

Bilateral Subtrochanteric Pseudofractures of the Femur Secondary to Osteomalacia: a case report

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Citation

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Abstract

Introduction: Nutritional osteomalacia is a metabolic bone disorder common among the Asian female immigrant population in the United Kingdom. It is often under diagnosed in the United Kingdom, although it has been highlighted in the literature since the 1960s.¹ Patient may be asymptomatic in the early stages although signs of osteomalacia may be apparent on X-ray pictures or other diagnostic tests. As osteomalacia worsens, symptoms may include bone pain, decreased muscle tone and muscle weakness. Pathological fractures such as bilateral subtrochanteric pseudofractures of the femur are an uncommon complication of osteomalacia. This has been rarely reported. **Case presentation:** This case presents an interesting and unusual case of a 38-year-old female of Asian origin with bilateral subtrochanteric pseudofractures of the femur secondary to osteomalacia. The patient was treated successfully with calcium and vitamin D supplement therapy without surgical intervention. The bone pain subsided and she was able to bear full weight within 2 weeks of treatment. **Conclusion:** There should be a high index of suspicion of this disease, particularly among Asian female immigrant population presenting with persistent and non-specific musculoskeletal pain and on strict vegetarian diet. This case reiterates the importance of considering insufficiency or stress fractures in this group of patient. Management of the underlying cause, osteomalacia proves vital to prevent further complications. Morbidity related to delayed treatment has been well documented, so a high level of clinical suspicion is imperative.

INTRODUCTION

Nutritional osteomalacia is a metabolic bone disorder common among the Asian female immigrant population in the United Kingdom. It is often under diagnosed in the United Kingdom, although it has been highlighted in the literature since the 1960s.¹ Patient may be asymptomatic in the early stages although signs of osteomalacia may be apparent on X-ray pictures or other diagnostic tests. As osteomalacia worsens, symptoms may include bone pain, decreased muscle tone and muscle weakness. Pathological fractures such as bilateral subtrochanteric pseudofractures of the femur are an uncommon complication of osteomalacia. Early recognition of this type of pathological fractures leads to the appropriate treatment, including medical and surgical treatment to avoid serious complications.

CASE PRESENTATION

A 38-year-old female of Asian origin who was a vegetarian presented with a six-month history of intermittent bilateral hip pain. She had experienced generalised malaise, some discomfort in the groin for the past few months on walking

and recalled losing her balance. There was no history of direct trauma. Her past medical history included hypothyroidism and she was on 125 mcg levothyroxine daily. She did not drink alcohol or smoke. Since moving to the United Kingdom from India two years earlier, she had stayed indoors most of the time and had very little exposure to the sun.

On examination, she was slim and walked with a waddling gait. Movements of both hips were mildly painful on abduction and internal rotation. No other obvious abnormality was found. The kidney, liver, bone profile and thyroid function tests were all normal.

The anteroposterior radiograph of the pelvis showed bilateral undisplaced subtrochanteric pseudofractures of the femur. The radiograph changes were suggestive of pseudofracture secondary to osteomalacia. She was treated with therapeutic doses of calcium and vitamin D supplements but had no surgical intervention. She was advised to increase her calcium intake by consuming dairy and poultry products, especially eggs and milk. She was discharged 2 weeks later

when the bone pain subsided and able to bear full weight.

Figure 1

Figure 1: Plain radiograph of pelvis taken at the time of initial presentation and reported as bilateral undisplaced subtrochanteric pseudofractures of femur



DISCUSSION

Nutritional osteomalacia is rare in Western society but remains a common metabolic bone disorder in Asian immigrants,² especially in women of reproductive age from a lower socio-economic background. It is often underdiagnosed in the United Kingdom, although it has been highlighted in the literature since the 1960s.¹ Patient may be asymptomatic in the early stages although signs of osteomalacia may be apparent on X-ray pictures or other diagnostic tests. As osteomalacia worsens, symptoms may include bone pain, decreased muscle tone and muscle weakness. Pathological fractures are relatively uncommon in osteomalacia.³

Radiologically, osteomalacia presents with generalised osteopenia and multiple, often symmetrical radiolucent lines in the cortex perpendicular to the long axis of the bone. They are referred to as 'Looser's zones' or 'Pseudofractures'. They represent cortical stress fractures filled with poorly mineralised callus and fibrous tissue and are common along the axillary margins of the scapulae, the neck of the femur, the ribs and the pubic rami.⁴ A pseudofracture may, in rare circumstances, become the site of a true fracture, presumably as a result of torsional, tensile or shearing stress on the weakened area in the bone. Occasionally, the patient may present with an acute fracture leading to the diagnosis of the

primary disease. A high index of suspicion of underlying calcium deficiency is essential for the early diagnosis of the condition and to avoid potentially serious complications.

This is a rather unusual and interesting case of bilateral undisplaced subtrochanteric pseudofractures of the femur treated without surgical intervention. It has been estimated that only 10% to 34% of all fractures of the hip are in the subtrochanteric region.⁵ This area is one of the strongest parts of the femur and it is unlikely to fail in low-energy trauma, unless extreme osteoporosis is present. Subtrochanteric fracture affects people of all ages. Most frequently, these fractures are seen in 2 patient populations, namely older osteopenic patients after a low-energy fall and younger patients involved in high-energy trauma.

Bilateral subtrochanteric pseudofractures of the femur secondary to osteomalacia are rare. This often heal with calcium and vitamin D supplements if the diagnosis is made early.^{6,7,8,9} Surgical intervention is not usually required unless they progress to displaced fractures. Not all pseudofractures should be fixed prophylactically but this possibility must be considered and patients should be followed up regularly for a minimum of one year. The sudden onset or exacerbation of pain at the site of a pseudofracture, the loss of active movement and an inability to bear weight should all alert the surgeon to the possibility of acute displacement, and requires immediate operation. As illustrated by this case, provided that the subtrochanteric pseudofracture of the femur remains undisplaced, healing will progress once medical treatment is started.^{10,11} It is important to monitor the patient closely during treatment. Should surgery become necessary, patient should be mobilised as soon as possible to allow resumption of medical treatment and prevent delayed mineralisation of the callus.¹²

CONCLUSION

There should be a high index of suspicion of this disease, particularly among Asian female immigrant population presenting with persistent and non-specific musculoskeletal pain and on strict vegetarian diet. This case reiterates the importance of considering insufficiency or stress fractures in this group of patient. Management of the underlying cause, osteomalacia proves vital to prevent further complications. Morbidity related to delayed treatment has been well documented, so a high level of clinical suspicion is imperative.

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