Abstract: Fibrous cortical defects (FCD) are benign bony lesions, and are a type of fibroxanthoma, histologically identical to the larger non-ossifying fibroma (NOF). Benign well-circumscribed eccentric solitary lesion in metaphysis of long bone in children. Multiple lesions rare. Lesions seen in children called fibrous cortical defect. Lesions seen in adults traditionally called non-ossifying fibroma.

Keyword: Fibrous cortical defect, Non ossifying fibroma, Proximal fibula.

Introduction: This, the commonest benign lesion of bone, is a developmental defect in which a nest of fibrous tissue appears within the bone and persists for some years before ossifying. It is asymptomatic and is almost always encountered in children as an incidental finding on X-ray. The commonest sites are the metaphysic of long bones; occasionally there are multiple lesions.

Case history: 17 years old boy with complaints of pain over the outer aspect of right leg for 6 months duration. Pain was dull aching in nature with no radiation, no night pain, no aggravating factors, analgesics decreases the pain but not abolishes. He had no other areas with such painful focus. On examination, No visible swelling or mass seen. Upper outer leg is tender on deep touch. X rays of the right leg showed more or less oval translucent area surrounded by thin margin of dense bone;


Intra operatively, under tourniquet control, through lateral approach, common peroneal nerve (CPN) was carefully dissected and the lesion was removed with the help of image intensifier. Segmental extra periosteal resection of fibula was done. Biosy reported as 'Fibrous cortical defect'

Post operative period was uneventful.

Post operatively, patient was followed up to one year with serial radiographs.
Immediate post op.

3rd month follow up

6th month follow up.

9th month follow up.

12th month follow up.

**Discussion**

Fibrous Cortical Defect is also known as Non-ossifying fibroma, Metaphyseal fibrous defects and Fibroxanthoma, xanthogranuloma of bone and Campanacci's syndrome.

**Definition:**

Benign well-circumscribed eccentric solitary lesion in metaphysis of long bone in children. Multiple lesions rare. Lesions seen in children called fibrous cortical defect. Lesions seen in adults traditionally called non-ossifying fibroma

**Epidemiology:**


**Clinical Features:**

Most incidental findings on XR & asymptomatic. Rarely have pathological fracture

**Jaffe-Campanacci syndrome** (Mario Campanacci, 20th century, Italian physician) is a constellation of symptoms including multiple non-ossifying fibromas, cafe-au-lait spots, mental retardation, hypogonadism, ocular and cardiovascular abnormalities. Radiologically there are multiple, nonossifying fibroma found dominantly in the long bones, pelvis and mandible. There may be kyphoscoliosis.

**Radiological:**

Cortical eccentric position in metaphysis (cf. Fibrous Dysplasia). It looks like cystic on x ray. Well-demarcated central lucent zones surrounded by scalloped sclerotic margins. Usually less than one third diameter of bone and may be elongated in longitudinal axis of bone. It will migrate away from the epiphysis with growth. As regresses, it is replaced with residual sclerosis. No periosteal reaction in the absence of pathological fracture. Views in different planes may show that a lesion that appears to be ‘central’ is actually to or within the cortex, hence the name ‘fibrous cortical defect’.

**CT scan:** CT scan should not be performed unless a strong doubt about diagnosis is present, except to confirm a pathological fracture (see Image). This lesion is located eccentrically and CT scan should depict a central lucency. CT scan may confirm a minimally displaced fracture. This scan could help in preoperative planning in FCDs in rare locations like femoral neck.

**Bone scan:**

This study is not indicated for diagnosis. Nevertheless, in some cases, a methylene diphosphonate (MDP) technetium bone scan could help to appreciate biological activity of lesion. A minimal increased uptake can be seen as depicted in radioactive image. In associated fractures, this study is not useful.

**Pathology:**

Gross: Soft, friable, yellow or brown tissue. Microscopic: Cellular tissue. Unremarkable spindle cells arranged in interlacing or whorled pattern. Interspersed with multinucleated giant cells & histiocytes and may be similar to GCT. There is no risk of malignant change.

**Differential Diagnosis:**

Fibrous dysplasia, Eosinophilic granuloma, Ewings sarcoma, Adamantinoma

**Treatment:**

- Usually observation only
- Serial observation (XR 4/12 for 1st year then yearly)
- Usually don’t require biopsy
- Biopsy if uncertain
- If > 50% of diameter of bone
- Curettage & bone graft
- If pathological fracture
- Treat closed if possible
- Fracture heals in normal length of time
- Lesion may heal with fracture union
- If persists then curettage & graft.

**Conclusion:**

Fibrous cortical defect is a benign common bone lesion which doesn’t need active intervention until it becomes more than 50% of the bone diameter and the pathological fracture. It needs to be differentiated from giant cell tumor by tissue biopsy. Extraperiosteal resection results in

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formation of new bone within the periosteal limits. Its close proximity to the joint alerts neurovascular protection while undergoing surgical intervention, by means of open biopsy and resection.

References: