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# chondromyxoid fibroma: A rare benign cartilagenous tumour in a 10-year-old treated with curettage and autologous fibular strut graft

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**Abstract**
We present a rare benign cartilaginous tumour i.e chondromyxoid fibroma of proximal tibia. A 10 yrs old girl presented with complaints of pain in the right leg since 6months. Radiograph showed well defined eccentric osteolytic lesion with sclerotic margins seen over the proximal tibial metaphysis. Biopsy showed features of chondromyxoid fibroma. Patient underwent curettage and autologous fibular stud graft with iliac crest cancellous bone graft with 4.5mm cortical screw fixation. Histologic examination of the excised tissue showed macrolobules with hypercellularity at the periphery and low cellular myxoid stroma at the centre of the lobule. Patient asked to come for serial follow up. At the most recent followup after 2yrs there is no clinical / radiological signs of recurrence.

**Keywords:** chondromyxoid fibroma, cartilaginous tumour, myxoid stroma

## Introduction
Chondromyxoid fibroma (CMF) is one of the rare cartilaginous benign tumor. It accounts for less than 0.5% of bone tumors and less than two percent of benign bone tumors [1, 2]. It mainly affects the metaphysis of long bones, the proximal tibia being the most common location but it also occurs in other long bones, short bones of the hands and feet, pelvis, ribs, scapula, and spinal column. This metaphyseal tumor in the tubular bones may extend into the adjacent epiphysis or into the diaphysis or both. A primary diaphyseal or epiphyseal origin for this tumor is rare. It mostly occurs in patients who are 10 to 30 years old and presents more commonly in men than in women [1, 3]. It is composed of a mixture of chondroid, myxoid, and fibrous tissues [1]. There are various treatment options for this condition, which include curettage alone, curettage with phenol and en bloc resection with bone grafting [3]. We present a case of a CMF in a 10yr old girl child involving proximal tibial metaphysis with diaphyseal extension and its management. Informed consent was obtained from the patient for surgery as well to present as a case report.

## Case Report
In march 2018, a 10 yr old female presented with 6months history of pain in the right leg. The Pain was dull aching, mild intensity without any diurnal variation. There was no associated swelling at the site of pain. The child had no history of trauma. On physical examination tenderness elicited on anterior aspect of the proximal tibia with bony irregularity. Skin over the swelling appeared normal with no scars or sinuses. Knee range of motion was full and painfree. The results of routine laboratory investigations and tumour profile were within normal limits. A radiographic examination showed an osteolytic, radiolucent, eccentric lesion in the proximal metaphysis extending into diaphysis of the right proximal tibia involving the medial cortex and almost approaching the lateral cortex, with sclerotic margin with no evidence of periosteal new bone formation. [fig 1]

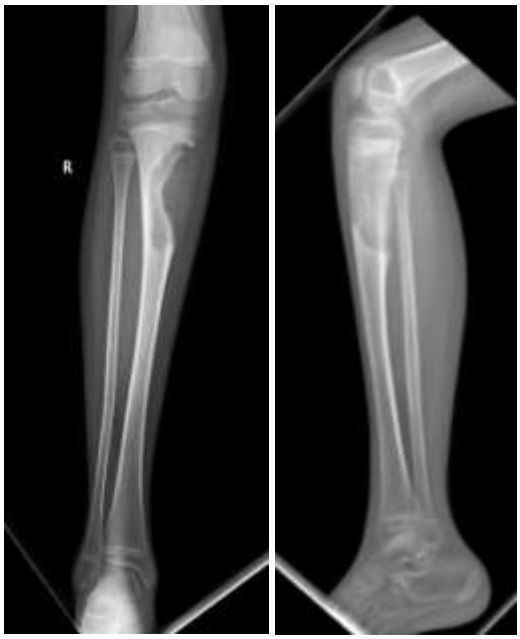


**Fig 1:** Pre-Operative Radiograph

Based on the history, clinical examination and radiograph finding aneurysmal bone cyst, simple bone cyst were considered as differential diagnosis for this case. For confirmation of the diagnosis, a biopsy was done and it showed fibrocollagenous stroma and myxochondroid island which were suggestive of features of chondromyxoid fibroma. Curettage and bone graft was planned. After obtaining written consent from the patient, Curettage of the lesion was done via anteromedial approach. Cavity remaining after curettage was filled with two pieces of autologous ipsilateral fibular stud graft and ipsilateral iliac crest cancellous bone graft. Graft was fixed with two 4.5mm cortical screw, and the excised lesion was sent for histopathological examination.

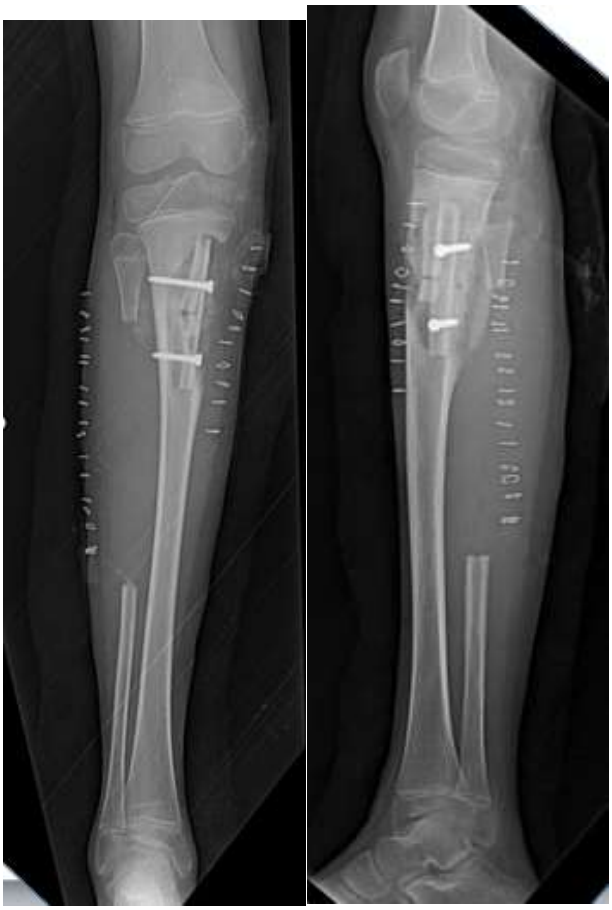

**Fig 2:** Immediate post-operative radiograph

Intraoperative-findings revealed a cartilaginous tissue with hemorrhagic bits. Histopathological examination of the excised tissue showed macrolobules with fibrocollagenous stroma and hypercellularity at the periphery and low cellular myxoid stroma at the centre of the lobule.

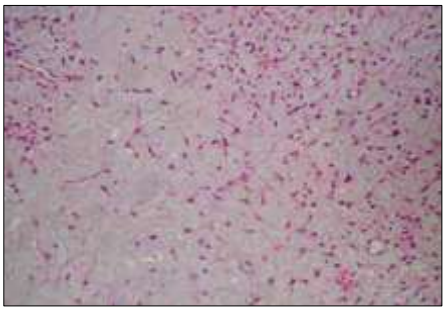

**Fig 3:** Histopathology slide [1] - shows fibrocollagenous stroma and myxochondroid islands.

Post operatively, above knee cast was applied for 6 weeks with non-weight bearing walking with help of a walker. Static and dynamic quadracep exercises were started. Gradual weight bearing and knee bending was started after 6 weeks. Patient was bearing full weight by 8weeks. Serial follow up was done at 3 months, 6months, 1year and 2 year. Radiographs were taken in each follow up and closely examined for any signs of recurrence. Fibular stud graft and iliac bone graft got incorporated by 3 months postoperatively. At 2yrs follow up, their were no clinical or radiological signs of recurrence.

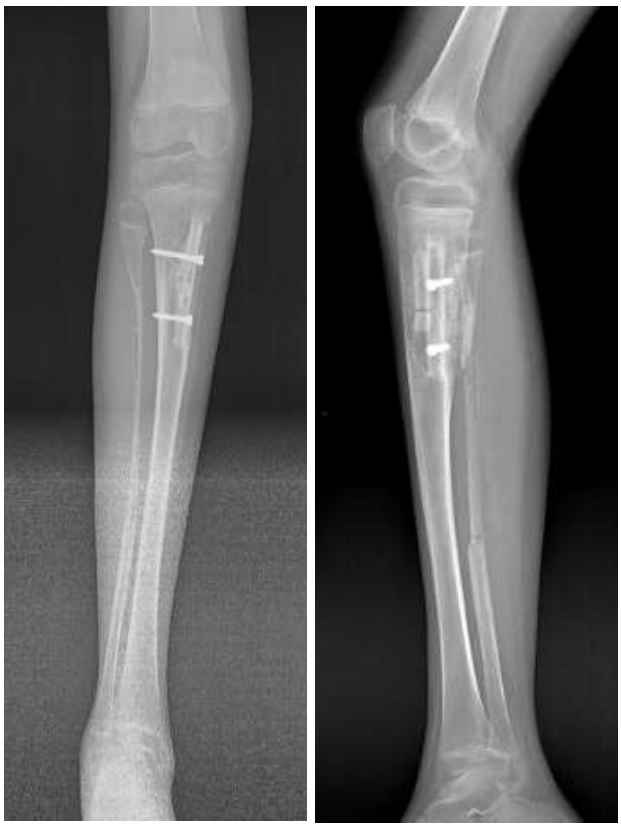

**Fig 4:** Three months follow up radiograph

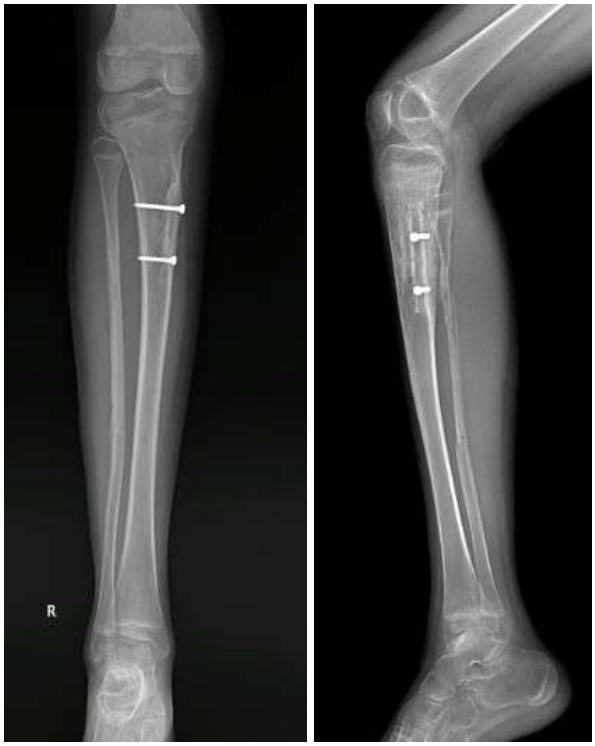


**Fig 5:** Eleven months follow up radio graph

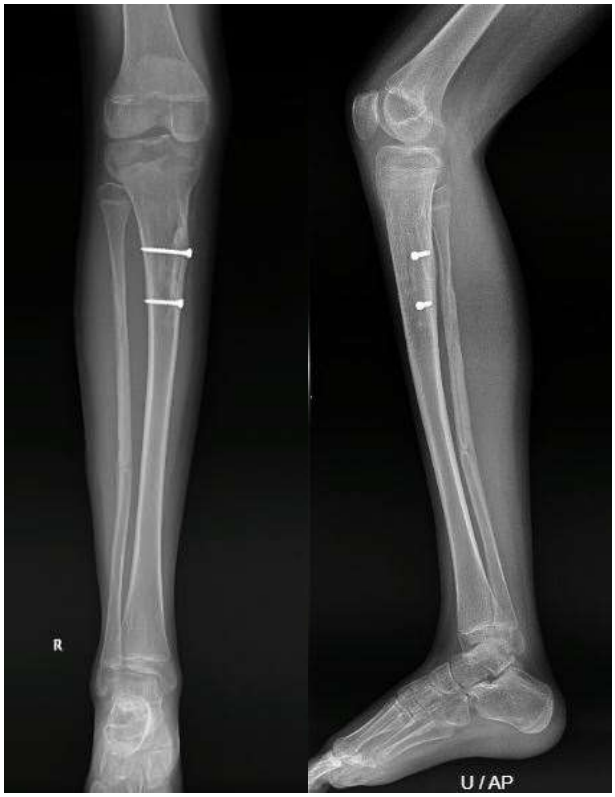


**Fig 6:** two years follow up radiograph

## Discussion

Chondromyxoid fibroma (CMF) is a benign, locally aggressive tumor of cartilaginous origin and accounts for less than 0.5% of all bone tumors [1]. In 1948, the tumor was first described by Jaffe and Lichtenstein as a lesion derived from cartilage-forming tissue and composed of various proportions of chondroid, fibrous, and myxoid tissues. It mainly affects the metaphysis of long bones, the proximal tibia being the most common location. A primary diaphyseal or epiphyseal origin for this tumor is rare. The common site of the tumor is the metaphysis adjacent to the epiphyseal growth plate, which reinforces the hypothesis that the tumor arises from the remnants of cartilage at these sites [4]. Our case was consistent with classic site viz arising from mrtaphysis of proximal tibia in skeletally immature bone. For establishing the diagnosis a thorough clinical, radiological and pathological examination is important as it might easily be misdiagnosed as other malignant tumors such as chondrosarcoma because of some pathological similarities [3]. Patient typically compliants for pain in the right proximal leg, the site of the lesion. The pain is usually mild, intermittent, and a dull ache as seen in our case. If the tumor is located on rare sites like hands or feet, then painless swelling may be the presenting complaint. On some occasions, the tumor may be asymptomatic and may present as an incidental finding on radiographic examination [5]. In our case, patient had a long history of mild dull aching pain at proximal aspect tibia without any swelling, the radiographic picture shows an eccentrically located lesion in the large tubular bone of the leg, with an internal well defined scalloped border of sclerotic bone, which was also seen in our case [2]. When the tumor involves a smaller tubular bone like the rib or the fibula, the radiographic appearance is not typical because the lesion may extend throughout the entire width of the affected bone, expanding both surfaces and often making diagnosis between fibrous dysplasia and chondroma difficult [6]. An MRI examination helps in knowing the extent of the spread of the tumor [7]. Since the patient was of low socioeconomic status who couldn't even afford a MRI, we straightway not for biopsy of the lesion following xray. Diagnosis of CMF basically depends on its characteristic histological appearance. The typical histological features of CMF are a lobular pattern with stellate-shaped cells in a myxoid or chondroid background with hypocellular centres and hypercellular peripheries. Similar features were seen in our case. The differential diagnosis of CMF includes chondroblastoma, chondrosarcoma, enchondroma, and aneurysmal bone cyst, but it is the salient histological features that distinguish these lesions [8]. The treatment options of CMF include simple curettage, curettage with phenol application, and en bloc resection with bone grafting [8]. The tendency to local recurrence after initial curettage seems to be even higher in young children, i.e. 80%. But curettage with phenol application followed by bone grafting has a very low rate of recurrence of seven percent [7]. Further reduction in recurrence rate was observed when the lesion was treated with en bloc excision and bone grafting [6]. Scaglietti, *et al*. drew attention to the locally aggressive behavior of this tumor in the young and suggested a more radical form of local resection in its management [7]. Soni R *et al* conducted a study on juxtacortical CMF in a young male patient involving the proximal end of the tibia. In their study MRI suggestive of CMF and an en bloc excision along with an autogenous tricortical bone graft taken from the ipsilateral iliac bone was performed. The graft was fixed with a cancellous-cannulated screw [9]. In our case biopsy was done to confirm the diagnosis and our patient was treated by curettage and ipsilateral autologous fibular stud graft with iliac crest cancellous bone graft since the void after curattage was about 6x5cm. Ipsilateral

Fibular stud graft taken was fixed with two 4.5mm cortical screw, which got incorporated very well, and the lesion has shown no signs of recurrence.

**Conclusion**

Chondromyxoid fibroma is an uncommon benign bone neoplasm. It is often confused with other tumors as its pathologic identity is often confused with more aggressive tumors and is misdiagnosed many times. Tendency of local recurrence is higher in children and recurrence can be reduced when the lesion is treated with complete excision and bone grafting. So, our patient was treated by curettage and autologous fibular stud graft with iliac crest cancellous bone graft was fixed with 4.5mm cortical screw.At 2 years followup graft had incorporated very well, and the lesion showed no clinical or radiological signs of recurrence. Thus, we conclude that, extensive curettage with bone graft is reliable treatment for chondromyxoid fibroma in young skeletally immature patient with no recurrence in subsequent followup.

**Declarations**

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*Ethical approval: not required*

**References**

1. Robert K, Heck Jr. Benign/aggressive tumors of bone. Campbell's Operative Orthopaedics. Canale ST, Beatty JH (ed): Mosby Elsevier, Philadelphia, 2013, 1:894.
2. Yalniz E, Alicioglu B, Yalcin O, Yilmaz B: Nonspecific magnetic resonance features of chondromyxoid fibroma of the iliac bone. J Buon. 2007; 12:407-409.
3. Jaffe HL, Lichtenstein L: Chondromyxoid fibroma of bone; a distinctive benign tumor likely to be mistaken especially for chondrosarcoma. Arch Pathol (Chic). 1948; 45:541-551.
4. Rahimi A, Beabout JW, Ivins JC, *et al*.: Chondromyxoid fibroma: a clinicopathologic study of 76 cases. Cancer. 1972; 30:726-736.
5. Schajowicz F, Gallardo H: Chondromyxoid fibroma (fibromyxoid chondroma) of bone. A clinico-pathological study of thirty-two cases. J Bone Joint Surg Br. 1971; 53:198-216.
6. Gherlinzoni F, Rock M, Picci P: Chondromyxoid fibroma. The experience at the Istituto Ortopedico Rizzoli. J Bone Joint Surg Am. 1983, 65:198-204.
7. Scaglietti O, Stringa G: Myxoma of bone in childhood. J Bone Joint Surg Am. 1961; 43:67-80.
8. Damle RP, Suryawanshi KH, Dravid NV, *et al*. Chondromyxoid fibroma of bone. JCR. 2013; 3:228-231. 10.17659/01.2013.0054
9. Soni R, Kapoor C, Shah M, *et al*. Chondromyxoid Fibroma: A Rare Case Report and Review of Literature. Cureus 8(9):e803. DOI 10.7759/cureus.803