

## Recurrent Pathological Femur Fractures related to Vitamin D Deficiency, A Case Report

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### Introduction

Vitamin D Deficiency (VDD) commonly occurs from lack of sunlight exposure.[4] It leads to reduced calcium absorption from gut, hypocalcemia & decreased bone mineralization. [3][4] In response, parathyroid hormone levels rise and stimulate osteoclasts to increase bone resorption. This as result predisposes individuals to fractures in load-bearing areas such as femur. [1][2] According to a multi-ethnic study done in Kuala Lumpur, Malaysia, the overall prevalence is 67.4%, significantly high number for tropical country [5].

### Report

32 years old, Malay, lady, no comorbid, had alleged trivial fall on 15/7/2022. Sustained closed fracture distal third right femur. Patient denied family history of malignancy, no constitutional symptoms, no chronic bone/limb pain or weakness, no frequent falls. Patient underwent surgery retrograde nailing right femur on 25/7/2022. Intramedullary reaming samples HPE and blood investigations sent. (Vitamin D, IPTH, Calcium, phosphate). Patient discharged 27/7/022.

Patient presented to A&E on 29/7/2022, 4 days post operative, after having another trivial fall, slipped & fell on sitting position, sustained closed periprosthetic fracture subtrochanteric right femur. Investigations sent previously noted Total-25-Hydroxy-Vitamin D 18.67 (Deficient).Thyroid function test TSH 0.61, FT418.7(normal), IPTH 3.15(normal). Calcium 2.01(low), Phosphate 0.71(low). Intramedullary reaming HPE consistent with fracture site, no malignancy seen. Patient started on Vitamin D 5000IU OD for 2 months, then 1000IU OD for 1 year, Calcium lactate & Rocaltriol supplements by medical team. She underwent removal of implant & Femoral Recon Nail right femur on 4/8/2022. Post operatively noted progressive improvement, patient on full weight-bearing ambulation, x-rays noted gradual fracture healing. Patient under medical follow up for VDD. Latest Total 25-Hydroxy

Vitamin D 68.61 (Insufficient), IPTH 2.86 (normal), Calcium 2.46 (normal), Phosphate 1.28(normal)

### Conclusion

Vitamin D deficiency should be suspected in cases of pathological femur fractures in patients with trivial traumas as its one of predisposing factors of fractures in load bearing areas. Suspicion of pathological fractures in this case was high due to trivial falls causing fractures of long bone. These group of patients should be investigated early for VDD, followed by Vitamin D supplementation initiation accordingly. Other preventive recommendations include outdoor activities involvements & dietary intake consisting Vitamin D.

### References

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