



## Original Research Article

## Prospective study of functional outcome of unstable intertrochanteric fractures with hemiarthroplasty using bipolar prosthesis

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## ABSTRACT

**Introduction:** From many years the treatment for intertrochanteric fracture is internal fixation. Now hemiarthroplasty is being considered as a primary modality of treatment in unstable intertrochanteric fractures as it allows immediate full weight bearing and stability. Aim of present study is to analyse and evaluate the role of hemiarthroplasty in unstable intertrochanteric fracture.

**Materials and Methods:** 20 patients with unstable, comminuted intertrochanteric fractures aged above 65yrs are considered in the study from January 2016 to December 2019.

**Exclusion Criteria:** 1. Age less than 60yrs; 2. Stable intertrochanteric fractures; 3. Pathological fractures. Southern moores posterolateral approach was used. Cemented bipolar prosthesis was used in all cases. All cases were followed up for 1year. Patients were assessed using modified Harris hip score.

**Results:** Average age in our study was 70 years according to boyd and griffin type 2 fractures were 16, type 3 were 4 patients. 2cms shortening seen in 5 patients, whereas 1patient had limb shortening of 3 cms. Gluteus medius weakness was seen in 3patients. All cases were assessed using modified harris hip score, in 15cases excellent to fair results were seen (75%), where as 2 cases (10%) had poor results. 3 patients died during the course of follow up and are excluded from study. In our study we had no Complications like stem loosening, periprosthetic fractures, infection and prosthetic dislocations.

**Conclusion:** Primary cemented hemiarthroplasty can be used as an alternate to internal fixation for unstable trochanteric fractures.

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### 1. Introduction

Incidence of intertrochanteric fractures has been on rise due to increased longevity of life and osteoporosis.<sup>1,2</sup> It can be classified in many ways and most important being whether fracture is stable or unstable. Unstable fractures are those with fracture extension below lesser trochanter, reverse oblique extension. Treatment of stable fractures is simple with good results. Treatment of unstable fractures is challenging with more complications. Initially most fractures were treated with extramedullary devices like dynamic hip screw (DHS) with much success. Other disadvantage with this implant is immobilisation as early weight bearing leads to fixation failure and prolonged bed

rest leads to complications like atelectasis and pneumonia, bed sores, UTI and DVT.<sup>3</sup> Hence nowadays trend has been shifted towards intramedullary devices like trochanteric fixation nails for unstable fractures which offers advantages of early partial weight bearing.<sup>4</sup> However long term results are still to be studied. Recently prosthetic replacements have been studied their role in treatment of unstable intertrochanteric fractures.

### 2. Aims of Study

Aim of present study is to analyse and evaluate the role of hemiarthroplasty in unstable intertrochanteric fracture.

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### 3. Materials and Methods

20 patients with unstable, comminuted intertrochanteric fractures were studied in department of orthopaedics of GIMS Gulbarga during the period Jan 2016 to Dec 2019.

#### 3.1. Inclusion criteria

1. Age >60yrs.
2. Unstable fractures (boyd and griffin type 2&3).

#### 3.2. Exclusion criteria

1. Age less than 60yrs.
2. Pathological.
3. Stable fractures.

Average age of patients was 70years, of which 10 were male and 10 female. Left sided fractures were common i.e 12 in number where as right were 8. All patients were operated with cemented bipolar prosthesis and moores approach.

#### 3.3. Surgical technique

We used MOORE'S posterolateral approach as approach is easy and comfortable for most surgeons.

#### 3.4. Post op care

Patient was made sit from day2 and encouraged walking with walker from day 3 onwards. Drain removal and dressing after 48hrs. Suture removal done around 10-12days. Patient is followed up at interval of six weeks, three month, six months and one year. At each follow up patient is evaluated clinically and radiologically for any stem cup loosening, implant failure and infection. Harris hip score is used for evaluation.

### 4. Results

At the end of 2years following observations are made. Out of 20 patients 3 died within 6months for cause not related to surgery. Remaining 17 were followed for 1year. Most common comorbidities were hypertension (9patients) and diabetes (3patients). Tension band wiring is done for 4 cases for greater trochanter. Average blood loss was 300ml. no cement related complications occurred intraoperatively. At 1 year follow up, 4 patients walked independently, 11 patients walked with support, 4 patients complained of thigh pain. No incidence of DVT, bed sores, cardiorespiratory complications were noted postoperatively. All cases were assessed using modified harris hip score, in 15cases excellent to fair results were seen (75%), where as 2 cases (10%) had poor results.

At the end of 1 year no prosthetic dislocation, stem loosening and periprosthetic fractures are noted. Shortening of more than 3cm was seen in 1patient. The functional results were result as assessed by modified Harris hip score.



Fig. 1: Case 1: Pre op



Fig. 2: Immediate post op



Fig. 3:



**Fig. 4:** Follow up 1 year



**Fig. 5:** Case 2: Pre op



**Fig. 6:** Immediate post op



**Fig. 7:** 1 year



**Fig. 8:** Case 2: Follow up at 1 year

## 5. Discussion

Recently Hemiarthroplasty was used as a alternative for internal fixation as it provides early weight bearing and stability.

Our study which included 20cases was comparable to most studies as follows.

Mean age in our study was 70 years, which was comparable with study done by sancheti.<sup>5</sup>

In our series 5 patients out of 20 cases had gluteus medius weakness which is comparable to study done by Sanchetti et al.<sup>5</sup>

In a study by Siwach et al, observed shortening of < 5mm in 64% of cases, and lengthening of 0.5 cm to 1 cm was seen in 28% of cases.

Kiran Kumar et al,<sup>6</sup> reported 20% cases had shortening of less than 2cm, 10% of case ad shortening of more than 2 cm. In our study there were 5cases who had shortening of less than 2cm and 1 case who had shortening of more than 2cm which were comparable to above studies.

A study by rodop et al<sup>7</sup> on 37 IT fractures treated with bipolar prosthesis achieved 82% of good to excellent results as assessed by Harris hip score.

A similar study done by Sancheti<sup>5</sup> also reported 71% of good to excellent results. In our study fair to excellent results was achieved in 75% of cases.

## 6. Conclusion

Our study concluded that as primary hemiarthroplasty offers many advantages like early mobilisation, pain free mobile joint and early return to work as compared to internal fixation. Hence it can be considered as a treatment option in comminuted intertrochanteric fracture.

## 7. Source of Funding

None.

## 8. Conflict of Interest

None.

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