

A Case Report Of Peri-Implant (Proximal Femoral Cephalomedullary Nail) Fracture Fixation Method

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INTRODUCTION:

Cephalomedullary nail is a common option for per-trochanteric fracture fixation due to its advantages of smaller incisional wound size and better biomechanical strength compared to sliding hip screw device. Peri-implant fracture of the cephalomedullary nail device is uncommon and presents a challenge in elderly osteoporotic bone. We would like to highlight a case of peri-implant fracture and the method we chose to address this case.

CASE REPORT

A 74 years old lady with underlying diabetes mellitus, hypertension, Alzheimer's disease and subclinical hypothyroidism sustained closed intertrochanteric fracture of right femur from a fall. Her fracture was fixed with a short InterTAN® (S&N, Memphis US).

A month later, she had another fall and sustained a closed peri-implant fracture. The fracture spiraled proximally from distal tip of the InterTAN until the lesser trochanter. There was no clear radiological evidence of healing of the previous fracture. Infection was ruled out.

The fracture was treated with a diaphyseal locking plate and supplemented with two cable wires. The plate position was prioritized for the most proximal screws for double cortices purchase and to miss the existing cephalomedullary nail with simultaneous consideration for the most distal screw to be within the femur diameter.

Figure 1(below): Radiographs showing initial intertrochanteric femur fracture that was fixed with short cephalomedullary nail.



Figure 2(below): Series of radiographs showing the peri-implant fracture

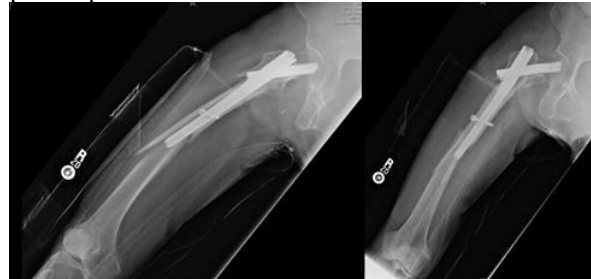


Figure 3 (below): Series of radiographs showing the peri-implant fracture which was fixed with a long diaphyseal locking plate and cable wires.



DISCUSSIONS:

Retrospectively, a long cephalomedullary nail could have avoided an implant induced stress riser at the distal end of the short nail and shared the axial load throughout the length of the femur. However, it cannot be prescribed for all cases as there could be significant femur shaft bowing that may prevent the insertion of the nail.

There is no classification system and recommended method of treatment for peri implant fractures of pertrochanteric implants.

There are a few methods to address this fracture. Firstly, exchange nailing could be done but at the risk of losing more bone stock for proximal femur fixation and this technique can be technically demanding.

Another option is to use plates with a combination of cerclage wires and screws to hold the plate to the bone while avoiding the intramedullary implant. Cable wire is a good supplementary fixation but it poses a risk of cutting through the cortex in severely osteoporotic bone. This technique gives more interfragmentary compression and allow for early motion.