

Prospective Study to Compare Communicated Osteoporotic Traumatic Intertrochanteric Femur Fracture Treated with Primary Cemented Modular Bipolar Hemiarthroplasty with Dynamic Hip Screw Retrospectively

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Research Article

Abstract: This is prospective Study to compare communicated osteoporotic traumatic Intertrochanteric femur fracture treated with primary cemented modular Bipolar Hemiarthroplasty with dynamic hip screw retrospectively. In this study we aim to study of primary modular Bipolar Hemiarthroplasty in communicated osteoporotic traumatic intertrochanteric femur fracture with respect to time of mobilization, Post operative morbidity and Limb length discrepancy and compare with retrospective Intertrochanteric femur fracture treated with dynamic hip screw. **Material and Methods :** In this study we included 60 patient Intertrochanteric femur fracture from grade A 2.2 and A 2.3 (AO classification), above 60 year and of which 30 patients were treated with primary hemiarthroplasty and 30 cases studied retrospectively who were treated with dynamic hip screw. **Result:** In my study mobilization is early on 3rd day with partial wt bearing in hemiarthroplasty, but dhs one and half month with wt bearing, post operative morbidity is less significant in bipolar(3%) than dhs(50%) implant related complication like bed sore and infection is less in bipolar(8%) than dhs(40%) limb length discrepancy there is no much shortening and lengthening in bipolar than dhs. **Conclusion:** We ensure early mobilization and ambulation of elderly patient, early return to preinjury level as compared to internal fixation device and less complication and failure.

Keywords: communicated, osteoporotic, Intertrochanteric femur fracture, modular bipolar hemiarthroplasty.

Introduction

Intertrochanteric fracture in the elderly patients is a frequent problem and is becoming more common as the proportion of elderly people in the population is increasing¹. Stable fractures can be easily treated with osteosynthesis with predictable results². However the treatment of unstable intertrochanteric fracture is still controversial, despite of the publication of reports of randomized trials and comparative studies². People in these age group usually have other systemic complications such as diabetes and cardiovascular diseases^{1,3}. As a general rule, preservation of the

patient's own bones is the ideal aim for the surgeons^{1,2}. In osteoporotic elderly patients with unstable intertrochanteric fracture this ideal aim will not bring the patient back his prior activity status. Weak purchase of the internal fixation devices due to osteoporosis and comminution of the fracture increases the incidence of failure of internal fixation¹. The main goals for the treatment of these fractures is, to restore the pre-fracture activity status, to allow early full weight bearing and to avoid possible re-operation².

Aims and objectives

To study outcome of primary hemiarthroplasty with cemented modular bipolar prosthesis in AO type A2.2 and type A2.3 respect to, Time of mobilization, Postoperative morbidity, Implant behavior, Limb-length discrepancy.

Material and methods

Prospective study of 30 patients treated with primary cemented modular bipolar hemiarthroplasty from May 2011 to May 2013 compared with retrospective study of 30 patients treated with DHS from may 2009 to may 2011. All cases treated in Krishna Institute of Medical Sciences, Karad, Maharashtra, India. All the 60 cases of our study had Intertrochanteric Femur Fracture in Grade A2.2 to Grade 2.3 [A-O Classification] and above 60 years of age. Patients with Segmental fracture of femur, Open fracture, Pathological fracture, Fracture dislocation of hip, known case of rheumatoid arthritis of hip were not included. For primary hemiarthroplasty modified Hardinges approach (fig-1) was used as standard. Follow up was done at 6 weeks, 12weeks, 6months and 12months. All pt evaluated clinically by seeing pain, mobilisation time, post-operative morbidity, implant

behaviour, limb length discrepancy. Comparisons done at one year follow up in bipolar hemiarthroplasty and dynamic hip screw.



Figure 1

Post op rehabilitation for bipolar hemiarthroplasty

- 1) Abduction pillow derotation splint immediate after operation.
- 2) 1st day quadriceps exercise.
- 3) 2nd day bed side knee bending.
- 4) 3rd day weight bearing walking with support.
- 5) 45 day walking without support.
- 6) No squatting no crossleg seating etc.

Observation and Result

In our study patients treated with bipolar were mobilised on 3rd day and in patients treated with dhs it was after one and half month. In terms of infection and bed sore it is less, in 4 patient, who required dressing and delayed suture removal in bipolar and more, 17 patients, treated with dynamic hip screw. In my study there implant failure was seen in 2 patients in bipolar, but in dhs treated patients it was seen in 11 patients. In our study Limb length discrepancy was seen in 4 patients treated with bipolar, and in 24 patients treated WITH DHS.

Table 1: Showing Comparison between bipolar and DHS

	Bipolar Patients	DHS Patients
Mobilisation	3 RD DAY	45 TH Day
Morbidity infection	2	5
Bedsore	2	12
Implant failure	2	11
Limb length discrepancy	4	11
<1cm	0	13
>1cm		

Discussion

The poor mechanical properties of the weak and porotic bone in these elderly patients do not usually provide a firm purchase for the screws leading to early biomechanical failure. This will lead to collapse with migration of the femoral head into varus and retroversion resulting in limping due to shortening and decreased abductor muscle lever arm. Another complication of internal fixation in porotic weak bone is cutting-out of the implant from the femoral head leading to profound

functional disability and pain. Thus, it has become clear that, although the use of internal fixation has decreased the mortality rate somewhat the rate of complications still ranges from 4 to 50 percent and walking with full weight-bearing before the fracture has healed is often impossible. In our study 11 hips (40%) in the internal fixation group had unsatisfactory results due to biomechanical failure. This is comparable to the incidence of internal fixation failure in other studies ranging from 10% to 30%. On the other hand, our study confirmed no unsatisfactory functional outcome in hips only among patients treated with hemiarthroplasty, ($p < 0.0008$).⁵⁰ In our study, the results of the hemiarthroplasty group were significantly better than those of the internal fixation group regarding operative time, blood loss, perioperative blood transfusion, and hospital stay. Early postoperative full weight bearing in the hemiarthroplasty group compared with early partial or non-weight-bearing in the internal fixation group was the main reason for significant reduction in postoperative complications such as pressure sores and pulmonary complications.^{50 51}

Conclusion

- 1) Traumatic osteoporotic communitated intertrochanteric femur fracture treated with bipolar heamiarthroplasty is effective modality. Grade A2.2 to Grade 2.3 [A-O Classification.
- 2) In bipolar heamiarthroplasty we ensure early mobilization and ambulation of elderly patient.
- 3) Bipolar heamiarthroplasty give better outcome as compared to internal fixation device with less complication and failure.
- 4) Patients treated with Bipolar heamiarthroplasty had early return to preinjury level as compared to internal fixation.

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