

Comparison of the Outcome Between Conventional Open Technique and Minimally Invasive Technique Using Dynamic Hip Screw Fixation for Intertrochanteric Fracture of Femur

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Background/Purpose: Rigid fixation and early mobilization using standard dynamic hip screw (DHS) should be considered as the standard treatment for intertrochanteric fractures. The potential drawbacks of conventional technique of DHS are large skin incision with considerable soft-tissue dissection, blood loss, pain, and delayed rehabilitation. Minimally invasive surgery (MIS) has the theoretical advantages of decreased blood loss, better cosmetic results, less pain, and faster rehabilitation. We conducted this randomized trial to compare the safety profile and functional outcome of a mini-incision technique versus conventional open technique for fixation of intertrochanteric fractures using a DHS device.

Methods: 60 patients (skeletally mature) with closed traumatic isolated intertrochanteric femur fractures (AO/OTA 31-A1, A2) that had acceptable reduction before fixation by closed manipulation under image intensifier were randomized into conventional DHS group (n = 30, fixed by conventional open technique) or minimally invasive DHS group (n = 30, fixed by minimal incision technique) using same standard DHS device, and approach with similar type and regime of standard prophylactic antibiotics. Patients with previous ipsilateral hip fracture or surgery, congenitally deformed, or abnormally bowed femur were excluded. Ethical approval was obtained from Institutional Review Committee (IRC). Perioperative parameters were noted as per pro forma and similar protocol of physiotherapy was started for each patient. The patients were assessed at immediate postoperative period then at 2, 6, 12, 24, and 52 weeks postoperative.

Results: Mean age, gender distribution, mode of injury, fracture classification, side involved, and injury-surgery interval were symmetrically distributed among the two groups ($P > 0.05$) and hence randomization was successful. The duration of surgery, blood loss/transfusion requirement, postoperative pain (visual analog scale [VAS] score), and surgical site infection were less for minimal incision group ($P > 0.05$). The hospital stay, ambulatory status, and time to union were comparable for both the groups. At the final follow-up, complications like loss of reduction, malunion, and implant failure were not significantly different among the groups ($P > 0.05$). The functional status was assessed by modified Harris hip score and the average score was greater for mini-DHS group but not significant ($P > 0.05$).

Conclusion: Mini-incision DHS fixation for intertrochanteric femur fracture has advantages like shorter duration of surgery, less blood loss, and less postoperative pain in comparison to conventional open technique but the long-term functional outcome is not significantly different from conventional open technique.