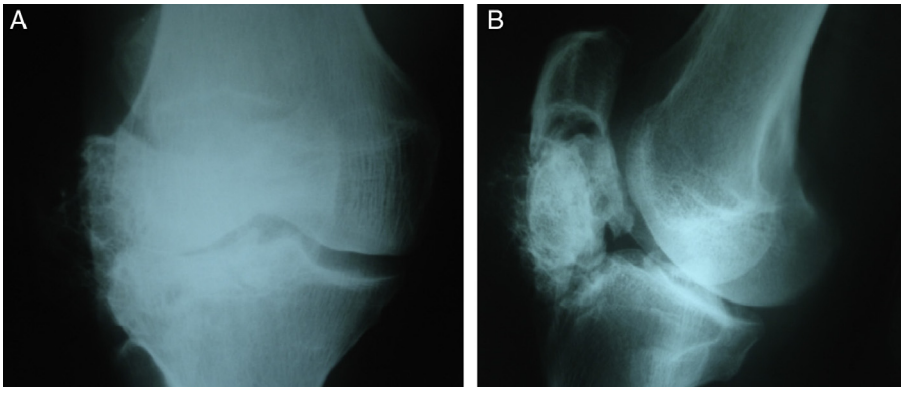

Fig. 2 – Radiographs in anteroposterior view (A) and lateral view (B), showing bone tumor formation in the lower center of the patella of the left knee.

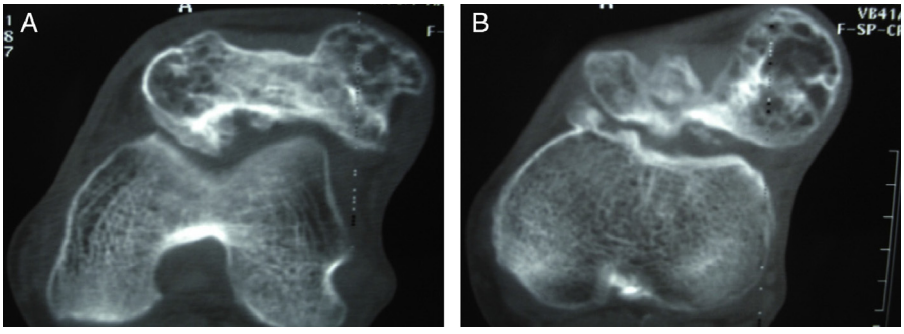

Fig. 3 – Transverse tomographic slices through the left knee, showing tumor formation originating primarily from the patella, at its lower center (A), which extended inferiorly to create a bulge in the skin and the subcutaneous tissue laterally (B).

epiphysis and the lesion stabilizes. However, growth of these formations after maturation of the skeleton is, in most cases, an early sign of malignant transformation. Generally, there is a low degree of malignity, with a good prognosis and low risk of metastasis, with a good prognosis and low risk of metastasis when resection is performed early on. The metastases preferentially affect soft tissues, when blocks of cartilaginous cells become implanted in the surrounding tissues, as the perichondrium detaches from the exostosis during the resection.

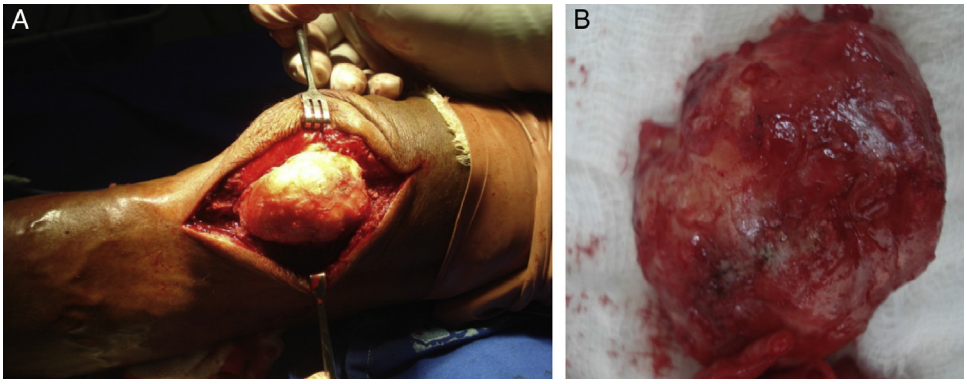

Fig. 4 – Intraoperative appearance of the tumor resection (A); macroscopically, the resection showed an osteocartilaginous tumor (B).

There were no signs of malignant transformation of the tumor in our patient, such as pain on palpation or the presence of phlogistic signs. The duration of 10 years that the tumor took to reach the size presented was also indicative of its benign nature. If it had been malignant, the growth would have occurred over a shorter period, thus making it impossible for the skin to adapt and causing typical signs of inflammation.

When the lesions are multiple, they represent an autosomal dominant hereditary disease, in which the rate of malignant transformation is more than 10% of the cases. The incidence ranges from 0.9 to 1.4% per 100,000 inhabitants and the distribution is generally symmetrical. The condition leads to individuals of short stature (40% of the cases) with valgus deformity at the levels of the knee and ankle and asymmetry of the pelvic and scapular belts. In these cases, malignant transformation has slow growth and appears after the second decade of life.[1,2,11]

Surgery to resect the tumor is not essential in all cases. Its main indications are when the exostosis is interfering with the growth of the extremity, which leads to functional and mechanical alterations; in the presence of malignant transformation, which is characterized by a thick coating of more than 2 cm in adults; and in the presence of bone erosion, vascular compression and/or nerve compression with symptoms and joint locking promoted by the osteochondroma. The relative indications are esthetic complications, which often give rise to postoperative skin scarring that is worse than the esthetic deformity itself; and pain, which may occur because of bursitis or after fracturing, depending on the patient's symptoms. In cases of patellar tumors, total or partial patellectomy or only wide resection of the tumor can be performed, in order to improve the symptoms. The choice between these depends on the tumor location, whether the tumor is pedunculate, tumor volume and skin conditions.[13,14]

Conflicts of interest

The authors declare no conflicts of interest.

REFERENCES

1. Jaffe HL. Tumors and tumorous conditions of the bones and joints. Philadephia: Lea and Febiger; 1958. p. 558–67.
2. Alves MPT, Dias LH, Campos MM. Osteocondroma da extremidade proximal da ulna: relato de caso. Rev Bras Ortop. 1999;34(7):85–9.
3. Sadykhov AG. Osteochondroma of the patella. Ortop Traumatol Protez. 1962;23:77–8.
4. Udvarhelvi L. A case of osteochondroma of the patella. Magy Traumatol Orthop Helyreallito Seb. 1972;15(1):23–7.
5. Sarmiento A, Elkins RW. Giant intra-articular osteochondroma of the knee. J Bone Joint Surg Am. 1975;57(4):560–1.
6. Maurer HJ. Symmetrical osteocartilaginous exostoses (osteochondroma) of the patella. Fortschr Geb Rontgenstr Nuklearmed. 1963;98:771–2.
7. Milgram JW, Jasty M. Case report 238: para-articular osteochondroma of the knee. Skeletal Radiol. 1983;10(2):121–5.
8. Ozturan KE, Yucel I, Cakici H, Guven M, Gurel K, Dervisoglu S. Patellar tendinopathy caused by extraskeletalosteochondroma in the lateral infrapatellar region of the knee: a case report. Cases J. 2009;2:9341.
9. Turhan E, Doral MN, Atay AO, Demirel M. A giant extrasynovialosteochondroma in the infrapatellar fat pad: end stage Hoffa's disease. Arch Orthop Trauma Surg. 2008;128(5):515–9.
10. Severo A, Calieron LG, Kuhn A. Compressão do nervo fibular comum por osteocondroma: relato de caso. Rev Bras Ortop. 2001;36(9):50–4.
11. Tornquist FA, Leopardo CC, Segala TC, Hamid AJ. Vascular complication of osteochondroma: case report. J Vasc Bras. 2007;6(1):92–6.
12. De Maio F, Bisicchia S, Potenza V, Caterini R, Farsetti P. Giant intra-articular extrasynovial osteochondroma of the knee: a report of two cases. Open Orthop J. 2011;5:368–71.
13. Louis R, Pouye I, Conty RC, Quenum C, Ouiminga RM. Voluminous osteochondroma of the knee cap. Patellectomy. Bull Soc Med Afr Noire Lang Fr. 1968;13(3):722–9.
14. Reith JD, Bauer TW, Joyce MJ. Para-articular osteochondroma of the knee: report of 2 cases and review of the literature. Clin Orthop Relat Res. 1997;(334):225–32.