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

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Abstract

Chondromais 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 chondroma after histopathology. This underwent one-stage surgical excision of the tumor with a posterior approach and tumor resection from the femur. After surgery, an unusual pain appears in the right hip joint during the post-operative period. Machine resonance imaging (MRI), and X-ray of pelvis help to diagnose the well-differentiated chondrosarcoma and 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. It comprises 12% of the total benign tumor. The formation of osteochondroma occurs 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. The most common sites for osteochondroma are the distal femur, proximal tibia, and proximal humerus. The lesions are frequently seen in long bones next to the metaphysis. Sometimes they also found in the intra-articular sites, which are rare. Most of them are benign tumors and 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. 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. In the same context, Chondrosarcoma is the second
primary malignancy of bone. Most commonly occur in pelvic, hip and shoulder. Suggested causes are associated with certain genetic mutation and therefore, it is very challenging bone-tumor to diagnose and treat.\(^6,17\)

**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 and chondromalike lesion on the left proximal 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. These bony trabeculae are covered by a thick layer of hyaline cartilage. There is no evidence of malignancy, and the features are those of benign osteochondroma.
Figure 1 (a and b):- Histopathological study shows the proliferation of osteoid and chondroid tissue, which resembles the feature of benign osteochondroma.

Radiography study:
X-ray on pelvis was done after surgery when the patient developed wound infection and right hip joint pain. This revealed that the patient had the other 2 bone lesions, chondrosarcoma in the left distal femur (a) and chondroma like lesion in the left proximal femur (b). The lesion appears to be mostly hyper-dense, containing hypo-dense lacunae with a sharp border. The cartilage cap of the mass was fluffy. There are no signs of fracture or dislocation can be seen.

Figure 2 (a and b):- Radiographic study shows chondrosarcoma in the left distal femur (a) and chondroma in the left proximal femur (b).

Magnetic resonance imaging (MRI) study:
Magnetic resonance imaging identified a large osteochondroma involving the right proximal femur. There was fluffy, abnormal cartilaginous cap seen in both T1W axial image and sagittal image. The tumor mass appeared to be causing compression of the femoral nerve, with diffuse edema throughout the interosseous musculature and quadriceps femoris muscle.

Figure 3 (a and b):- T1W axial images (a) showing the bony exostosis surrounded multilobulated cartilaginous cap seen as an area. Sagittal (b) images showing the full extent of the exostosis and the cartilaginous cap.
Treatment and management:
We treated the patient with surgical excision to confirm the diagnosis, to rule out the malignant transformation, 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. 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. This condition is typically asymptomatic and is discovered, incidentally. Clinical features of osteochondroma include a non-tender, painless, slowly growing mass. 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.

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. 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. And 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.

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