

Periprosthetic Femur Fracture Fixation with Cable-Plate Fixation

Dr. N. Prudhvi Raj

Postgraduate, Department of Orthopaedics, Kamineni Institute of Medical Sciences, Narketpally, Telangana, India

1. Introduction

- Fractures of the femur after hip arthroplasty are an increasingly common and a technically challenging problem.
- The results of nonsurgical treatment are poor. When the general condition of the patient allows, these injuries should be treated surgically.
- Cable-plate system can be used to provide easy anatomical reduction and a more stable fixation.

2. Case Report

A 61y old male patient with history of hypertension for 3 years presented with complaints of left hip and thigh pain since two days due to fall from height and with Patient had a

history of bipolar hemiarthroplasty 7 years back over the left hip.

On inspection, swelling and obvious bony deformity noted over left thigh.

On palpation there was tenderness, crepitus and abnormal bony movements over the left thigh.

X-ray findings showed a periprosthetic left femur fracture.

This patient was surgically managed with locking compression plate with proximal cable fixation. Post-operative period was uneventful. The follow-up showed total weight bearing clinically and callus formation radiographically.



(A) Pre operative radiograph of left femur peri prosthetic fracture (Vancouver B1 fractures) (B) Post operative radiograph of left femur peri prosthetic fracture showing locking compression plate with cerclage wire fixation (C) 6 months Post operative radiograph of left femur peri prosthetic fracture

3. Discussion

- Now a days Incidence of periprosthetic femoral fracture are increasing^[1]
- Femoral fractures at the tip of a total hip arthroplasty stem have been classified as Vancouver B1 fractures.
- Several factors likely predispose patients to periprosthetic femur fracture which include cracks or defects generated intra-operatively, regions in the bone that are not bypassed with a sufficiently long stem, previous hip surgery, and cortical thinning caused by a loose femoral component.^[2]
- An initial radiographic assessment with pelvis-anteroposterior view; antero-posterior view of thigh in full length should be obtained to visualise the fracture.
- Treatment options include, use of locking plates with and without cables.
- Biomechanical studies suggest plate-cable constructs with proximal unicortical screws alone or unicortical screws with cables provide added stability in compression, lateral bending, and torsion compared to proximal cables alone.
- According to a recent systematic review by Dehgan et al., 36% of type B1 fractures were treated with locking plates and cable. These are particularly suitable for

fixation in patient with poor bone quality, which is quite common in periprosthetic fractures.

- As the plate does not need to be pressed directly against the bone, there is the added benefit of less tissue disruption and less risk for refracture at the end of the plate.
- However, the use of cables with locking plates, one is able to provide a more stable fixation and avoid the complications associated with revision surgeries in an elderly population.



Clinical pictures showing ROM (Flexion and Extension) and weight bearing.

4. Conclusion

To conclude, Cable plate system provides fixation of peri prosthetic fractures without disrupting the bone-cement or prosthesis -cement interface. For fractures around a well fixed stem (Vancouver B1 fractures) in normal bone, mainstay of operative treatment is ORIF.

This can be effectively accomplished with a variety of constructs. Cable and non-locking screws can be used for fixation in good quality bone, whereas locking screws should be used in patients with poor bone stock.

We have surgically managed a periprosthetic fracture femur with locking compression plate and proximal cable fixation. The patient showed satisfactory weight bearing over the left leg.

References

- [1] Della Rocca GJ, Leung KS, Pape HC. Periprosthetic fractures: epidemiology and future projections. *J Orthop Trauma*. 2011; 25:S66–S70.
- [2] Drew JM, Griffin WL, Odum SM, et al. Survivorship after periprosthetic femur fracture: factors affecting outcome. *The Journal of Arthroplasty*. 2016;31:1283–1288