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RESEARCH ARTICLE

OSTEOCHONDROMA OF DISTAL FEMUR.

Dr. Arvind Kumar¹, Dr. Anirudh Bansal¹, Dr. Jainish Patel¹, Dr. Sudhir Rawat², Dr. Parth Deshmukh² and Dr. Amit Patel².

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Key words:-

exostoses, malignant transformation, excision, Biopsy

Abstract

A 46 year old male presented with a painful non mobile, bony hard swelling of lower end of Right femur of 20 years duration. The swelling was present since 20 years with progressive increase in size of the swelling and pain on knee movements since last 1 year. Clinical examination revealed a bony hard swelling arising from anteromedial aspect of lower end of femur away from the knee joint. The swelling was painful on knee flexion of more than 90 degrees. Range of motion of knee 0 to 120 degree. X Rays revealed a exostosis arising from lower end of femur with a fungating mass at the cartilaginous cap abutting the skin. A diagnosis of exostoses lower end femur with possible malignant transformation was made. In view of sudden increase in size of the lesion and associated pain on knee movements, and mechanical obstruction Patient underwent surgical excision of the exostoses. Histopathology revealed osteochondroma & no malignant transformation.

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Introduction:-

Osteochondroma (exostoses) are the most common benign bone disorders encountered. Most are benign in nature and treated with wishful neglect. Pain due to mechanical pressure on surrounding neurovascular structures, or risk of malignant transformation is indications for surgical excision. Sudden increase in size associated with pain is indicators of possible malignant transformation. Treatment with Surgical excision gives consistent results and relief of pain.

Case Report:-

History:-

A 46 year old male presented with pain and bony swelling overlying right knee joint of 20 years duration. Initially the swelling was small in size and painless and bony hard in consistency. There was no associated pain or limitation in knee movements. However since last 1 year there was pain and progressive increase in size of the swelling, and associated pain on knee flexion above 90 degrees. There was also difficulty in running as the bony swelling rubbed against the normal knee. There was no associated fever or skin breakdown. Patient had not taken any treatment since noticing the swelling. No history of similar bony swellings was there anywhere else in the body.

Clinical examination:-

Clinical examination revealed a 46 year old male, with an oval shaped bony mass arising from the anteromedial aspect of lower end of left femur. Skin over the mass was stretched but intact. On palpation the mass was painful on

deep palpation. The surface of the mass was irregular and bony hard in consistency arising from bone and immobile. The lateral knee joint line could be palpated independently suggestive of a bony swelling arising from lower metaphyseal area of femur. There was mild local rise in temperature and the edges of the mass were indistinct. The size of the mass clinically was approx 9cm*7cm. clinically there was no evidence suggestive of neurovascular compression.

Range of movements at left knee was painless from 0-90 degrees, However when the patient flexed his knee beyond 90-100 degrees there was pain and stretching of the skin overlying the bony mass. Clinical tests for ligaments and menisci around the knee were normal.

Investigations:-

Blood investigations –were within normal limits

X rays of Right femur with knee joint (Pic-1) revealed a pedunculated bony mass arising from anteromedial aspect of left lower end of femur, the medullary canal of mass was continuous with that of femur. Cartilage cap of the mass was fluffy. Diagnosis was suggestive of osteochondroma lower end of left femur.

Treatment:-

We decided to treat the patient with surgical excision & histopathology to confirm the diagnosis, to rule out malignant transformation, to reduce pain and to relieve mechanical symptoms.

Surgical procedure:-

The lesion was approached through a anteromedial approach, vastus medialis muscle was bluntly dissected and the bony mass with cartilage cap exposed (Pic 2). The lesion was excised with a cuff of normal periosteum flush with parent bone. The tumor measured 8cm*7cm*3.5cm (Pic 3) .Post-operative x rays revealed complete excision of the tumor (Pic 4) & histopathology report confirm diagnosis of osteochondroma of distal femur.(Pic.5)

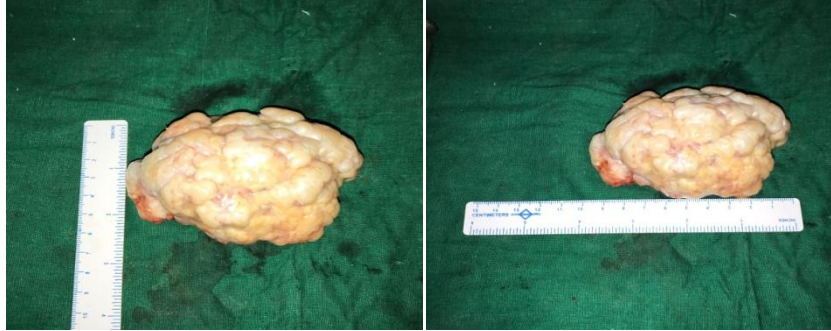
The patient had an uneventful post-operative period. Histopathology confirmed the diagnosis of osteochondroma with no features of malignancy. Patient had relief of pain and mechanical symptoms. At 11 months follow up patient had no pain or recurrence, and had full range of movements at the knee.



Pro-Op pic:-1



Intra-Op pic:-2



Osteochondroma size pic no:-3



Post Op X ray pic no:-4

Specimen
Excised swelling over medial aspect of right knee joint

Histology Number
X0192/W88304/K3256 TO K3259

IMPRESSION
BENIGN CARTILAGINOUS TUMOUR CONSISTENT WITH OSTEOCHONDROMA (OSTEOCARTILAGINOUS EXOSTOSIS)

Gross Appearance
Received a single globular tissue (in formalin), aggregating to 8x7x3.5 cm. (Tissue decalcified and processed further).

Grossing done by
Dr. Swati

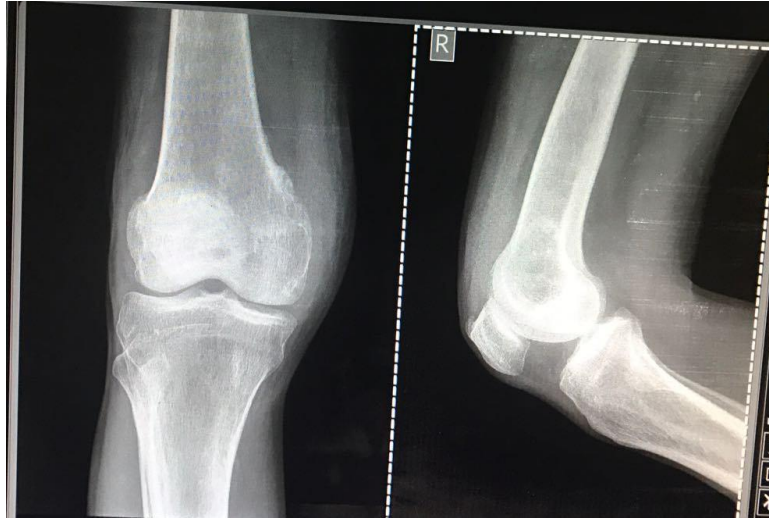
Microscopy
The sections shows proliferation of cartilaginous cap / growth and trabecular bone. Tumor is composed of cartilaginous proliferation with nodules of proliferative chondrocytes with vacuolated nucleus and surrounded by cartilaginous and hyaline matrix. There is no evidence of increased chondrocyte cellularity, mitotic activity, chondrocyte atypia or necrosis. Enchondral ossification is seen at the bone-cartilage interface. Cortical and cancellous bone is seen in continuity with fatty marrow. There is no evidence of any infective pathology, granulomas, atypia or malignancy. These features are consistent with benign cartilaginous tumour consistent with Osteochondroma (Osteocartilaginous exostosis).

Comments
Needs clinico-radiological correlation

Section Code
K3256 TO K3259 - Representative sections.

----- End Of HISTOPATHOLOGY Report -----

Histopathology report pic no:-5



Follow up x ray pic No:-6

Discussion:-

Osteochondroma are most common benign bone tumors encountered. It is considered as a

Developmental physcal abnormality rather than a primary bone neoplasm. Metaphyseal end of long bones like femur, tibia and humerus are its principal location^{1, 2, 3}. In our case the age group and location was consistent with solitary osteochondroma.. The patient and patient's relatives attributed the painless swelling of 20 years duration to an insignificant fall just before the app0earance of the swelling. The gradual and sudden increase in size and associated pain on knee movements over the last year forced the patient to take medical opinion. Several studies have documented the likelihood of malignant transformation if there is sudden increase in size of solitary osteochondroma with associated pain.^{4, 5}

Due to the large size of the exostoses, in addition to pain during knee movements there was also associated mechanical obstruction to the other knee when the patient used to run for sporting or other activities.

Although most solitary osteochondroma are asymptomatic, pain due to mechanical compression of surrounding neurovascular structures or fracture of the stalk are common symptoms to seek medical attention. The main reason for seeking medical opinion in our patient apart from pain was the cosmetic deformity. The X-ray appearance was typical of osteochondroma, however the cartilage cap was large and indistinct. Various studies have mentioned about the size of cartilage cap as a predictor for malignancy .In our case the presence of pain, limitation of knee movements, cosmetic deformity and the rare possibility of malignant transformation prompted us to perform surgical excision of the tumor. The tumor was excised completely with a cuff of normal periosteum. Patient had complete relief of his symptoms postoperatively. Histopathology confirmed the diagnosis of osteochondroma with no malignant transformation. At one year follow up patient was asymptomatic with complete knee movements.

Conclusion:-

Osteochondroma usually present for cosmetic deformity as well as symptoms produced due to mechanical compression of surrounding structures. Sudden increase in size with associated pain should raise a suspicion of malignant transformation. Surgical excision gives consistent relief of pain and cosmetic deformity, and improves range of motion if restricted

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