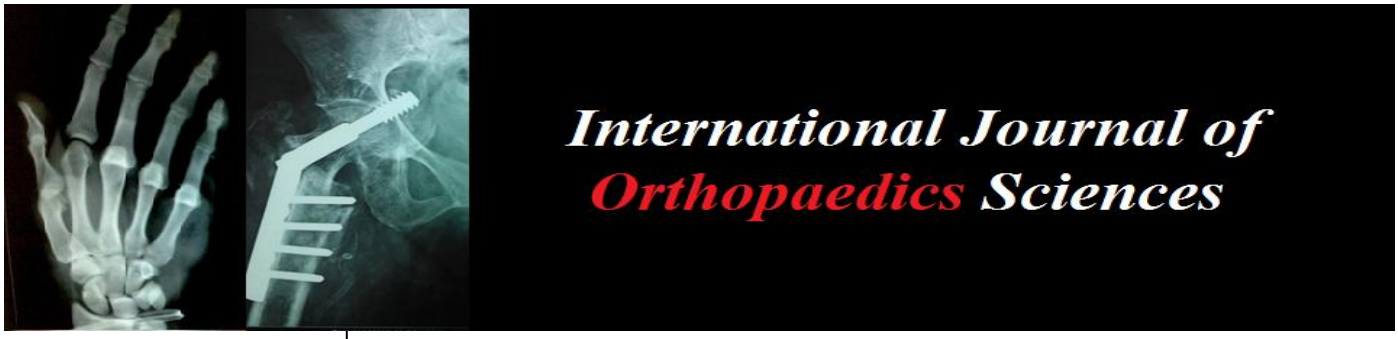

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Results of primary hemireplacement arthroplasty in comminuted unstable fracture of intertrochanteric region in old age patients

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Abstract
A prospective study of 20 patients having comminuted unstable intertrochanteric fracture 31A2 according to AO classification treated with cemented bipolar was done between April 2008 to September 2010 at Sir T Hospital, Bhavnagar. We studied postoperative complications, mortality rate, functional outcome using Harris hip score and radiological evidence of healing. Average age of the patients was 84 years. Females outnumber males by a ratio of 3:1. 40% patients had associated medical illness. Average injury operation interval was 3.1 days. Final results were evaluated in 17 patients. 90% of patients were operated by modified Gibson's approach. Mobilisation and weight bearing was started immediately in the postoperative period. Average time taken to return to normal daily activities was 31 days. Mortality rate was 10%. One patient died on the 5th postoperative days due to pulmonary embolus and renal failure. 1 patient died at one month due to IHD. 5% patient had dislocation. No loosening or infection of the implants was observed. 1 patient had superficial infection which was resolved with antibiotic. Functional outcome was evaluated with Harris hip score. Harris hip score was 79±5.31 (mean± standard deviation); at 3 months 81±5.47; at 6 months 84±4.68; at 1 year 85±3.83. This procedure offers good functional outcome, avoids complications associated with internal fixation and mechanical failure in old age osteoporotic patients.

Keywords: Hemiarthroplasty, cemented bipolar, old age, osteoporosis, intertrochanteric fracture

1. Introduction
Unstable intertrochanteric fracture in elderly patients associated with high rates of morbidity and mortality [1, 2]. Comminution, osteoporosis and instability often preclude the early resumption of full weight bearing in spite of use of internal fixation [2]. Reported overall failure rate with internal fixation in intertrochanteric fractures has been reported to 3-16.5% [3, 4]. Internal fixation may be associated with non-anatomic reduction of fracture fragments, long bed rest periods, prolonged protected weight bearing, bone fragment necrosis and secondary loss of reduction due to unstable fixation in poor quality bone [5, 6, 7, 8].
The aim of this study was to analyse the role of primary hemi replacement arthroplasty in unstable osteoporotic intertrochanteric fracture (AO/OTA type 31A2.2 and 31A2.3) in terms of clinical and radiological outcome.

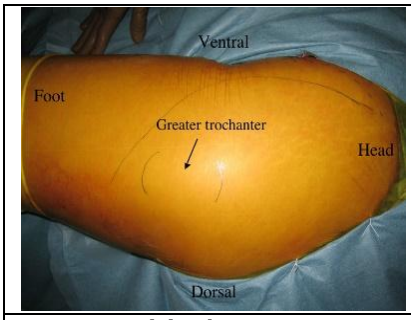
2. Materials and methods
After institutional review board's approval 20 patients with unstable intertrochanteric fracture (31A2.2and 31A2.3 AO/OTA classification) were prospectively included in this study between April 2008 to September 2010 operated at Sir T Hospital, Bhavnagar.
Inclusion criteria was (1) AO/OTA classification type 31 A2 fractures (2) Patients aged ≥65 years (3) Informed consent obtained. Exclusion criteria (1) Pathological fracture, (2) Patients with neurological disorders. Outcome was reviewed in terms of functional outcome using Harris hip score and radiological outcome.

2.1 Surgical technique
All patients were operated under spinal anaesthesia within average 3 days of admission. AP and axial radiographs were used for appropriate planning. 18 patients were operated using modified Gibson approach and 2 patients were operated using anterolateral approach to expose the proximal femur, capsule and acetabulum.

The joint capsule was opened using T shaped capsulotomy, the femoral head was extracted, and head size measured. The femoral neck was cut following the preoperative measurement. Temporary reduction and fixation of the greater and lesser trochanter were performed to determine femoral length and anteversion. Femoral canal preparation was then undertaken using entry reamer and rasp. Definitive greater trochanter fixation was done by tension band wires inserted in holes drilled in the proximal and distal fragments. The lesser trochanter was also reduced and fixed using tension band wiring. After fragment fixation cemented modular bipolar hip prosthesis were used in all cases due to poor bone quality. Low viscosity cement was used due to better penetration through drilled holes. The range of motion and stability was checked again. The capsule was repaired, the short external rotators reattached and the wound closure was done over a suction tube.

2.2 Postoperative protocoal

Limb was kept in abduction using abduction wedge. Haemoglobin level assessment was done after 24 hrs of surgery and blood transfusions were given wherever required. Drains were removed after 48 hours and check films were done. All patients were advised to avoid excessive flexion and adduction. Weight bearing was advised as tolerated on 2st post-operative day using walker. Static quadriceps exercise, gluteal exercise, ankle stretching exercise were taught from 1st post-operative day. The patient was discharged after complete rehabilitation. Patients were followed at monthly intervals for first 3 months, then every 3 months for a year. Patients were assessed for functional outcome using Harris hip score and radiological.



Lateral decubitus position

Modified Gibson approach

Preoperative x ray showing comminuted intertrochanteric fracture

Post operative x ray showing cemented bipolar hip proshthesis with trochanteric wire fixation

3. Results

The mean operative time was 87.5 minutes (range 70-120). Average intraoperative blood loss were 300 ml and average post-operative drainage was 90 ml. Results were evaluated radiologiaclly and functional outcome using Harris hip score.

Age distribution (in years)	No. of patients
70-79	4
80-89	11
90-99	4
100-109	1

Post-operative complication	No. of patients
Infection	1
Dislocation	1
Limb Lengthening	4(0.5-1.5cm)

Position of stem	No of patients
Neutral	17
Varus	2
Valgus	1
Radiographic result	**No of patients**
Loosening	None
Acetabular erosion	None
Non-union of Greater trochanter	None

Functional outcome	Harris Hip score	Harris hip score	No. of patients
1 month	79±5.31SD	Excellent	0
3 months	815±.47SD	Good	14
6 months	84±4.68SD	Fair	3
1 year	85±3.83SD	Poor	0

One patient developed superficial wound infection resolved with antibiotic. One patient developed posterior hip dislocation on 4 th post operative day. Closed reduction done under general anaesthesia and abduction bar given for 3 weeks. Patients returned to their normal daily activities after 1 month. All fractures demonstrated good radiological healing.

4. Discussion

Cephalomedullary nail fixation has been reported as the treatment of choice for unstable intertrochanteric fractures [10]. Sliding hip screw devices have also been used by some authors in combination with trochanteric stabilizing plate, trochanteric screw or tension band wires. However after fracture fixation full weight bearing are delayed in order to prevent secondary displacement of fracture fragment [13, 14]. There is considerable incidence of complications such as pulmonary embolism, deep venous thrombosis and

pneumonia when these fractures are treated by internal fixation.

Due to high failure rate and complications associated with internal fixation many authors have used hemireplacement as primary treatment of these fractures.

Hemirepalcement hip arthroplasty has been used for unstable intertrochanteric fracture since 1971 [9]. There are multiple studies showing good results using this techniques. Grimsrud *et al* showed that AO/OTA type 31A2.3 fractures can be safely treated with standard femoral stem and circlage wiring of both trochanters [4]. Elderly patients who are often unable to co-operate with partial weight bearing required after an internal fixation accepts full weight bearing easily. This reduces the period of bed rest and rate of complications [15, 16].

In our study primary hemireplacement arthroplasty of hip was associated with better functional outcome. Patients were able to perform their normal activities within a month and they showed progressive improvement in the first 3 months. All patients demonstrated good functional outcome in spite of their advanced age.

5. Conclusion

In present study primary hemireplacement arthroplasty of hip for treatment of unstable intertrochanteric fracture in elderly osteoporotic patients seems a secure and effective procedure while showing an improved quality of life, faster recovery rate and immediate post-operative weight bearing. Early mobilization is advantageous in preventing pulmonary complications, venous thrombosis and decubitus ulcer. This procedure allows quick recovery with little risk of mechanical failure.

6. References

1. White BL, Fisher WD, Laurin CA. Rate of mortality for elderly patients after fracture of the Hip in 1980's.J Bone Joint Surg. 1987; 69-A:1340. [PUBMED]
2. Said GS, Farouk O, El- Sayed A, Said HG. Salvage of failed dynamic hip screw fixation of intertrochanteric fracture. Injury. 2006; 37:194-202. doi:10.1016/j.injury.2005.09.11.[PUBMED]
3. Haentjens P, Casteleyn PP, Opedecam P. Hip arthroplasty of failed internal fixation of intertrochanteric and sub trochanteric fractures in elderly patient. Arch Orthop Trauma Surg. 1994; 113(4):222:227. doi:10.1007/BF0441837[PUBMED]
4. Davis TR, Sher JL, Horsman A, Simpson M, Porter BB, Checketts RG. Intertrochanteric femoral fracture. Mechanical failure after internal fixation. J Bone Joint Surg. 1990; 72:26-31. [PUBMED]
5. Sancheti KH, Sancheti PK, Primary hemiarthroplasty for unstable osteoporotic intertrochanteric fracture in the elderly. A retrospective study. Indian J Orthop. 2010; 44(4):423-434. [PUBMED]
6. Utrilla AL, Reig JS. J Orthop Trauma. 2005; 19(4):229-233. [PUBMED]
7. Saudan M, Lubbeke A. J Ortop Trauma. 2002; 16(6):386-393. [PUBMED]
8. Nuber S, Schonweiss T, Ruter A. Unfallchirurg, 2003; 106(1):39-47. [Crossref]
9. Stern MB, Goldstein TB. Clin Orthop Relat Res, 1977; 128:325-331.
10. Sadowski C, Lubbeke A. J Bone Joint Surg Am. 2002; 84(3):372-381.
11. Early attempts at hip arthroplasty-1700 to 1950. P.F. Gomez and J.A. Morcuende. The Iowa Orthopaedic Journal. 25.
12. Rockwood and Green's Textbook of Fractures in adult.
13. Braddom BR, Chan L, Fall k. Editior. 2nd edition, Philadelphia, Usa, Elsevier Saunders.
14. White BL, Fisher WD. J Bone Joint Surg Am. 69(9):1335-1340.
15. haentjens P, Casteleyn PP. Opedecam. J Bones Joint Surg Am. 1989; 71:1214-1225. [PUBMED]
16. haentjens P, Casteleyn PP. Opedecam. Acta Orthopedica Belgica.199ica, 1989; 60(1)124-128.