Journal Homepage: -www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/xxx
DOI URL: http://dx.doi.org/10.21474/IJAR01/xxx

RESEARCH ARTICLE

A CASE REPORT OF FEMUR OSTEOCHONDROMA IN 22 YEARS OLD FEMALE PATIENT

Abdulrahman M. Bin Mohi, Ahmed A. Alzahrani and Bashar R. Reda

Manuscript Info

Manuscript History
Received: 31 August 2020
Final Accepted: 30 September 2020
Published: October 2020
Key words:-
Knee Pain, Chondrosarcoma, Femur, Histopathology,X-ray, Osteochondroma, Chondroma

Abstract

Chondroma is considered a nonmalignant tumor that composed of mature hyaline cartilage and commonly occur in hands and feet. Overall incidents show that females are predominant comparing to males with evenly distributed range of ages. Multiple chondromas have to be differentiated from osteochondroma and chondrosarcoma. This paper reports three different types of lesions in one patient. Osteochondroma or exostosis is the most common benign tumor of the skeleton. It is a developmental osseous anomaly, which arises from exophytic outgrowth on bone surfaces characteristically. Osteochondroma account for about 12% of bone tumors. Here, we have described a 22 years old female patient with left knee joint pain and swelling of the left distal femur with limited movements. The incisional biopsy of the left distal femur identified low-grade chondrosarcoma and after histopathology. This underwent one-stage surgical wide excision of the tumor with an anterolateral approach and insertion of tumor prostheis. After surgery, an unusual pain appears in the right hip joint during the post-operative period. Radiographic imaging and magnetic resonance imaging "MRI" of pelvis help to diagnose thewell-differentiated right hiposteochondroma and left proximal femur chondroma. This was a case of osteochondroma in the right proximal femur, chondroma like lesion in the left proximal femur and chondrosarcoma in the left distal femur.

Ethical consideration: Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Conflict of interest: There is no conflict of interest.

Introduction:-

Osteochondroma is the most common primary bone tumor comprising over one-third of benign bone tumors [1]. It comprises 12% of the total benign tumor. The formation of osteochondromaoccurs because of exophytic protuberance on the surface of growing bones. Solitary osteochondromas (exostoses) are the most common benign bone disorders encountered. Its peak incidence is in the second decade of life [2]. The most common sites for osteochondroma are the distal femur, proximal tibia, and proximal humerus [3,4]. The lesions are frequently seen in long bones next to the metaphysis [5]. Sometimes they also found in the intra-articular sites, which are rare. Most of them are benign tumorsand treated with wishful neglect. The pain occurs because of the mechanical pressure on surrounding neurovascular structures or the risk of malignant transformation are indications for surgical excision [6].

Corresponding Author:- Abdulrahman M. Bin Mohi

A sudden increase in size associated with pain are indicators of possible malignant transformation. Treatment with surgical excision gives consistent results and relief of pain [7,8].In the same context, Chondrosarcoma is the second primary malignancy of bone. Most commonly occur in pelvis, hip and shoulder. Suggested causes are associated with certain genetic mutation and therefore, it is very challenging bone-tumor to diagnose and treat[16,17]

Case report:

History:

The present case report is about a 22-year-old female, medically free, presented to outpatient clinic and was complaining of left knee joint pain and left distal femur swelling for one year. Knee joint pain is dull, gradual in onset, not activity-related, getting progressively worse. Left distal femur swelling was increasing in the size and becoming enlarging gradually with no history of trauma. There is no history of fever, weight loss, or fatigue. The patient shows no history of recent infection or contact with other sick patients. The patient underwent proper investigations in our hospital facility.

Clinical presentation:

Clinical examination revealed a 22-year-old female, moderately build and nourished, with an oval-shaped bony mass arising from the distal end of the left femur.

Investigation and procedure:

Histopathology study:

Incisional biopsy of the left distal femur mass was done. Histopathology study (Figure 1) revealed low-grade chondrosarcoma on the left distal femur. There was a proliferation in the osteoid and chondroid tissues. The lamellar and mature trabeculae of the bone are located in the center and are separated by fibro-fatty tissue and capillary vessels.

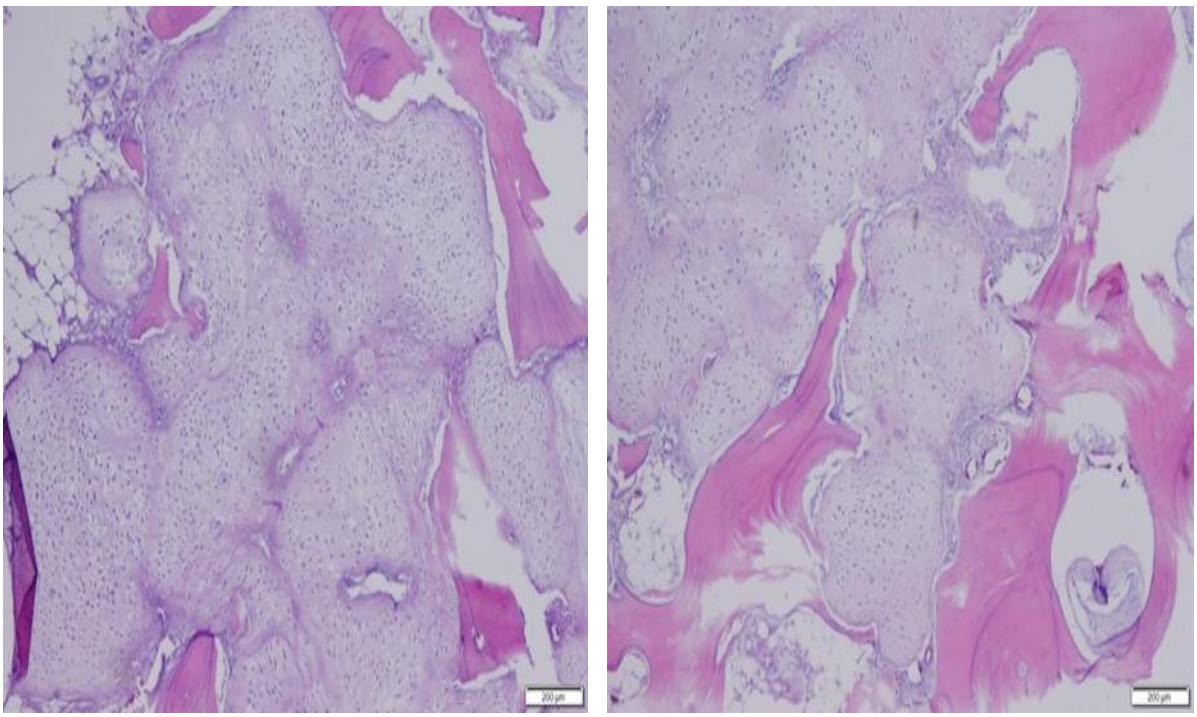

Figure 1 (a and b):-Histopathological study shows the proliferation of osteoid and chondroid tissue, which resembles the feature of low-grade chondrosarcoma

Radiography study:
MRI with contrast of the left knee shows chondrosarcoma in the leftdistal femur in T2 signal in both sagittal and axial planes (a),(b) and follow-up left hip x-ray show chondroma like lesion in the left proximal femur (c) and AP pelvis x-ray showa right proximal femur osteochondroma lesion. The lesion appears to be mostly hyper-dense, containing hypo-dense lacunae with a sharp border (d).

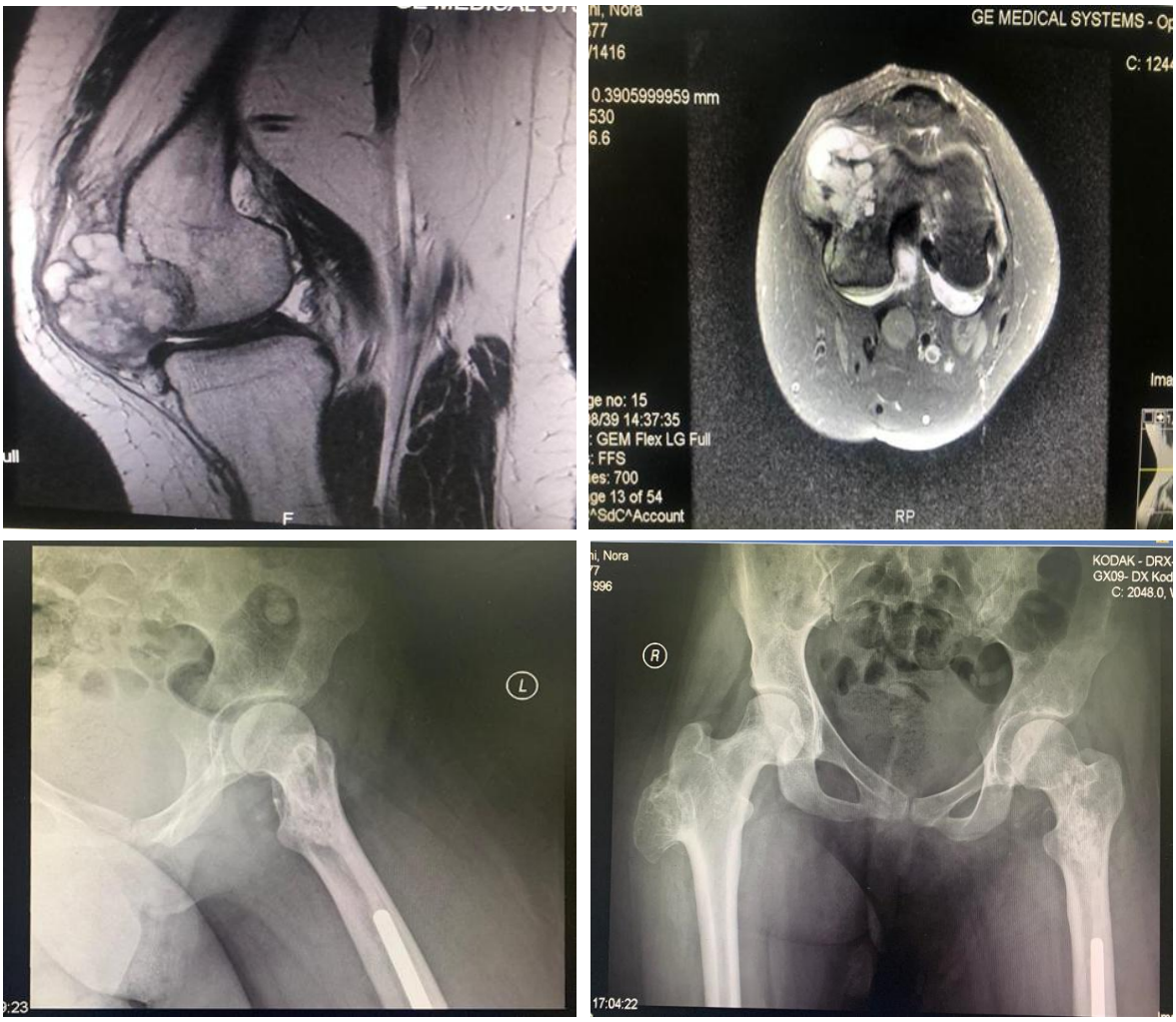

Figure 2 (a,b,c and d):- Radiographic studies shows chondrosarcoma in the leftdistal femur (a and b) and chondroma in the left proximal femur (c) and right proximal femur osteochondroma (d).

Treatment and management:
We treated the patient with surgical wide excision to confirm the diagnosis,, to reduce pain, and to relieve mechanical symptoms.

Surgical procedure and follow-up:
The patient underwent wide-margin distal femur resection and prosthesis with flap. During follow-up in OPD, the patient developed wound dehiscence and infection. She underwent multiple wound debridement and skin grafting until the wound healed. The patient had an uneventful postoperative period. The patient in the OPD F/U stated that she has felt new-onset right hip pain with no history of trauma and non-activity related. After that patient did not show up in the clinic because of the COVID pandemic.

Discussion:-

Osteochondroma is the most common benign bone tumor encountered [9]. Osteochondromais known as a developmental metaphyseal abnormality rather than a primary bone tumor. Metaphyseal end of long bones like femur, tibia, and humerus are its principal location [10]. This condition is typically asymptomatic and is discovered, incidentally. Clinical features of osteochondroma include a non-tender, painless, slowly growing mass [11–13]. The clinical presentation of this case of osteochondroma is rather unusual, as the diagnosis was made based on the presenting complaint being “pain”. In our case presentation, the patient was younger and symptomatic [14].

Radiographic findings include fluffy cartilaginous outgrowth arising from the external surface of a long tubular bone that may be pedunculated or sessile. There are some complications associated with osteochondroma including nerve or vascular injury, bursa formation, the configuration of a pseudoaneurysm, and malignant transformation. The frequency of malignant degeneration is approximately 1% for solitary type and 5-25% for hereditary multiple exostoses [15]. However, after surgery, again, pain appears in the right hip joint and X-ray imaging on pelvis reveals chondrosarcoma in the left distal femur and chondroma in the left proximal femur. In addition, the MRI identifies a large osteochondroma involving the right proximal femur. This is another unusual feature of our case.

Conclusion:-

Osteochondroma most frequently occurs in the long bones such as tibia, femur, and humerus. It usually presents for cosmetic deformity and symptoms produced because of mechanical compression of surrounding structures. A sudden increase in the size of tumor with associated pain should raise a suspicion of malignant transformation. It needs to measure the size of the cartilage cap to determine the measurement of malignant transformation. Surgical excision gives consistent relief of pain and deformity and improves range of motion if restricted. In addition, the fact that multiple lesions presented in the same patient with highly possible differential diagnosis among all makes this case report fairly unusual.

References:-

1. Bunjaku, I. et al. Osteochondroma-Cases Presentation. 5, 1–3 (2020).
2. Jeevannavar, D. S. S. Giant osteochondroma lower end of femur- A case report. IOSR J. Dent. Med. Sci.4, 31–33 (2013).
3. Hassankhani, E. G. Solitary lower lumbar osteochondroma (spinous process of L3 involvement): A case report. Cases J.2, 3–6 (2009).
4. Shahbazian, N., Jafari, R. M. & Haghnia, S. Electronic Physician (ISSN : 2008-5842). Electron. Physician8, 3057–3061 (2016).
5. Kukreja, S. & Sharma, K. Solitary diaphyseal exostosis of femur: case report of an uncommon presentation. Int. J. Students Res.4, 46 (2014).
6. Bhatnagar, A. S., Malhan, K. & Mehta, S. A rare case report of Patellar Osteochondroma. J. Orthop. case reports5, 72–724 (2015).
7. Murpbey, M. D. et al. From the Archives of the AFIP: Primary Tumors of the Spine: Radiologic-Pathologic Correlation. Radiographics16, 1131–1158 (1996).
8. Ismail, B. E., Kissel, C. G., Husain, Z. S. & Entwistle, T. Osteochondroma of the Distal Tibia in an Adolescent: A Case Report. J. Foot Ankle Surg.47, 554–558 (2008).
9. Danielsson, L. G., Ei-Haddad, I. & Quadros, O. Distal tibial osteochondroma deforming the fibula. Acta Orthop.61, 469–470 (1990).

10. Singh, R. et al. Large para-articular osteochondroma of the knee joint: A case report. Acta Orthop. Traumatol. Turc.46, 139–143 (2012).
11. Kitsoulis, P. et al. Osteochondromas: Review of the clinical, radiological and pathological features. In Vivo (Brooklyn).22, 633–646 (2008).
12. Altay, M., Bayrakci, K., Yildiz, Y., Erekul, S. & Saglik, Y. Secondary chondrosarcoma in cartilage bone tumors: Report of 32 patients. J. Orthop. Sci.12, 415–423 (2007).
13. Mehrian, P., Karimi, M. A., Kahkuee, S., Bakhshayes-Hkaram, M. & Ghasemikhah, R. Solitary osteochondroma of the thoracic spine with compressive myelopathy; A rare presentation. Iran. J. Radiol.10, (2013).
14. Ahrar, H. et al. A case report of osteochondroma with unusual clinical and imaging presentation. Adv. Biomed. Res.4, 2 (2015).
15. Ambulgekar, D. R. K., Kharat, D. A. & More, D. D. A case report of multiple osteochondromatosis around the knee joint with clinical and imaging presentation. Int. J. Orthop. Sci.6, 712–714 (2020).
16. Cancer, Chondrosarcoma - StatPearls - NCBI bookshelf. (2020, August 10). National Center for Biotechnology Information. https://www.ncbi.nlm.nih.gov/books/NBK538132/
17. Themes, U. (2016, May 25). Chondroma. Musculoskeletal Key. https://musculoskeletalkey.com/chondroma/
18. 18. Chondroma. (n.d.). Pathology Outlines - PathologyOutlines.com. https://www.pathologyoutlines.com/topic/softtissueeskchondroma.html
19. Chondrosarcoma - OrthoInfo - AAOS. (n.d.). https://orthoinfo.aaos.org/en/diseases--conditions/chondrosarcoma/
20. Osteochondroma. (n.d.). Johns Hopkins Medicine, based in Baltimore, Maryland. https://www.hopkinsmedicine.org/health/conditions-and-diseases/osteochondroma