

## Original Research Article

# Functional outcome of intertrochanteric fractures treated with bipolar hemiarthroplasty

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### ABSTRACT

**Background:** Comminuted intertrochanteric fractures with severe displacement are common in elderly patients. These patients have poor bone quality and conventional osteosynthetic procedures frequently lead to non-union and metal failure. The primary goals of treatment are stable fixation and early rehabilitation. There are many treatment for intertrochanteric fractures but our study is on unstable intertrochanteric fractures which are challenging for a surgeon. The aim of this study was to evaluate the results of cemented bipolar hemiarthroplasty as an alternative to other treatment modalities such as DHS or PFN. 21 elderly patients with comminuted and unstable intertrochanteric fractures underwent cemented bipolar hemiarthroplasty.

**Methods:** This study includes 22 cases of intratrochanteric fracture. Mean age of patients was 73.3 (range 60 - 91). All patients are treated with bipolar hemiarthroplasty. Patients are followed up for a mean period of 6 months (range 3-9 months).

**Results:** These patients were evaluated using the Harris hip scoring system. 21 out of 22 had excellent to fair outcomes.

**Conclusions:** In our study of 22 patients, 21 had excellent to fair outcomes with primary cemented bipolar hemiarthroplasty. Bipolar hemiarthroplasty offers good functional outcome and early weight bearing and mobilization.

**Keywords:** Intertrochanteric fractures, Bipolar hemiarthroplasty, Harris hip scores

### INTRODUCTION

Intertrochanteric fractures in elderly are common fractures with high morbidity & mortality. Conventional methods to treat these fractures are associated with many pitfalls.<sup>1,2</sup> Stable intertrochanteric fractures can be easily managed with osteosynthetic methods with satisfactory results but the same cannot be expected in comminuted and unstable intertrochanteric fractures. Excessive collapse, loss of fixation and cut through of the screw are commonly encountered when conventional osteosynthesis is attempted. To allow early postoperative weight bearing and rapid rehabilitation, some surgeons have proposed prosthetic replacement. The literature regarding this is sparse. The purpose of our study is to

evaluate the functional outcomes after cemented bipolar hemiarthroplasty for comminuted and unstable intertrochanteric fractures in the elderly population.

### METHODS

All the patients older than 60 years with comminuted and unstable intertrochanteric fractures who were admitted in our department between June 2015 and May 2016 were evaluated clinically and radiologically. A total of 22 patients were included in our study. Patients with comminuted and unstable intertrochanteric fractures were included in the study. Patients with concomitant other fractures and patients found to be unfit for surgery were

excluded. Institutional ethics committee permission was taken.

Partial weight bearing was allowed from the second postoperative day onwards and the patient was mobilized with the assistance of a four post walker. Mean follow up period was 6 months (3-9 months). Postoperative hip function was evaluated using the Harris hip scoring system for functional outcome.



**Figure 1: a) An unstable intertrochanteric fracture; b) Treated with bipolar hemiarthroplasty,**

## RESULTS

A total of 22 patients (8 males and 14 females) with mean age at the time of surgery being 73.3 years. All the patients were followed up for a period of average 6 month (3-9 months). There was no mortality during follow up. There was one dislocation in this period. The mean Harris hip score was 80.3% and 95.45% of the patients achieved excellent to fair outcomes. At the latest follow up, all the patients had achieved comfortable, unassisted bipedal ambulation.

**Table 1: Harris hip score amongst study population.**

	Number of patients	Percentage (%) of patients
<b>Excellent</b>	2	9.09
<b>Good</b>	10	45.45
<b>Fair</b>	09	40.90
<b>Poor</b>	01	04.54

## DISCUSSION

Intertrochanteric fractures in elderly osteoporotic patients are not always associated with successful outcomes by conventional osteosynthetic techniques. High failure rates have been noted in these situations.<sup>3,4</sup> The importance of early ambulation after surgery has been well documented. Prolonged bed rest is associated with increased incidence of several complications including decubitus ulcers, pulmonary infections, deep vein thrombosis and pulmonary embolism. Conventional osteosynthetic methods cannot offer early ambulation in this set of patients. Hemiarthroplasties can avoid many of the problems associated with internal fixation.<sup>5</sup> Tronzo pioneered the use of prostheses for the primary treatment of comminuted intertrochanteric fractures.<sup>6</sup> Stern and Goldstein also reported good results with the use of

Leinbach prostheses.<sup>7</sup> The safety and effectiveness of bipolar hemiarthroplasty in this situation was further emphasized by the work of Liang et al.<sup>8</sup> Similar opinions were expressed by Grimsrud et al.<sup>9</sup> Kim and co-workers concluded that unstable intertrochanteric fractures treated with internal fixation with dynamic hip screw were associated with high failure rates.<sup>10</sup> Haq and Dhammil also reported variable outcomes following osteosyntheses with the dynamic hip screw.<sup>11</sup> In our study, bipolar hemiarthroplasty offered as a primary treatment modality for comminuted intertrochanteric fractures provided many benefits to the patients. They could ambulate early thereby avoiding the numerous potential complications of prolonged immobilization. The uncertainty of fracture union was also overcome. This technique provided stability to the hip and allowed assisted ambulation from the third postoperative day itself.

## CONCLUSION

In our study of 22 patients, 21 had excellent to fair outcomes with primary cemented bipolar hemiarthroplasty. Early mobilization, less hospital stay and excellent stability offered by this treatment modality makes it a promising method to deal with the challenging problem of comminuted intertrochanteric fractures in the elderly population.

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