

Timely Therapeutic Intervention Can Prevent Fractures and Surgical Intervention in Pseudofractures Due to Osteomalacia

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ABSTRACT

Osteomalacia is a metabolic bone disorder caused predominantly by nutritional deprivation followed by other causes. Altered bone mineralisation, bone pain, fragile bones and fractures occur depending on the severity of osteomalacia. Multiple etiologies like Nutritional deprivation, Malabsorption, Malabsorptive surgeries, Kidney disorders, Liver disorders and Drugs (Phenytoin and Phenobarbital) lead to osteomalacia. Nutritional deprivation is the frequent cause of osteomalacia in Asian female. We report a case of 17 year old girl with pain in the left hip along with pain at other sites. Suspecting osteomalacia with pseudofracture she was evaluated. Both radiographic and biochemical features matched, confirming osteomalacia with pseudofracture. She was treated with therapeutic doses of calcium and vitamin D without any surgical intervention. After 2 months of medical management the pseudofracture healed. So timely therapeutic intervention can prevent fractures and surgical intervention in pseudofractures due to osteomalacia. This case report aims to throw light on clinical, radiographic and biochemical features of osteomalacia.

Keywords: Osteomalacia; Pseudofracture

INTRODUCTION

Osteomalacia is a metabolic bone disorder caused by multiple etiologies like Nutritional deprivation, Malabsorption, Malabsorptive surgeries, Kidney disorders, Liver disorders and Drugs (Phenytoin and Phenobarbital). Nutritional deprivation is the frequent cause of osteomalacia in Asian female. Bone pain and muscle weakness are the symptoms that are commonly encountered in patients with osteomalacia. Diffuse Osteopenia and pseudofractures are universal radiologic features of osteomalacia. Pseudofracture is unusual complication of osteomalacia. Unless diagnosed and managed promptly it can have disastrous consequences like transforming into a true fracture or acute displacement requiring surgical intervention.

CASE REPORT

A 17 year old girl presented with complaints of bilateral hip pain right more than left, along with pain at other sites. Pain worsened gradually which prevented her to walk. Imaging of both hips along with pelvis showed pseudofracture of proximal medial aspect of left femur which was mistaken for a fracture and surgical intervention was advised. She missed surgical intervention for the pseudofracture after getting second opinion. General examination revealed a stooping forward posture with waddling gait, tenderness

at medial aspect of left thigh and pain on abduction and internal rotation of the left lower limb. Skeletal radiograph of both hips along with pelvis showed decreased opacity of both hips along with pelvis which favoured decreased mineralisation along with pseudofracture of the proximal medial aspect of left femur. Hemogram was normal except for increased ESR - 66mm/hr. Renal function tests were normal, Liver function tests were normal except for elevated Alkaline phosphatase (ALP-555 IU/L), Thyroid function tests were normal, Serum Calcium 7.1 mg/dl, Corrected calcium 7.7mg/dl, Serum Phosphorus 2.93 mg/dl, 25(OH)Vitamin D 11.38 ng/ml, PTH 460 pg/ml

Diagnosis of osteomalacia was made from general examination, radiological and biochemical investigations. She was treated with therapeutic doses of calcium and vitamin D without any surgical intervention and was advised to review after 2 months. At follow up her symptoms improved and she walked without pain, except for minimal pain in the left shoulder and low backache. Radiographs of both hip along with pelvis after 2 months showed healed pseudofracture at the proximal medial aspect of the left femur. Her blood investigations after 2 months of therapeutic doses of calcium and vitamin D improved, with a Serum calcium of 10.3 mg/dl, Serum phosphorus 4.5 mg/dl, alkaline phosphatase of 213 IU/L, 25(OH)Vitamin D 62.2 ng/ml and Serum PTH 37 pg/ml.

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Figure 1: Pseudofracture of proximal medial aspect of left femur.

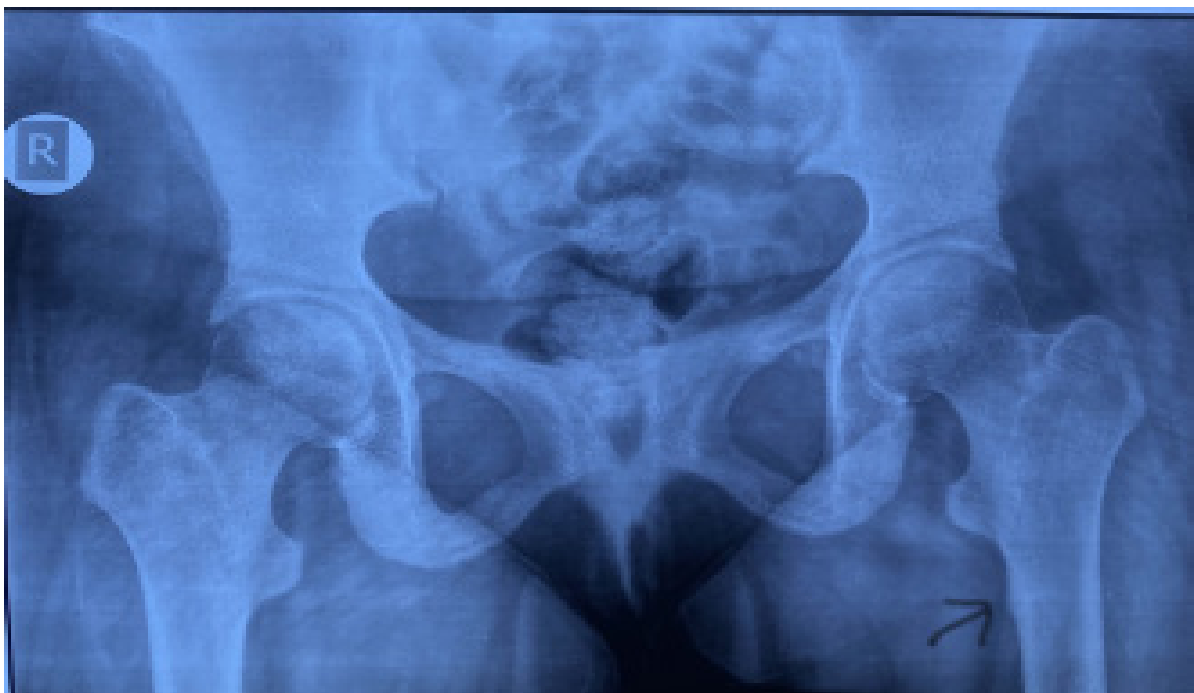


Figure 2: Healed pseudofracture of proximal medial aspect of left femur.

DISCUSSION

Osteomalacia due to nutritional deprivation is very rare in the western states but in Asians it remains the common metabolic bone disorder [1]. Osteomalacia is a metabolic bone disorder caused by multiple etiologies like Nutritional deprivation, Malabsorption, Malabsorptive surgeries, Kidney disorders, Liver disorders and Drugs (Phenytoin and Phenobarbital) [2]. Asians presenting with persistent non-specific musculo-skeletal pains, osteomalacia should be suspected. A study reports that there was a delay of 59 months before the diagnosis of osteomalacia was made [3]. The prevalence of Hypovitaminosis D3 in India was 30% to 91.2% in adults [4]. Long-standing backache along with diffuse aches and pains are the common complaints to present with. Nutritional deprivation

of Vitamin D3 is usually associated with limited sun exposure, multiple pregnancies with subsequent lactation [5]. High phytate foods such as nuts, grains and legumes also inhibit the normal absorption of calcium from the stomach [6,7].

Biochemical picture of osteomalacia includes elevated Parathormone, elevated Alkaline phosphatase with low Serum Calcium, low Serum Phosphorus and low Vitamin D3, similar biochemical picture was seen in our case. Increased ALP attributes to increased osteoblastic activity [8].

Radiological features of osteomalacia are diffuse Osteopenia and Pseudofracture [9]. Common sites for pseudo fracture are axillary margins of scapulae, neck of the femur, ribs and the pubic ramii [9]. Pseudofracture is a radiolucent band extending into the bone

from cortex [10]. Pseudofracture can be partial or complete. A pseudofracture can rarely become a true fracture due to torsion or shearing stress. In our case partial pseudofracture of the proximal medial aspect of left femur was noticed. Only displaced fractures usually require surgical intervention. Sudden exacerbation of pain at the site of pseudofracture, loss of movement and inability to bear weight should raise the suspicion of acute displacement. If the diagnosis of the pseudofracture was made early, calcium and vitamin D replacement can heal the pseudofracture [11]. Patients on Calcium and Vitamin D replacement should be monitored closely to prevent Hypercalcemia and hypervitaminosis D.

CONCLUSION

Our case represents a typical case of pseudofracture at uncommon site (i.e) proximal-medial aspect of the left femur due to osteomalacia. It became obvious that early diagnosis of osteomalacia, healed the pseudofracture with therapeutic doses of Calcium and Vitamin D and also prevented progression of a pseudofracture to true fracture and needless surgical intervention.

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REFERENCE

- Hodgkin P, Hine PM, Kay GH, Lumb GA, Stanbury SW. Vitamin-D deficiency in Asians at home and in Britain. *Lancet*. 1973;2:167-171.
- Goraya JS, Gupta PN, Gupta RK, Bahadur R, Parmar VR. Anticonvulsant induced osteomalacia. *Indian Pediatr*. 2000;37:296-307.
- de Torrente de la Jara G, Pecoud A, Favrat B. Musculoskeletal pain in female asylum seekers and hypovitaminosis D3. *Br med. j*. 2004;329:156-157.
- Preeti kamboj, Supriya Dwived, GS Toteja. Prevalence of hypovitaminosis D in India & way forward. *Indian J Med Res*. 2018;548-5565.
- Henry A, Bowyer L. Fracture of the neck of femur and osteomalacia in pregnancy. *Int J Obstet Gynaecol*. 2003;110:329-330.
- Sasson A, Etzion Z, Shany S, Berlyne GM, Yagil R. Growth and bone mineralization as affected by dietary calcium, phytic acid and vitamin D. *Comp Biochem Physiol A*. 1982;72:43-48.
- Fredlund K, Isaksson M, Rossander-Hulthen L, Almgren A, Sandberg AS. Absorption of zinc and retention of calcium: dose dependent inhibition by phytate. *J Trace Elem Med Biol*. 2006;20:49-57.
- Wood N, Pehowich D, Bateman R. Generalized rarefactions of the jaw bones. In: Wood NK, Goaz PW, editors. *Differential Diagnosis of Oral and Maxillofacial Lesions*. 5th ed. St. Louis, Missouri: Mosby; 1997. p. 399-413.
- Bell JD, Gaillard F. Looser Zones. *Radiopedia*. 2019.
- Conacher WD. Metabolic bone disease in the elderly. *Practitioner*. 1973;210:351-356.
- Faraj A. Bilateral simultaneous combined intra- and extracapsular femoral neck fracture secondary to nutritional osteomalacia: a case report. *Acta Orthop Belg* 2003;69:201-203.