

‘Double The Trouble’ Bilateral Neck of Femur Fracture in Young Patient With End-Stage Renal Disease and Untreated Tertiary Hyperparathyroidism

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INTRODUCTION:

Tertiary hyperparathyroidism is a complication arising from chronic end-stage renal disease (ESRD). It can lead to osteoporosis and subsequently cause pathological neck of femur (NOF) fracture. Despite being young, osteosynthesis in NOF fractures of these patients often leads to nonunion and implant failure due to severely osteoporotic bone. We present our approach in managing a patient with ESRD and tertiary hyperparathyroidism who sustained bilateral NOF fractures.

REPORT:

Ms N, a 43-year-old woman with underlying hypertension, ESRD, tertiary hyperparathyroidism with a baseline serum parathyroid hormone of 144 pmol/L, presented with bilateral hip pain after squatting on toilet, causing her unable to ambulate.

The plain radiograph of the pelvis revealed displaced Garden 3 bilateral NOF fracture.



Figure 1: Pelvic AP X-ray on presentation

She was treated with bilateral skin traction for 2 weeks, subsequently referred to an endocrine surgeon for parathyroidectomy and planned for bilateral bipolar hemiarthroplasty later.

CONCLUSION:

Surgical intervention for NOF fractures in young patients should be performed as soon as possible in a race to preserve the femoral head. Nevertheless, this treatment plan is not feasible in ESRD patients with untreated tertiary hyperparathyroidism. Osteosynthesis will not be stable due to poor existing bone quality. Kalra et al. demonstrated that ESRD patients with NOF fractures who underwent internal fixation had a significantly high revision rate despite the initial fixation was deemed adequate.

Therefore, all ESRD patients with hyperparathyroidism should be referred to an endocrine surgeon for parathyroidectomy after suffering from a NOF fracture as suggested by Raj et al. The plummeting serum parathyroid hormone post parathyroidectomy could suppress bone resorption and increase bone formation as evidence by bone biopsies done by Yajima et al. This is essential in maintaining post-operative implant stability and minimise rate of implant failure.

REFERENCES:

1. Raj JJ, Kow RY, Ramalingam S, Low CL. Neck of Femur Fracture in Young Patients With End-Stage Renal Disease and Hyperparathyroidism: A Report of Three Cases and Proposed Treatment Algorithm. *Cureus*. 2021 Jul 4;13(7)