



Contents lists available at BioMedSciDirect Publications

## International Journal of Biological & Medical Research

Journal homepage: [www.biomedscidirect.com](http://www.biomedscidirect.com)



### Case report

# Fibrous Cortical Defect (Non Ossifying Fibroma) Lower End Femur with Rheumatoid Arthritis –Rare Association

**Santosh S jeevannavar, Keshav S shenoy, Ravi M Daddimani, Jyoti S Jeevannavar**

Associate Professor, Department of Orthopaedics, SDM College of Medical Sciences and Hospital, Sattur, Dharwad, Karnataka -580009.

Assistant Professor, Department of Orthopaedics, SDM college of Medical Sciences and Hospital, Manjushreenagar, Sattur, Dharwad, Karnataka-580009.

Assistant Professor, Department of Orthopaedics, SDM college of Medical Sciences and Hospital, Manjushreenagar, Sattur, Dharwad, Karnataka-580009.

Assistant professor, Department of physiotherapy, SDM college of Medical Sciences and Hospital, Manjushreenagar, Sattur, Dharwad, Karnataka-580009.

#### ARTICLE INFO

##### Keywords:

Fibrous Cortical Defect  
Rheumatoid Arthritis  
Bone Grafting

#### ABSTRACT

Non ossifying fibroma or fibrous cortical defects are common benign proliferations of fibrous tissue that occur in metaphyseal regions of long bones. Many are asymptomatic and are found incidentally on routine x rays done for other reasons. Fibrous cortical defects associated with other diseases are rare and sparsely reported. We describe a case of fibrous cortical defect lower end of femur with rheumatoid polyarthritis occurring in the same patient.

© Copyright 2010 BioMedSciDirect Publications IJBMR -ISSN: 0976:6685. All rights reserved.

### 1. Introduction

Non ossifying fibroma or fibrous cortical defects are common benign proliferations of fibrous tissue that occur in metaphyseal regions of long bones. Many are asymptomatic and are found incidentally on routine x rays for other lesions. A review of literature reveals that these lesions are often asymptomatic and surgical treatment of such lesions are only reserved for those with impending fractures or when there is diagnostic dilemma. (1,2,3,4,5,6) Fibrous cortical defects associated with other pathologies have not been described extensively. We report a case of fibrous cortical defect lower end femur with rheumatoid arthritis, whose initial presentation was confusing, for which synovial biopsy, curettage and bone grafting was done.

### 2. Case Report

A 24 year old male presented with complaints of pain and swelling of right knee of two months duration. Pain was associated with on and off fever. There was also occasional pain and swelling of other joints. There was history of trivial trauma to right knee when riding a bicycle, after which the patient developed the symptoms. Past medical history was insignificant.

On clinical examination there was swelling over suprapatellar and parapatellar area, minimal synovial thickening, with local rise in temperature. Tenderness was present around medial joint line and also suprapatellar region. Range of movement was terminally painful but not restricted. Ligamentous evaluation of knee was normal. Clinical examination of other joints including peripheral joints was normal. A clinical diagnosis of inflammatory polyarthralgia was made.

Blood Investigations revealed an elevated ESR of 80 mm at 1st hour, with other parameters within normal range. RA factor was negative.

X-ray of right knee joint (figure 1) revealed metaphyseal eccentric benign lesion, most likely to be a fibrous cortical defect, with no evidence of pathological fracture. Initially the patient was treated with analgesics and immobilization for 2 weeks. At the end of 2 weeks, patient had marginal pain relief but continued to have pain and swelling with intermittent fever. As the symptoms did not correlate with the radiological picture, we decided to investigate further and hence a MRI of the knee was done.

MRI of the knee joint (figure 2) confirmed the diagnosis of fibrous cortical defect with no fracture and synovial hypertrophy in the knee. Rest of the soft tissues including ligaments and menisci were normal. The investigation findings were analyzed and the possibility of two different pathologies co-existing in the same joint was thought of. After discussing the treatment options with

\* Corresponding Author : **Dr. SantoshJeevannavar**

Associate Professor

Department of Orthopaedics

SDM College of Medical Sciences and Hospital

Sattur, Dharwad-580009, India.

Phone:+91-836-2477725,2477820 Fax +91-836-2461651

[Email-drjsj99@gmail.com](mailto:Email-drjsj99@gmail.com)

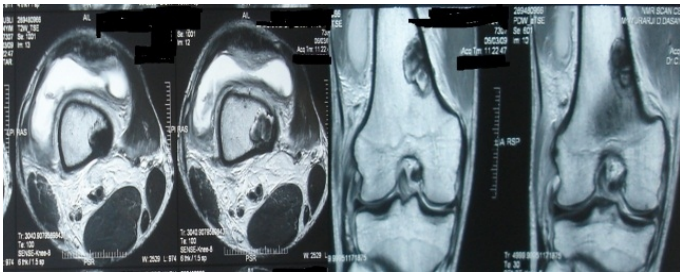
©Copyright 2010 BioMedSciDirect Publications. All rights reserved.

the patient, we decided to perform curettage and bone grafting for the fibrous cortical defect and also obtain synovial biopsy at the same stage.

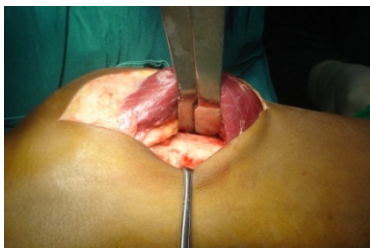
**Figure 1-X ray of right knee showing well defined eccentric lytic lesion in the medial aspect of distal femoral epiphysis most likely fibrous cortical defect**



**Figure 2-MRI images (axial and coronal sections) of right knee showing the fibrous cortical defect. Knee joint shows synovial effusion with synovial hypertrophy**



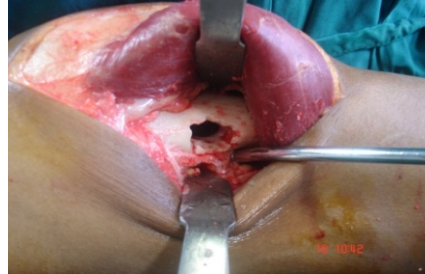
**Figure 3-Fibrous Cortical Defect exposed through subvastus approach, with no evidence of cortical break**



The lesion was approached through a subvastus approach. There was no cortical break. A bony window was made and the lesion curetted out using high speed burr. The lesion was packed with bone graft harvested from iliac crest. Capsulotomy was then done, the synovial tissue was found to be hypertrophied with joint effusion. Synovial biopsy was taken. (Figure 3,4,5,6).

The patient had an uneventful post-operative period and was kept non weight bearing for six weeks. The biopsy report from the synovial tissue was reported as features consistent with rheumatoid arthritis and biopsy from the lesion was reported as fibrous cortical defect. Patient was put on disease modifying anti rheumatoid drugs and at 6 weeks the fibrous cortical defect had healed and bone graft incorporated (Figure 7). Clinically patient's symptoms had improved and he was continued on disease modifying anti rheumatoid drugs.

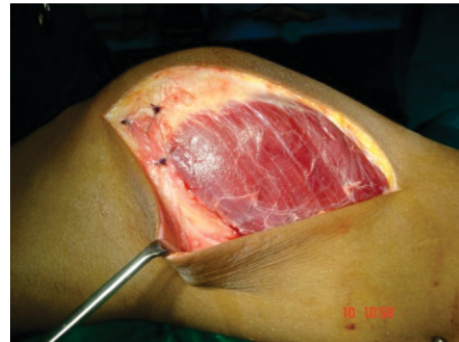
**Figure 4-lesion after curettage using high speed burr**



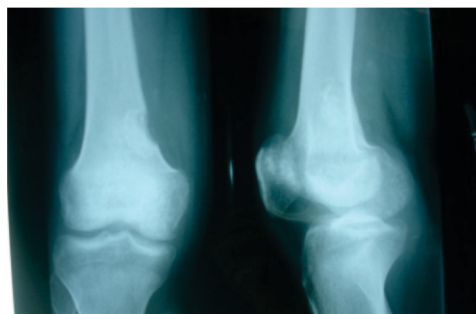
**Figure 5-cavity after packing with bone graft**



**Figure 6-closure after synovial biopsy**



**Figure 7-X rays at 3 months showing healing of the lesion and incorporation of bone graft**



### Discussion

Fibrous cortical defects or non-ossifying fibromas are most common benign proliferations seen in bone. Majority are asymptomatic and discovered on routine x rays done for other reasons (1,2,3,4.). In our case the patient presented with pain and

swelling of knee joint. X-ray showed a well defined eccentric lytic lesion in the medial aspect of distal femoral metaphysis, consistent with a benign pathology like fibrous cortical defect. A literature review suggests that this is the most frequent site for fibrous cortical defect around the knee (3, 4).. We treated the patient with analgesics and plaster immobilization for 2 weeks as the X-rays, apart from the fibrous cortical defect, did not reveal any other pathology. At the end of 2 weeks, the patient had partial relief of pain with persistent swelling of right knee joint. Hence, we decided to investigate further with MRI for any soft tissue pathology. MRI revealed synovial hypertrophy with knee effusion, apart from the fibrous cortical defect. The likelihood of two different pathologies, i.e. fibrous cortical defect and inflammatory polyarthralgia existing in the same location was considered. It was difficult to correlate the patient's symptoms with fibrous cortical defect and hence to confirm the clinical diagnosis of inflammatory polyarthralgia we decided to obtain a synovial biopsy. Diagnostic arthroscopy and soft tissue biopsy was considered but however was abandoned as it was further decided, after discussing with the patient, to go ahead and treat the defect also with curettage and bone grafting, which would be difficult with arthroscopy alone. Histopathology confirmed the diagnosis of rheumatoid arthritis and fibrous cortical defect. The patient made an uneventful recovery with the defect consolidating over a period of 3 months, and the polyarthralgia symptoms were controlled with DMARDS. As in our case, when a benign bone lesion presents in an atypical manner, a biopsy is mandatory for further evaluation of the disease process. (2, 3, 4, 6)

## References

- [1] Betsy M, Kupersmith LM, Springfield DS. Metaphyseal fibrous defects. *J Am Acad Orthop Surg* 2004;12:89-95.
- [2] Arata MA, Peterson HA, Dahlin DC. Pathological fractures through non-ossifying fibromas. Review of the Mayo Clinic experience. *J Bone Joint Surg Am.* 1981;63:980-988.
- [3] Bone and Soft Tissue Pathology Copyright © 2010 Elsevier Inc. Edited by: Andrew L. Folpe, MD, and Carrie Y. Inwards, MD ISBN: 978-0-443-06688-7
- [4] De Mattos CBR, Binitie O, Dormans JP. Pathological fractures in children. *Bone Joint Res* October 2012 1:272-280.
- [5] Blau RA, Zwick DL, Westphal RA. Multiple non-ossifying fibromas. A case report. *J Bone Joint Surg Am.* 1988; 70:299-304.
- [6] Shimal A, Davies AM, James SL, Grimer RJ. Fatigue-type stress fractures of the lower limb associated with fibrous cortical defects/non-ossifying fibromas in the skeletally immature. *Clin Radiol.* 2010 May; 65(5):382-6. Epub 2010