Orthopedics and Rheumatology
Open Access Journal
ISSN: 2471-6804

Case Report
Volume 20 issue 3 - September 2022
DOI: 10.19080/OROAJ.2022.556039

Ortho & Rheum Open Access J

Multiple Intraarticular Osteochondromas of the Knee

Ayati Firoozabadi M* and Mortazavi SMJ

Department of Orthopedic Surgery, Joint Reconstruction Research Center, Tehran University of Medical Science, Iran

Submission: September 09, 2022; **Published:** September 19, 2022

***Corresponding author:** Ayati Firoozabadi M, MD Joint Reconstruction Research Centre, Tehran University of Medical Sciences, End of Keshavarz Boulevard, Iran

Abstract

Osteochondroma is the most common benign growing bone tumor that usually affects the knee joint area. It often involves the long bone metaphysis, which occurs extraarticularly. Despite this, single intraarticular osteochondroma is rarely reported in the literature, but multiple knee osteochondromas is very rare and has not been reported so far. The patient who is introduced is a 30-year-old woman who has undergone two arthrotomy surgeries of the left knee, in which intraarticular osteochondroma was reported in the pathology. In the second operation, due to the size of the lesion and the involvement of the patella, the surgeon had to perform a patellectomy. The patient was referred with severe knee pain and inability to flexion and extension the knee and was unable to walk without a walker. Due to severe osteoarthritis and lack of extensor mechanism and condition of multiple intraarticular osteochondromas of the knee, complete excision of multiple osteochondroma lesions was performed for the patient and Rotating Hinge Knee (RHK) prosthesis was implanted. During two years of treatment follow-up, there is no recurrence of the lesion and the patient walks without a walker and is able to flex the knee 100 degrees. Her knee pain was also relieved.

Keywords: Intraarticular osteochondroma; Knee; Total knee arthroplasty

Introduction

Osteochondroma, or exostosis, is the most common benign bone tumor and is characterized by a cartilaginous cap that develops mainly during the growing years. They are more likely to be developmental abnormalities than true neoplasms and are thought to originate within the periosteum as small cartilaginous nodules. Osteochondromas can be flat (sessile) or stalk-like (exostosis) and appear adjacent to the metaphysis [1]. Osteochondromas are often seen in long bones, especially in the distal femur and proximal tibia. 40% of these tumors occur around the knee. The tumor originates in the metaphysis and grows towards the diaphysis. The most common places involved are around the knee (distal femur and proximal tibia), followed by the proximal humerus [2]. Intra-articular osteochondrosis of the hip and ankle joints has been reported to be rare. Intra-articular osteochondroma of the knee is very rare and the number of cases reported in the articles is very small, for which various treatments such as arthroscopic excision or open excision have been performed [3].

Case Report

The patient is a 30-year-old woman who came with severe pain and swelling of her left knee (Figure 1). The patient had a history of two arthrotomy surgeries of the left knee due to Intraarticular osteochondroma, and both times osteochondroma was reported in the pathology. In the second operation, due to the size of the lesion and the involvement of the patella, the surgeon had to perform a patellectomy. When the patient visited, about two years had passed since his last surgery. The patient was referred with severe knee pain and inability to flexion and extension the knee and was unable to walk without a walker. Severe joint destruction, lack of extensor mechanism, and high incidence of recurrent intra articular osteochondroma of the knee can be seen (Figure 2). All the patient's laboratory tests were normal. The patient was candidate for surgery and an arthrotomy was performed by cutting the previous incision with a universal approach. The intraoperative photograph before the excision of the osteochondroma is shown in Figure 3.

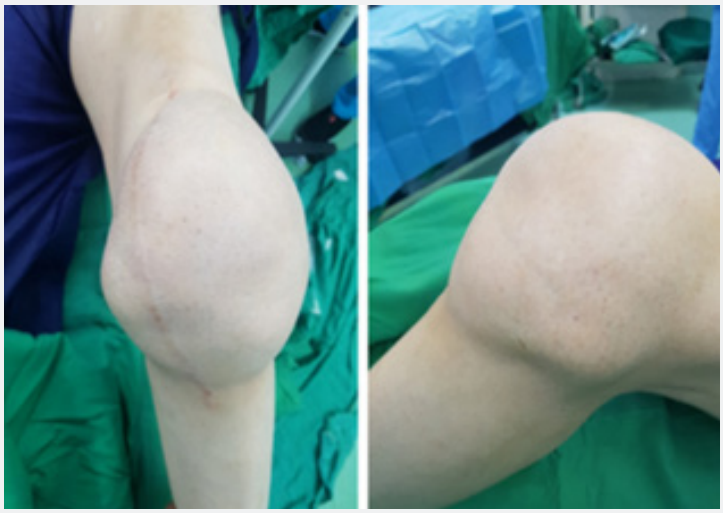

Figure 1: Left knee clinical photograph.

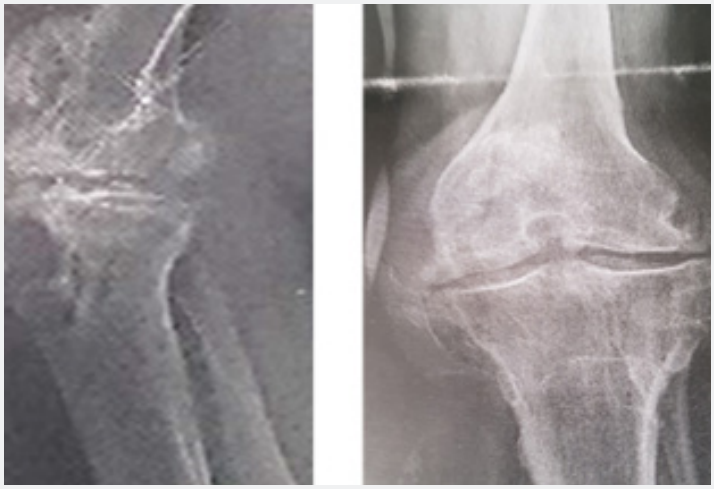

Figure 2: Left knee preoperative X-ray.

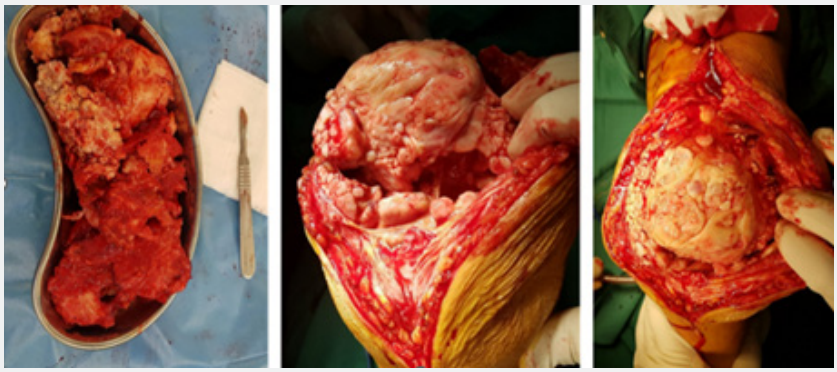

Figure 3: Gross specimen of intraarticular multiple osteochondroma of left knee showing multiple cancellous bony masses covered with cartilaginous cap.

How to cite this article: Firoozabadi MA, Mortazavi SMJ. Multiple Intraarticular Osteochondromas of the Knee. Ortho & Rheum Open Access J. 2022; 20(3): 556039. DOI: 10.19080/OROAJ.2022.20.556039

For the patient, a complete excision of the osteochondroma lesions was performed, and the removed osteochondromas are shown in Figure 3. Due to the lack of proper extensor mechanism and damage to the collateral ligaments during previous surgeries and the surgery of this stage for complete excision of the lesion, RHK prosthesis was implanted. The postoperative radiograph of the patient is shown in Figure 4. The pathology of the excised lesions is shown in Figure 5. The pathological answer was again reported osteochondroma. During two years of follow-up treatment, there is no recurrence of the lesion and the patient walks without a walker and is able to flex the knee 100 degrees but has about 30 degrees of extension lag.

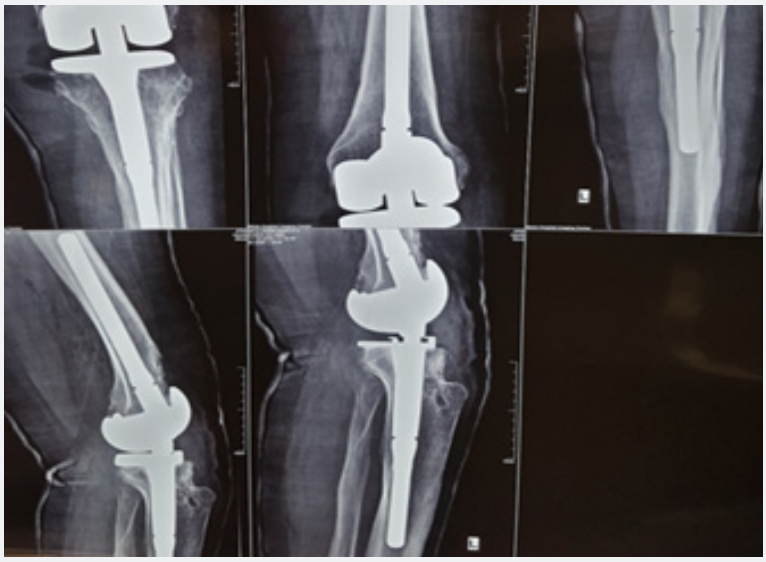

Figure 4: Left knee post-operative X-ray.

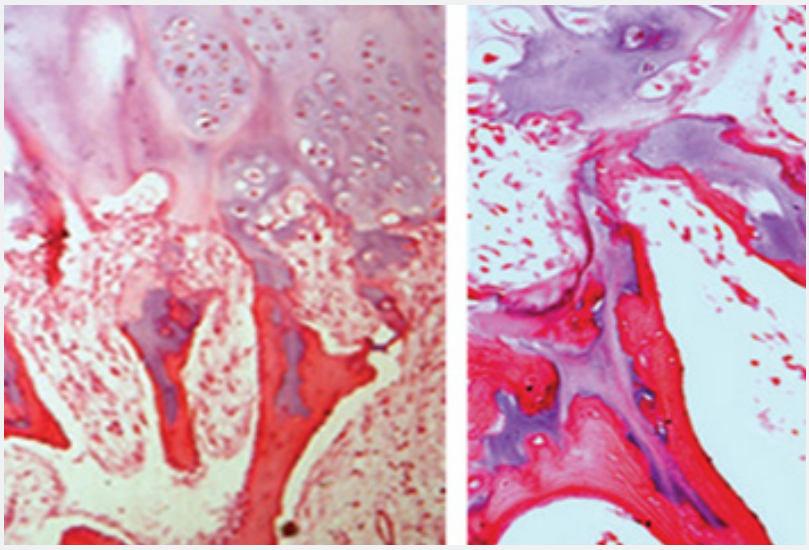

Figure 5: Histopathology appearance of intraarticular multiple osteochondromas of left knee (Haematoxylin- Eosin).

Discussion

Osteochondromas are common tumors that usually originate from the metaphysis of long bones. These tumoral lesions are formed by enucleated ossification and often appear during periods of rapid bone growth. Most osteochondromas tend to appear in the metaphyseal areas around the knee. Although they may be formed in any bone by enchondral ossification [4]. There are genetic

How to cite this article: Firoozabadi MA, Mortazavi SMJ. Multiple Intraarticular Osteochondromas of the Knee. Ortho & Rheum Open Access J. 2022; 20(3): 556039. DOI: 10.19080/OROAJ.2022.20.556039

studies that have identified a strong association between multiple hereditary osteochondromas and the exostocin-1, 2, and 3 loci (chromosome 8q24.1, chromosome 11p13, and the short arm of chromosome 19, respectively) [3]. Regarding symptoms, for both extra-articular and intra-articular lesions, pain, discomfort and limitation of joint movement have been reported. The exact pathogenetic mechanism of these tumors remains unknown. However, cartilaginous metaplasia of articular and para-articular connective tissue seems to be the main cause. The very important point is that the occurrence of these lesions in articular surfaces is very rare. Intra-articular osteochondroma of the knee is very rare and the number of cases reported in the literature is very small. For them, treatments such as arthroscopic excision or open excision have been performed [5]. Although extra-articular osteochondroma tumors are usually asymptomatic, the intra-articular cases of these tumors limit the range of motion of the knee and cause pain and discomfort [6].

On plain radiography, osteochondroma has typical features. The tumor protrudes from the host bone, either sessile or stalk-like, and in addition, the cortex and cancellous bone of the osteochondroma fuse with the cortex and cancellous bone of the host. Because of this typical radiographic appearance, osteochondroma is usually easily diagnosed on plain radiographs [7]. However, imaging including preoperative X-rays and MRI scans are essential for diagnosis, especially when the findings are combined with the medical history and clinical symptoms.

Differential diagnoses include synovial chondromatosis, low-grade chondrosarcoma, and osteosarcoma. An MRI study helps narrow down the diagnosis [8]. Diagnosis is made by a combination of clinical signs, radiography and MRI. But in this case, accurate diagnosis was made through sample collection and histopathology. Biopsy shows typical mature trabeculae with a cartilaginous cap. To rule out malignant changes, cellular atypia and mitotic activity should be evaluated. Surgical resection is the treatment of choice for osteochondroma, which can be performed using an open or arthroscopic technique [9]. Recurrence usually does not occur, although there were two recurrences of the lesion in the presented patient. The patient presented in this article is the first case of multiple intra-articular osteochondromas that was treated with complete excision of the tumoral lesion along with knee arthroplasty with RHK prosthesis.

Conclusion

Intraarticular osteochondroma of the knee, which presents with mechanical symptoms and pain, is very rare and can be treated with arthroscopic or open exision. In cases where the destruction of the knee joint is high, it is possible to replace the knee joint along with the complete excision of the osteochondroma.

References

1. Sharma AK, Garg G, Harshawal R, Meena U, Partani A (2016) Atypical presentation of intra-articular osteochondroma of knee in adolescent-case report. Int J Res Orthop 2(3): 201-204.
2. Kong M, Cao L, Zhang Q, Fang Y, Zhao C, et al. (2015) Identification of a rare case of intra-articular osteochondroma manifesting as three loose bodies in a patient with hereditary multiple osteochondromas: A case report. Oncol Lett 10(2):798-804.
3. Chouliaras V, Sotiriadis I, Flevas DA (2021) Arthroscopic Excision of an Intra-Articular Osteochondroma of the Knee. Cureus 13(8): e17154.
4. Morey VM, Jalan D, Mittal R, Gamangatti S (2014) Intraarticular osteochondroma of the knee. Indian J Orthop 48(3):332–334.
5. Singh R, Jain M, Siwach R, Rohilla S, Sen R, et al. (2012) Large para-articular osteochondroma of the knee joint: A case report. Acta Orthop Traumatol Turc 46(2):139–143.
6. Oliva F, Marconi A, Fratoni S, Maffulli N. (2006) Extra-osseous osteochondroma-like soft tissue mass of the patello-femoral space. BMC Musculoskelet Disord 7: 1-6.
7. Dienst M, Schneider G, Pahl S, Ensslin S, Kohn D, et al. (2002) Intra-articular osteochondroma of the posterior cavity of the knee. Arch Orthop Trauma Surg 122(8): 462-465.
8. Kim JI, Kwon JH, Park YJ, D'almeida VR, Soni SM, et al (2013) Arthroscopic excision of solitary intra-articular osteochondroma of the knee. Knee Surg Relat Res 25(1): 36–39.
9. Mohanen P, Pillai KP, Rangasamy K, (2013) Report C. Case Report Extraosseous Intra-Articular Osteochondroma 6-11.

DOI: 10.19080/OROAJ.2022.20.556039

How to cite this article: Firoozabadi MA, Mortazavi SMJ. Multiple Intraarticular Osteochondromas of the Knee. Ortho & Rheum Open Access J. 2022; 20(3): 556039. DOI: 10.19080/OROAJ.2022.20.556039