

JOINT EVENT

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&

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A rare case of neck of femur fracture in a female adolescent associated with minor trauma and impaired bone metabolism**Olamide Olatokun and Hani B Abdul-Jamar**

Northwick Park Hospital, UK

Introduction: This report describes a rare neck of femur (NOF) fracture in a young female following minor trauma without preceding history of disease. The case begins with a 17-year-old Somali female presented with right hip pain following a fall down two steps. She had no past medical history however weighed 42.4 kg, BMI 15.82. She had menarche at 14 with regular menstrual cycle. Skin was covered for cultural reasons. Pelvic radiograph confirmed right NOF fracture. Given the low-impact injury and rarity of NOF fractures in this age, extensive blood investigations were performed post operatively. Vitamin D was 2 nmol/L (50-140), calcium 1.92 mmol/L (2.20-2.60), parathyroid hormone (PTH) 14.2 pmol/L (1.6-6.9), phosphate 1.06 (0.80-1.50), ALP 380 IU/L (0-187). Others were normal. She was symptomatic of hypocalcaemia, with positive Chvostek's sign.

Diagnosis: It is found that secondary hyperparathyroidism (SHPT) due to vitamin D deficiency (VDD) causing NOF fracture.

Clinical Management: Fracture was surgically repaired, and a cholecalciferol course commenced. Follow-up radiographs were satisfactory, with DEXA scan pending. Long term dietary, orthopaedic and endocrinology team follow-up is required.

Discussion: Few cases of NOF fracture in adolescents are reported. Those reported are associated with significant trauma or with known underlying chronic medical conditions. Here, NOF fracture with a multifactorial aetiology is presented. Normal bone metabolism is complex, involving vitamin D, PTH and calcium. VDD causes SHPT as low serum calcium levels lead to the continued secretion of PTH. Increased PTH leads to increased bone turnover and bone loss. Consequently, SHPT has been found to be associated with increased fracture risk. Parathyroidectomy for SHPT was shown to decrease hip fracture risk. Vitamin D is vital for bone health. Here, it is stressed that VDD, particularly in adolescents, should not be overlooked as life altering complications can follow. Early identification and supplementation is recommended.

olamide.olatokun@nhs.net

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