

# Clinical Quiz

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## A woman of child-bearing age with bilateral pseudofractures

### Clinical Presentation

A 30-year-old female patient presented to the Orthopedic Outpatient Department with complaints of pain in the lower back, both groins and thighs for the last one and a half year. The pain was insidious in onset, non-radiating, and was associated with generalized body ache and weakness. The complaints were persistent, initially mild, but increasing in severity with the passage of time. On further inquiry, the patient also gave a history of difficulty in climbing up stairs, and getting up from a squatting position. The patient also gave a history of 6 issues with less spacing between the consecutive births, and was breast feeding her youngest child. There was no history of any trauma, headache, convulsions, cough, chest pain, hemoptysis, flank pain, hematuria, generalized swelling, acute loss of weight, and appetite. Neither there was any history of recurrent diarrhea, or other gastrointestinal symptoms, nor there any history of prolonged drug intake. Examination revealed tenderness in the lower back and the front of hip and thigh. The patient had a typical “waddling” gait. Neurological examination to detect features of radiculopathy was within normal limits. Antero-posterior radiograph of the pelvis including both hips was performed (Figure 1).



**Figure 1** - Antero-posterior radiograph of pelvis including both hips shows bilateral “pseudofractures”, or Looser’s zones (arrows).

## Questions

1. What are the features seen on the radiograph?
2. What is the diagnosis?
3. What are the common sites of such pseudofractures?

# Clinical Quiz

## Answers

1. Antero-posterior radiograph of pelvis including both hips shows generalized decrease in bone density, bilateral and symmetrical radiolucent lines in the inferior cortex of the femoral neck. These lines are perpendicular to the long axis of the bone, and are often termed as “pseudofractures” or Looser’s zones (**Figure 1**).
2. Clinico-pathological diagnosis of patient is osteomalacia. Insidious onset, non-radiating, persistent pain in lower back and groin, increasing in severity with passage of time, generalized body ache and weakness, recurrent pregnancies with less spacing between the consecutive births in association with radiological findings of decrease in bone density and pseudofractures are characteristic features of osteomalacia.
3. “Pseudofractures” or Looser’s zones typically occur around proximal femur, ischio-pubic rami, axillary margins of the scapulae, proximal dorsal aspect of the ulnae and the ribs.<sup>1</sup>

## Discussion

Osteomalacia is characterized by inadequate mineralization of normal osteoid tissue following closure of the physis secondary to inadequate amounts of available phosphorus and calcium resulting in softening of the trabecular and cortical bones.<sup>1,2</sup> The most common cause of the disease is a deficiency in vitamin D, which is normally obtained from the diet and/or from sunlight exposure. The most common clinical presentation of this condition is bone pain and muscle weakness. The disease starts as gradual onset aches and pains in the lower back and thighs, spreading later to the arms and ribs. The pain is symmetrical, non-radiating, and is accompanied with proximal muscle weakness. Patient often complains of difficulty in climbing up stairs and getting up from a squatting position. The patient has a typical waddling gait. Osteomalacia, occurs only after bone growth has ceased, and hence the changes are pronounced in the cortical and trabecular bone of the axial and appendicular skeleton. Radiographic findings reveal a generalized demineralization with loss of transverse trabeculae, and persistent transverse Looser’s zone. These represent incomplete fractures that usually heal by callus formation; which consists of osteoid tissue devoid of mineralization. Other radiological features are triradiate pelvis, protrusio acetabuli and lordosis. The condition was described by Milkman, and often called “Milkman syndrome”.<sup>3</sup> Biochemical picture is characterized by an abnormally low vitamin D concentration in blood, low serum and urinary calcium, low serum phosphate levels (except in cases of renal osteodystrophy) with high serum alkaline phosphatase. Nutritional osteomalacia responds well to administration of 50,000 IU of vitamin D per week for 8 weeks, and exposure to sunlight. Osteomalacia due to malabsorption may require treatment by injection, or daily oral dosing of significant amounts of vitamin D.<sup>2-4</sup>

## References

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