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RESEARCH ARTICLE

SOLITARY DIAPHYSEAL OSTEOCHONDROMA OF DISTAL FEMUR - A CASE REPORT

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Abstract

Osteochondromas are among the most common benign bone tumours with a male predilection which are usually incidentally detected. They are usually found in the metaphyseal region of long bones.This case is reported in view of the unique origin of the tumour in the diaphyseal region in a female. A woman came to the outpatient department with complaints of a painless, non mobile swelling over left distal femur for past 4 years.The swelling initially small gradually increased in size over 4 years but was not associated with pain or restriction of movements. Clinical examination revealed bony hard swelling in the anteromedial aspect of left distal femur not involving the knee joint. X ray showed a cauliflower shaped, pedunculated bony mass arising from the diaphyseal region of distal femur. MRI done was suggestive of osteochondroma. In order to confirm the diagnosis and to rule out malignant transformation,surgical excision and biopsy of the bony mass was performed. Histopathological reports confirmed the diagnosis of osteochondroma.

Introduction:-

Osteochondromas are very common benign bone tumours of childhood arising mainly in the metaphyseal regions of long bones usually in femur, humerus and tibia[1]. They occur more commonly in males and usually present as a solitary and painless mass and any increase in size, pain and presence of tumour over joint are indicators of malignant transformation[2]. Surgical excision is the treatment of choice and recurrence of the lesion is rare.

Case report :

History:

A 18 year old woman came to the Ortho OPD with complaints of swelling over her left distal femur for the past four years. Initially it was small in size and now it has attained the current size. It was painless and there was no restriction of movements. There was no history of any trauma, infection and genetic abnormalities. No presence of similar swelling elsewhere in the body. No history of any constitutional symptoms and co-morbidities were present.

Clinical Examination:

The girl was moderately built and nourished. The local examination revealed a bony swelling of approximately 10cm x 8 cm present over the anteromedial aspect of left distal femur away from the knee. The skin over the swelling was stretched. On palpation, it was bony hard in consistency, not mobile, the borders of the mass were not distinct and there was no warmth or tenderness. The range of movements were normal and there was no neurovascular compromise.

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Figure 1:- Clinical picture.

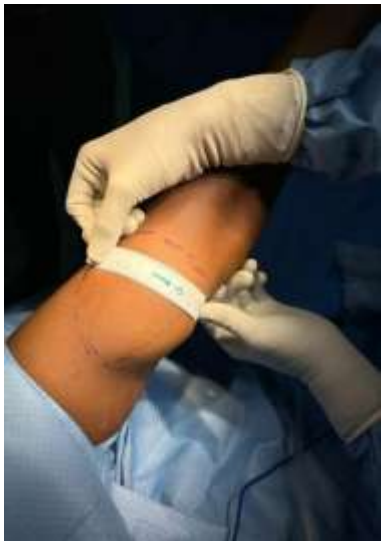


Figure 2:- Pre operative pic.

Figure 3:- Pre operative picture.

Investigations:
All blood investigations were normal.

Plain X ray of left femur with knee joint shows a solitary, bony pedunculated, cauliflower shaped mass measuring approximately 7cm x 5m present over the diaphysis on the medial aspect away from the knee.The medullary cavity is continuous with the stalk and the lesion is sclerotic.

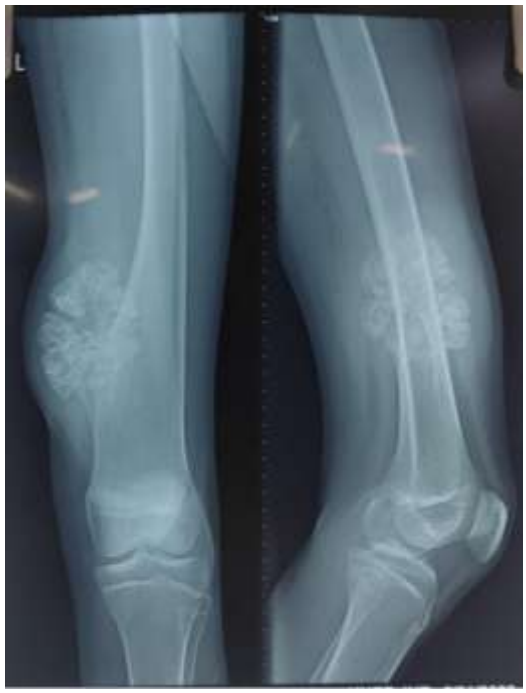


Figure 4:- Pre OP X ray.

MRI of left distal femur with knee was suggestive of osteochondroma with a prominent cartilaginous cap of thickness nearly 1.4cm. Histopathological (HPE) analysis was suggested for confirmation of diagnosis.

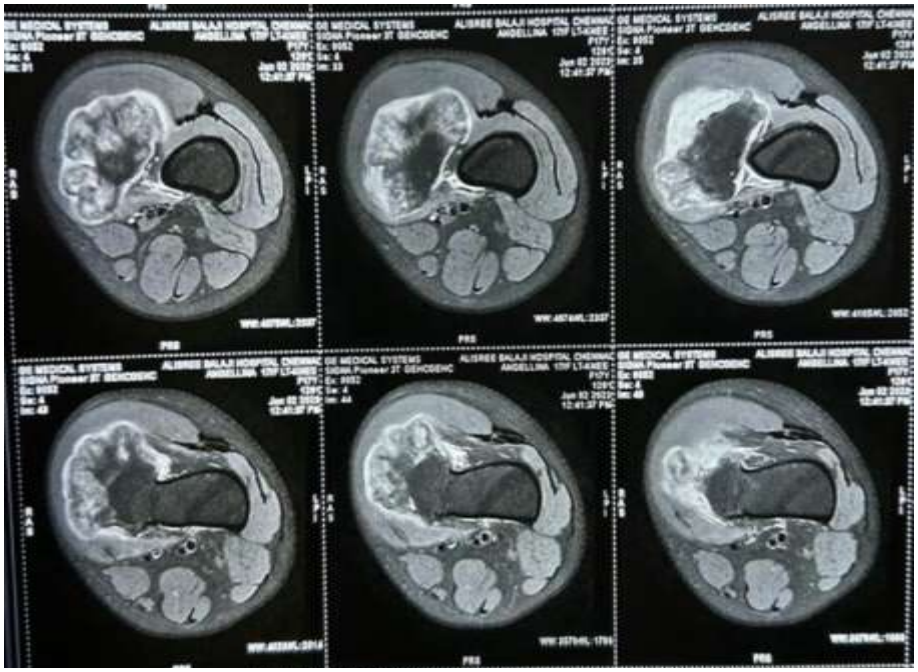


Figure 5:-Axial Cut of MRI Left Knee.

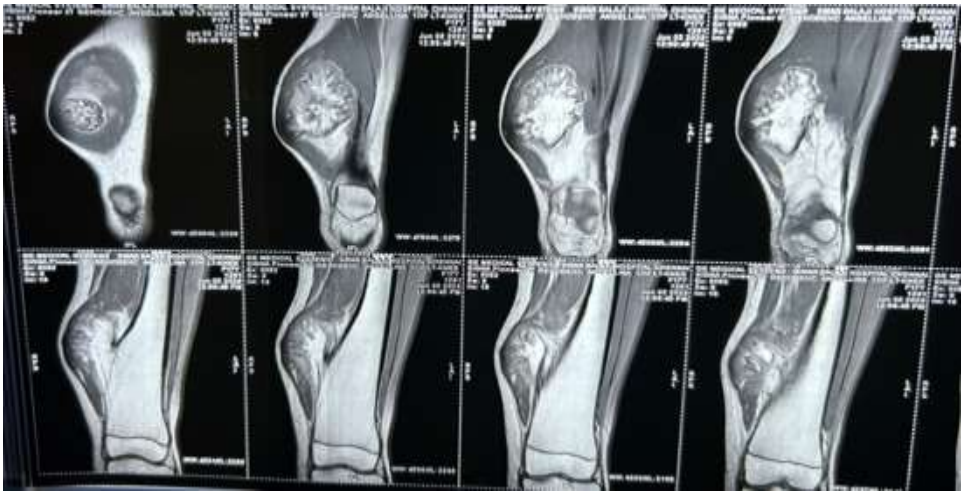


Figure 6:- Sagittal Cut Of MRI left knee.

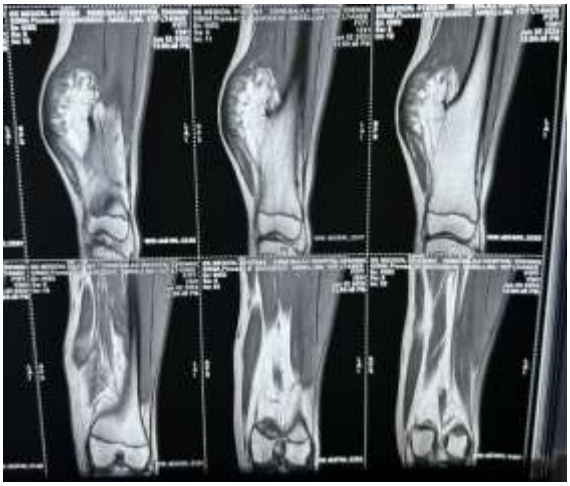
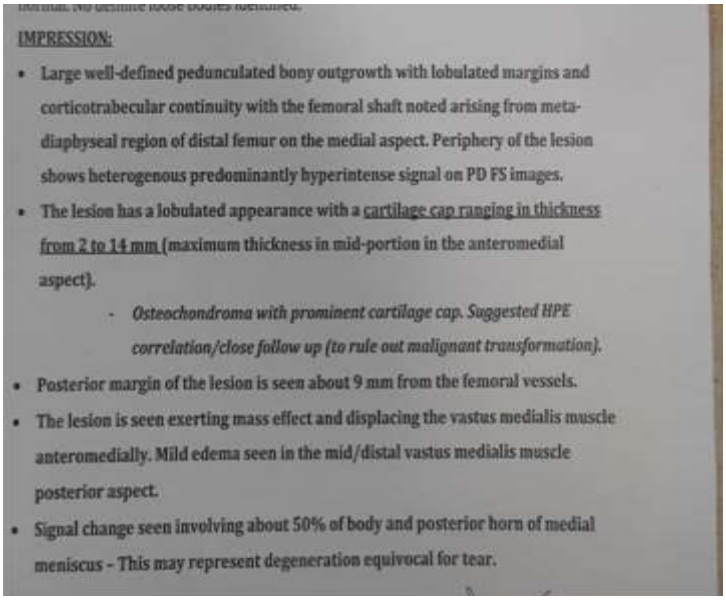


Figure 7:- MRI of left knee.



IMPRESSION:

- Large well-defined pedunculated bony outgrowth with lobulated margins and corticotrabecular continuity with the femoral shaft noted arising from meta-diaphyseal region of distal femur on the medial aspect. Periphery of the lesion shows heterogenous predominantly hyperintense signal on PD FS images.
- The lesion has a lobulated appearance with a cartilage cap ranging in thickness from 2 to 14 mm (maximum thickness in mid-portion in the anteromedial aspect).
  - *Osteochondroma with prominent cartilage cap. Suggested HPE correlation/close follow up (to rule out malignant transformation).*
- Posterior margin of the lesion is seen about 9 mm from the femoral vessels.
- The lesion is seen exerting mass effect and displacing the vastus medialis muscle anteromedially. Mild edema seen in the mid/distal vastus medialis muscle posterior aspect.
- Signal change seen involving about 50% of body and posterior horn of medial meniscus - This may represent degeneration equivocal for tear.

Figure 8:- MRI Report of left knee.

Treatment:
It was planned to perform a surgical excision and biopsy of the tumour for confirmation of clinical and radiological diagnosis and to prevent malignant transformation.

Operative Notes:
Under sterile aseptic precautions, under spinal anaesthesia, patient in supine position with parts painted and draped. A 12-15 cm linear incision was made over the anteromedial aspect of the bony mass. Skin, Subcutaneous tissue, fascia was cut and retracted. Vastus medialis muscle was split using cautery and bony mass was exposed. Drilling was done using a sleeve circumferentially across the base of the mass. The drilled holes were connected using an osteotome and the mass was removed and sent for biopsy and tissue culture and sensitivity. The pedicle was nibbled out and the base was cauterized. Thorough wound wash was given. Wound closed in layers. 14G drain was placed in-situ. Wound closed in layers. Compressive dressing and crepe bandage was applied.

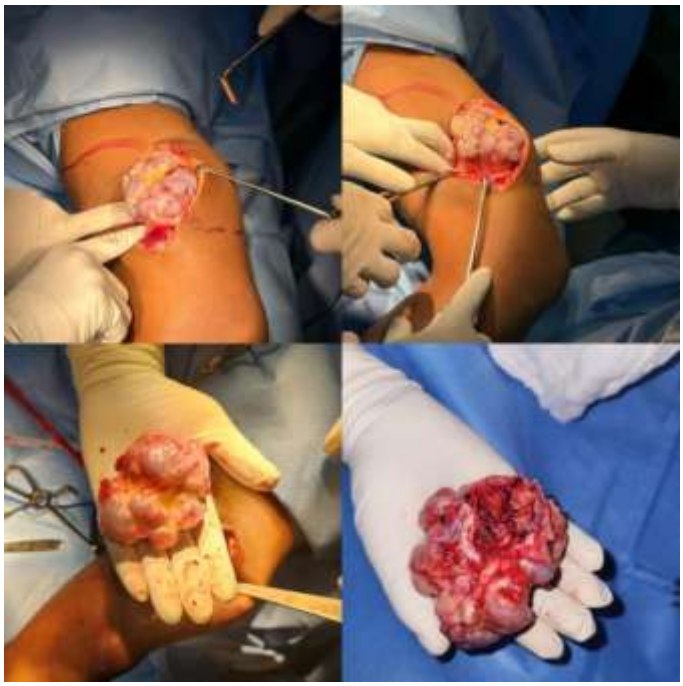


Figure 9:- Intra Operative pictures.

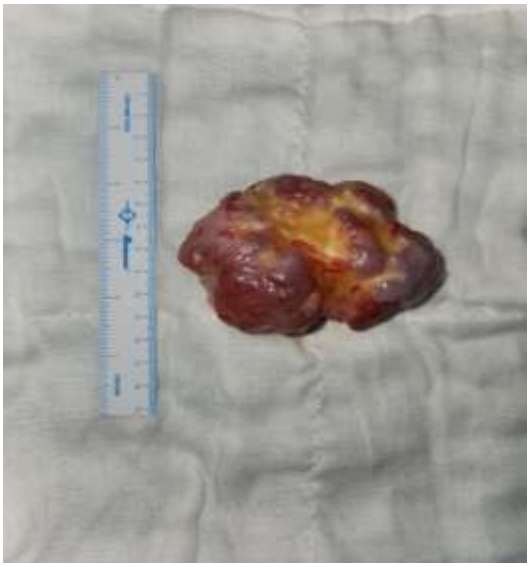


Figure 10:- Measurements of the tumour.

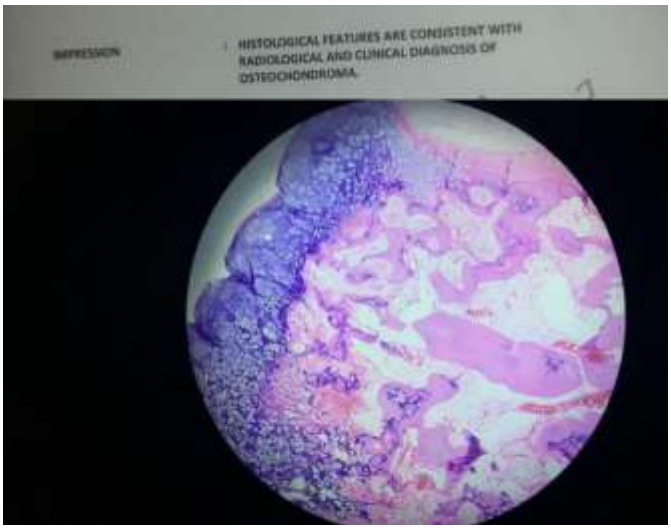


Figure 10:- Histopathology report.

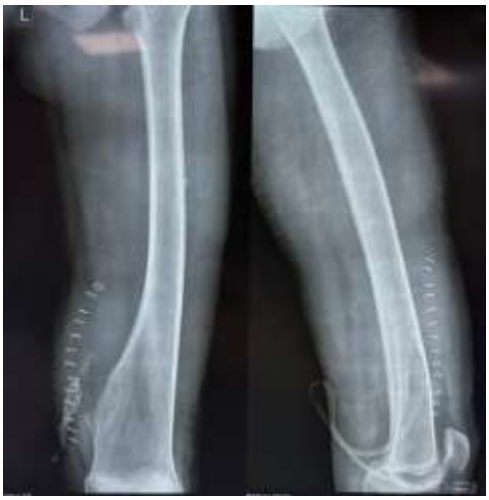


Figure 11:- Post OP X ray POD-1.

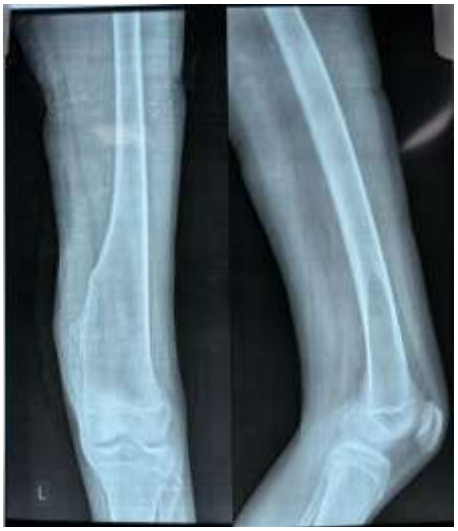


Figure 12:- Post OP X ray POD-6 months.

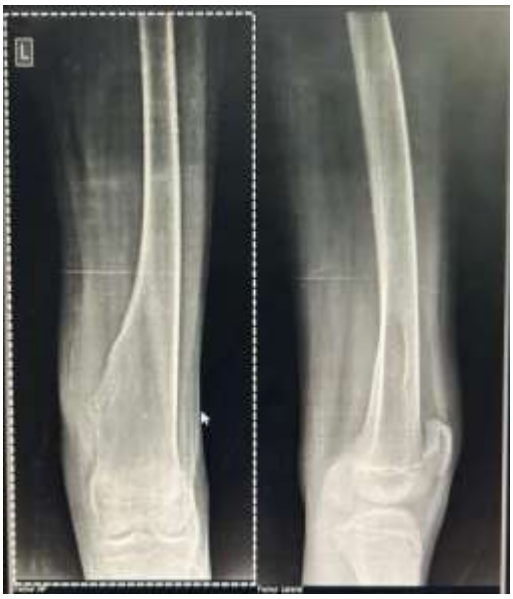


Figure 13:- Post-OP X ray POD 1 year.

Discussion:-

Osteochondromas are common benign bone tumours often discovered incidentally [1] and occur during adolescent years with a male predilection. Origin is usually from the metaphysis of long bones particularly humerus and femur as a painless mass[2 3]. Loss of genetic material from the long arm of chromosome 8 and mutation in exostosin genes have been implicated among several causative factors. [4] Presentation is usually asymptomatic but any increase in size and pain may indicate malignant transformation.They can be solitary or multiple. Solitary exostosis is an osteochondral formation caused by the subperiosteal development of an aberrant growth plate island [5,6.] Multiple exostosis disease is an autosomal dominant disorder known as Hereditary Multiple Exostoses (HME) and characterized by the development of multiple bony outgrowths from the epiphyses[7]. Solitary exostosis is generally asymptomatic and they are discovered by chance .

Our patient came for consultation for increased size of swelling and cosmetic concern. The nature of the disease was explained and the risk of malignancy was emphasized. Subsequently patient was evaluated radiologically after which surgical excision and biopsy was performed and it confirmed the diagnosis of osteochondroma. Here the origin of the tumour was the diaphysis which is unusual and hence has been highlighted. The patient was followed up periodically for one year and it was uneventful

Conclusion:-

Osteochondroma though benign in nature deserves surgical management in view of being a cosmetic deformity with the potential of malignant transformation.In this patient. the successful surgical excision of osteochondroma improved the patient's quality of life.

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