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**Case Report**

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**Aneurysmal bone cyst of the patella- A case report**

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E-mail: [anitajawalgi@gmail.com](mailto:anitajawalgi@gmail.com)**Abstract**

Primary tumours of the patella account for less than 0.06% of bone tumours and metastatic lesions are even rarer. Aneurysmal bone cyst (ABC) accounts for 1% among primary bone lesions, and its occurrence in the patella is very rare. Twenty one year old male presented to orthopaedic OPD with complaints of swelling and pain in left knee since one year with increased pain and episodic fever since 3months. There was a history of minor trauma of left knee a year back which healed without any complications there was no other relevant past history. On radiological examination which included x-ray, CT and MRI revealed an osteolytic cystic lesion of patella and provisional diagnosis of aneurysmal bone cyst of Patella made and bone curettage was done. On clinic-radiological and histopathological correlation diagnosis of primary ABC of patella was made. The mainstay of treatment of ABCs is intralesional curettage with locally applied adjuvant such as liquid nitrogen or phenol. Other options include enbloc dissection or selective arterial embolization. Young age and open physes are associated with an increased risk of local recurrence. Hence close follow up of patient has to be made.

**Keywords:** aneurysmal bone cyst, patella, clinic-radio-pathological correlation**1.Introduction**

The patella is an uncommon site for primary tumours of bone. Primary tumours of the patella account for less than 0.06% of bone tumours and metastatic lesions are even rarer.[1][2] The most frequently encountered benign patella tumour is giant cell tumour (33%), followed by chondroblastoma(16%). Malignant patella tumors include hemangioendothelioma (4%), lymphoma (4%), Osteosarcoma (3%), and metastatic tumors (3%). Aneurysmal bone cyst (ABC) accounts for 1% among primary bone lesions, and its occurrence in the patella is very rare.[2]

**2. Case Report**

A 21 year-old college student presented with complaints of pain in the left knee of three years duration and swelling of the right knee for one year. He also had episodic history of fever in the evenings for three weeks. There was history of minor trauma on left knee a year back which had no complications

and healed completely. There was no history of weight loss or exposure to tuberculosis.

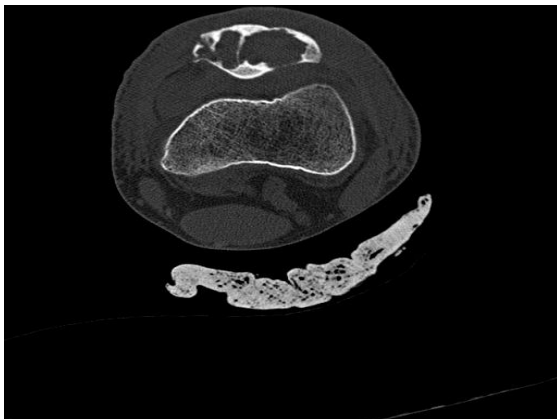
On examination the left knee was swollen and appeared bigger than right knee. There was no localized warmth, but the patella was notably tender. In addition there was a palpable bony thickening of the patella. No synovial thickening or knee joint effusion was noted. Patient was referred for radiological examination and for routine laboratory investigations. Laboratory studies revealed haemoglobin of 13.5 gm/dl and white blood cell count of 13,000cells per cu.mm. Inflammatory markers were within the normal limits, C-reactive protein was negative, and alkaline phosphatase was 286 units. Mantoux test was non-reactive. Radiographic examination of the left knee showed multiple cystic lytic lesions causing expansion of the patella (Figure 1). Computed tomography showed a lytic lesion localized in the medial aspect of patella in an eccentric position causing sporadic slimming in the cortex and involving densities of the trabecular

pattern. T1- and T2-weighted magnetic resonance imaging demonstrated a smooth-contoured cystic mass with internal septa containing spicules of bone, occupying half of the patella with a slight expansion anteriorly and causing cortical thinning (Figure 2). A preliminary diagnosis of ABC was made.

Surgery was carried out and excised bony tissue was sent for histopathological study (figure 3). On microscopy, cystic cavities filled with erythrocytes with no endothelial lining were noted. Fibroblasts, osteoclast-like giant cells, and hemosiderin-laden macrophages surrounded the non-anastomosing walls of the cystic cavities (figure 4a & 4b) and also fibromyxoid area were prominent which made diagnostic difficulties with close differentials of osteoblastoma.

Retrospectively patient was thoroughly examined and screened for any other bone lesions to rule out secondary aneurysmal bone cyst as primary ABC are rare. After clinic-radiological correlation and microscopic findings the case was diagnosed as primary aneurysmal bone cyst.

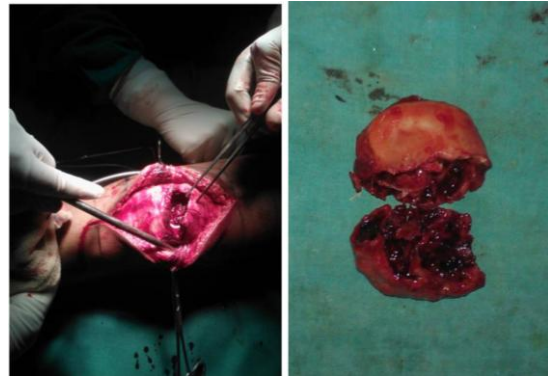
**Figure 1: Radiographic examination of the left knee**



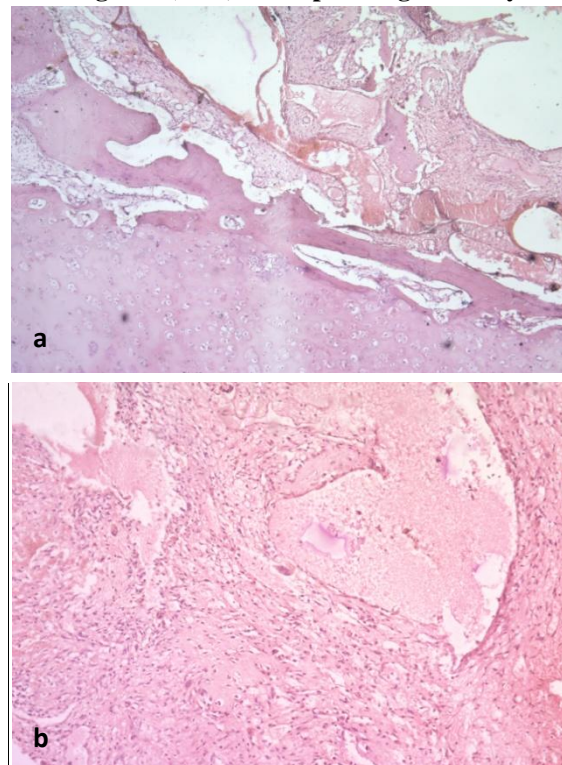
**Figure 2: Computed tomography**



**Figure 3: excised bony tissue**



**Figure 4(a&b): Histopathological study**



### 3. Discussion

Primary and metastatic tumours of the patella are rare. Metastatic tumours of the patella are less frequent than primary lesions.[1] Aneurysmal bone cyst (ABC) is an expansile cystic lesion, often occurring in the second decade of life. ABCs although benign can be locally aggressive. The etiology of this condition is not definitively known, although most believe it is a vascular malformation within the bone.[1][3]

Aneurysmal bone cyst may develop in the normal bone as well as in association with a predisposing previous lesion with an incidence of 29-35%, such as giant cell tumor, chondroblastoma, Chondromyxoid fibroma, Telangiectatic osteosarcoma, fibrous dysplasia, or eosinophilic granuloma.[2] ABCs are usually painful, so late presentation as a pathological fracture is less

common than with unicameral bone cysts. Biopsy is often needed to confirm the diagnosis.[3]

Aneurysmal bone cyst accounts for 1% of primary bone tumors and is one of the benign tumour-like lesions presenting with enlargement.[3] It mostly occurs in the vertebrae and the metaphysis of long bones, it may occur in association with post traumatic bone fractures, subperiosteal hematoma, or previous bone lesions, or as a result of circulation failure such as venous occlusion or arteriovenous malformation.[4][5]

Aneurysmal bone cysts are generally seen at the ages of 10 to 20 years without a gender predilection. The most important clinical findings are pain and swelling, as seen in our case. Motor or sensory loss due to spinal cord compression may be seen in vertebral involvement. Rarely, a pathological fracture may be observed as the first symptom.[5]

The typical radiographic appearance of an ABC is an expansile and sporadically osteolytic bone lesion with eccentric location. On computed tomography and magnetic resonance scans, internal septa with a honeycomb pattern and fluid-fluid levels are observed within the lesion. In our case, fluid-fluid levels were not observed in radiological studies.[2][5]

Anterior knee pain persisting during night rest should lead to suspicion of a patellar tumour, despite its rarity. A good-quality lateral radiograph of the patella should first be obtained, as it will, usually reveal a lesion, which should be further investigated. CT scan and MRI can then be used in order to assess the extension of the tumour and to make an accurate preoperative planning. When the diagnosis is clear and the lesion is definitely benign, close follow-up is sufficient in cases such as enostosis, intraosseous ganglion cyst or lipoma. If there is any suspicion of malignancy, histological diagnosis should be obtained before definitive treatment.[6] The mainstay of treatment of ABCs is intralesional curettage with locally applied adjuvants such as liquid nitrogen or phenol. Other options include en bloc dissection or selective arterial embolization. Young age and open physes are associated with an increased risk of local recurrence. Hence close follow up of patient has to be made.[7]

#### 4. Conclusion

Primary intraosseous lesions of the patella are rare. Majority of these lesions are benign. Lesions in patients younger than 40 years of age include giant cell tumour, chondroblastoma, aneurysmal bone cyst, osteomyelitis, osteoid osteoma and solitary bone cyst. The mainstay of treatment of ABCs is intralesional curettage with locally applied adjuvant such as liquid nitrogen or phenol. Other options include en bloc dissection or selective arterial embolization.

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