

“Banana patella”, fibrous dysplasia of patella: A rare case report

Konchada Srikant^{a,*}, Debashish Mishra^a, Vijoy Kumar Sinha^a, Prita Pradhan^b,
Abhijeet Ashok Salunke^c

^a Dept. of Orthopaedics, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, India

^b Dept. of Pathology, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, India

^c Gujarat Cancer Research Institute, Ahmedabad, India



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ABSTRACT

Introduction: Patella is a very uncommon site for primary bone tumours and fibrous dysplasia lesion in patella has never been reported. Fibrous dysplasia is a benign fibrous lesion of the bone where the fibrous connective tissue replaces the normal bone.

Case report: We report a case of 23 years female with 7 years history of progressive swelling and anterior knee pain. Radiographs showed enlarged, deformed patella like a shape of banana. The patient underwent patellectomy with extensor mechanism repair and biopsy proved to be fibrous dysplasia.

Conclusion: Fibrous dysplasia involving patella is very rare and never been reported earlier. Although primary patellar neoplasm are not common but should be kept in mind in chronic anterior knee pain with swelling for early diagnosis and intervention with intralesional therapy otherwise patellectomy has to be done in more advanced, deformed and enlarged lesions.

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1. Introduction

Although patella is an uncommon site for primary bone tumours, few case reports have been reported. The two commonest such tumours are giant cell tumour (GCT) and chondroblastoma.¹ In this paper we report a rare case of fibrous dysplasia involving patella in an adult female. This is the first reported case, to our knowledge, of such a tumour involving the patella.

Fibrous dysplasia is a benign fibrous lesion of the bone where fibrous connective tissue replaces the normal bone and is first described by Lichtenstein in 1938.² It can either be monostotic, affecting single bone or polyostotic, affecting multiple bones. The polyostotic form can be a part of McCune-Albright syndrome, which has additional features of café-au-lait pigmented skin lesion, precocious puberty.^{3,4}

The clinical findings are often asymptomatic with enlargement of the involved bone. In our reported case of fibrous dysplasia localised in patella caused the expansion of patella mimicking to a shape of a banana in radiograph.

2. Case report

A 23 year old female came to our outdoor clinic with the complaints of swelling and dull pain in right knee. Swelling was slowly progressive since 7 years when she noticed first but neglected and did not seek any medical advice since then. There was no definite history of injury.



Fig. 1. Clinical photograph of the swelling over right knee.

* Corresponding author at: Dept. of Orthopaedics, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, 751024, India.
E-mail address: k.srikant@kims.ac.in (S. Konchada).

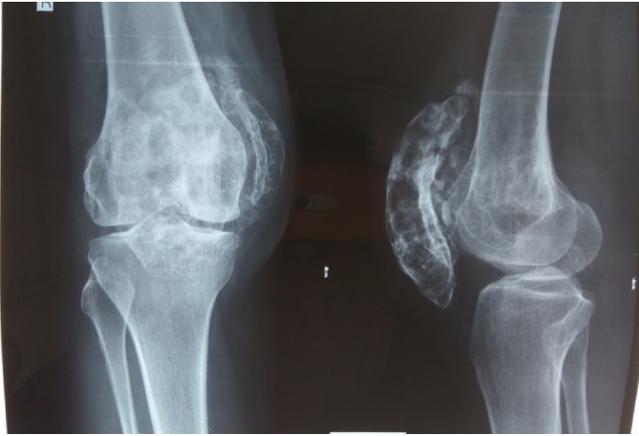


Fig. 2. Plain radiograph of the knee joint in AP and lateral view.

Local inspection findings suggested a diffuse swelling in anterior aspect of knee over patellar region. There were no sinus, scars, engorged veins, and skin over swelling was normal. On palpation, the findings of inspections were confirmed. There was no local rise of temperature. Swelling was from patella, hard in consistency and tender on pressing. Size measured to be 13×10 cm (Fig. 1). Range of movement was from 0 to 130° , not associated with any patellar instability. There was no history of similar swelling or complaints in any other joints/parts of the body.

Radiographs of knee suggested a multi cystic, lucent, expansile swelling of whole of patella bone with enlarged antero-posterior, cranio-caudal and transverse dimensions, with small loose pieces

and osteophytes. In lateral view patella bone looked deformed to a shape of banana (Fig. 2). Soft tissue shadow and the bone around looked normal.

Laboratory studies including total blood count, erythrocytic sedimentation rate, C-reactive protein, electrolyte values, alkaline phosphate levels, serum calcium and serum phosphorus were within the normal examination. Magnetic resonance imaging (MRI) showed abnormal enlargement and sclerosis of the patella, heterogeneously hypointense(T2) and hyperintense(STIR) signal noted with normal soft tissue around knee (Fig. 3). Computed tomography (CT) correlation showed deformed patella with medullary lucency and irregular cortical thinning.

The differential diagnosis of fibrous dysplasia, giant cell tumour, aneurysmal bone cyst and chondroblastoma were considered on the basis of long standing history. Giant cell tumour of patella shows a well-defined, lytic lesion with no periosteal reaction.⁵ On magnetic resonance imaging (MRI), Giant cell tumour of patella shows higher signal intensity on T1-weighted sequences, heterogeneous signal intensity on T2-weighted sequences and fat-suppressed T1-weighted sequences shows a heterogeneously signal intensity lesion.⁵ Chondroblastoma of patella shows a well-defined, round or oval lytic lesion and periosteal reaction is absent. On MRI it shows calcification and peritumor edema.⁵

After obtaining consent from the patient and explaining the treatment plan patellectomy was performed with the repair of extensor mechanism (Fig. 4). The surgical planning of Patellectomy was based upon the radiological findings of grossly deformed patella, non reconstructable with severe changes in its articular surface. A skeletal screening was done to rule out similar lesions elsewhere in other bones. Post operative period was uneventful and she was discharged on day 6 post operative.

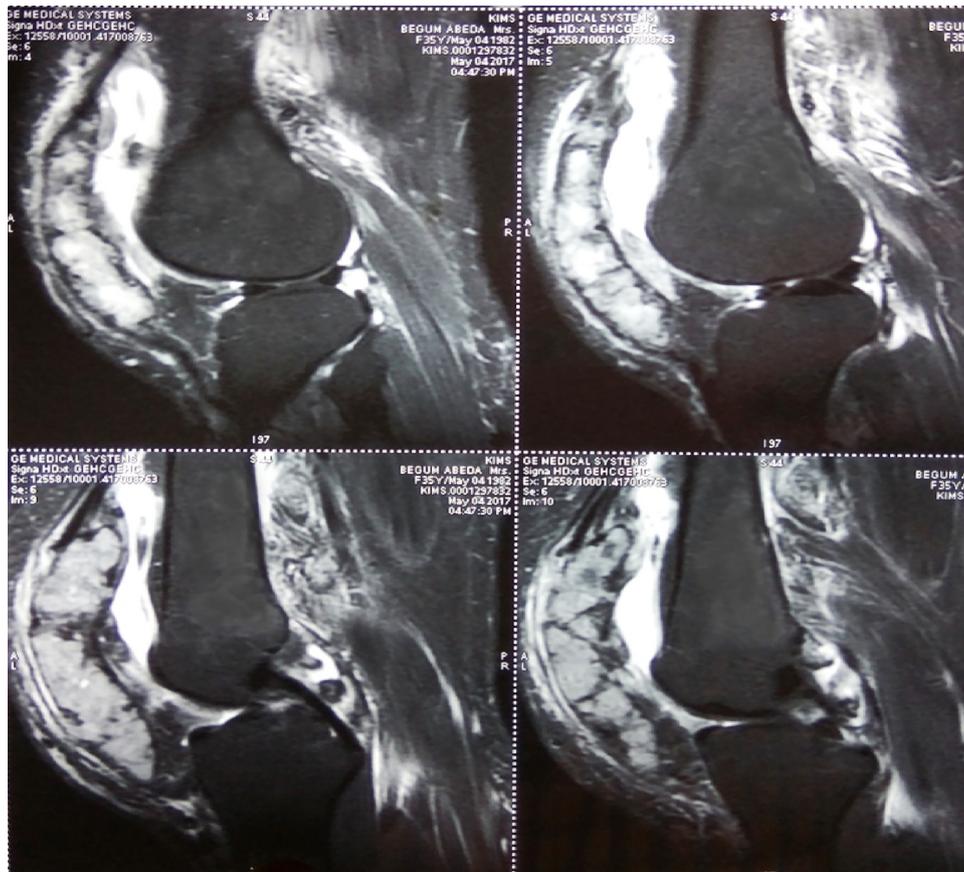


Fig. 3. MRI sagittal section of knee showing heterogeneously hypointense(T2) and hyperintense(STIR) signal in patella.



Fig. 4. Intra op picture of under surface of patella showing irregularity while doing patellectomy.

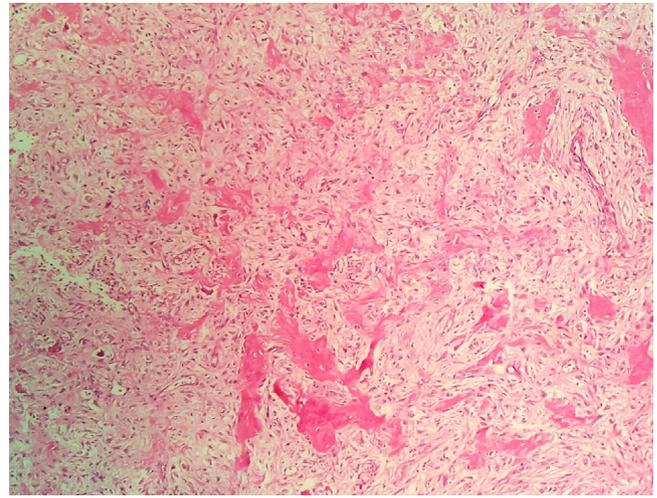


Fig. 5. Sections from the tumour show curvilinear bone fragments intimately admixed with a background of fibrous stroma. (Hematoxylin and eosin stain, 100 \times).

On examination of the resected specimen, the patella was enlarged, measuring 10 \times 7 \times 3 cm in dimension, and had irregular under surface (Fig. 4). On cut section, the inside of patella was replaced by yellow white cheesy tissue, which had a soft consistency with areas of hemorrhage. Microscopic examination of the lesion showed typical features of fibrous dysplasia, fibroblast proliferation surrounding islands of woven bone which lacked osteoblastic rimming (Fig. 5). The histological diagnosis of fibrous dysplasia confirmed earlier provisional diagnosis. Patient was followed up and was uneventful with no evidence of local recurrence and new lesion elsewhere.

3. Discussion

According to Reed, fibrous dysplasia is an arrest of bone maturation, woven bone with ossification resulting from metaplasia of a nonspecific fibro osseous type.⁴ It is more of a skeletal dysplasia than a true neoplasm.⁶

Fibrous dysplasia commonly presents in adolescent and young adults and are often asymptomatic. As they progress, present with pain, swelling and deformity. Any bone can be involved but commonly affects tubular bones like tibia, femur; ribs, skull. Patella as a site of fibrous dysplasia is very rare and never been reported. These lesions tend to be structurally weak and are prone to pathologic fracture.

Fibrous dysplasia lesions looks distinct on plain radiographs where the normal bone is replaced by tissue that is more radiolucent, with a grayish “ground-glass” pattern that is similar to the density of cancellous bone but is homogeneous, with no visible trabecular pattern.⁶ The affected bone expands and deforms. Cortical bone is gradually thinned out with inner scalloped, undulating margins.⁷ Differential diagnosis of similar radiographic looking lesions like giant cell tumour, aneurysmal bone cyst, simple bone cyst, chronic sclerosing osteomyelitis should be considered.⁸

Management of fibrous dysplasia may vary depending upon the presence and degree of symptoms. Asymptomatic patients are observed at regular follow ups with serial radiographs.⁹ Surgical intervention is required when there is a confirmed biopsy with pain, deformity, pathological fracture or to prevent it in the form of either complete excision or reconstruction.¹⁰ Biphosphonates are used in cases when an intervention is necessary but the surgery

cannot be performed as bone turnover could be reduced, bone pain could be alleviated and radiological lesions could be improved.^{11,12}

Very little about primary patellar neoplasm is known due to limited published literature and present as anterior knee pain which is often neglected.¹³ Bones with long standing osteolytic lesions often deform as in our case, patella deformed to the shape of banana due to constant distracting forces acting on the diseased bone on either side. Curettage can be done for small benign lesions in early cases but patellectomy is better in long standing, extensive lesions with gross arthritic changes followed by good repair of extensor mechanism.

4. Conclusion

Fibrous dysplasia involving patella is very rare and never been reported earlier. Although primary patellar neoplasm are not common but should be kept in mind in chronic anterior knee pain with swelling for early diagnosis and intervention with intralesional therapy otherwise patellectomy has to be done in more advanced, deformed and enlarged lesions.

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Conflict of interest

We the authors of the submitted article “Banana patella”, Fibrous dysplasia of patella : a rare case report” in your esteemed journal declare that there is no conflict of interest.

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