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Functional Outcome of Bipolar Hemiarthroplasty for Unstable Intertrochanteric Fractures in Indian Population- A Series of 20 Cases

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Abstract: *Intertrochanteric fractures in the elderly is one of the commonest fractures with high risk of morbidity and mortality. There are a number of options for treatment of intertrochanteric fractures but our interest is on unstable intertrochanteric fractures which are much more challenging for the surgeon. conventional osteosynthetic methods to deal with these fractures are associated with numerous pitfalls [1,2]. The aim of our study is to evaluate the results following cemented bipolar hemiarthroplasty as an alternative to the standard osteosynthetic procedures such as DHS or PFN. Since, 2012, 20 elderly patients with comminuted and unstable intertrochanteric fractures underwent cemented bipolar hemiarthroplasty. These patients were evaluated using the Harris hip scoring system. 19 out of 20 had excellent to fair outcomes. So, bipolar hemiarthroplasty appears to be a viable solution to address the problems involved in osteosynthetic procedures for unstable intertrochanteric fractures in the elderly.*

Keywords: *Unstable intertrochanteric fractures, bipolar hemiarthroplasty, Harris hip scores, osteosynthetic procedures.*

I. Introduction

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. 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 post operative 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.

II. Materials And Methods

All the patients older than 60 years with comminuted and unstable intertrochanteric fractures who were admitted in our department between January 2012 and January 2014 were evaluated clinically and radiologically. A total of 20 patients (16 male and 4 female) with mean age at the time of surgery being 65 years, were included in our study. Patients with concomitant other fractures and patients found to be unfit for surgery were excluded.

Patient is placed in lateral decubitus position and the hip joint is approached through transtrochanteric approach. Fractured head and neck were taken out transtrochaterically without incising the posterior short external rotator muscles. In cases where a posteromedial deficiency involving the calcar was found, reconstruction of this region was accomplished via fashioned autologous bone graft harvested from the excised femoral head. For this, a chunk of bone was cut from the femoral head. Its cartilage attachment was stripped off. The chunk was modeled into a peg with oscillating saw and bone nibbler. This peg was securely placed in the posteromedial area of the proximal femur to compensate for the absence of the original calcar. All other fragments of the greater and lesser trochanter were stabilized with cerclage wiring.

Partial weight bearing was allowed from the third post operative day onwards and the patient was mobilized with the assistance of a four post walker. Mean followup period was one year (6months to 2years). Post operative hip function was evaluated using the Harris hip scoring system.

III. Results

All the patients were followed up for a period of average one year(six months to two years). There was no mortality during followup. There were no dislocations in this period. Two patients had superficial surgical site infections which were successfully treated with empirical antibiotic therapy.The mean Harris Hip Score was 84.5 and 95% of the patients achieved excellent to fair outcomes. At the latest followup, all the patients had achieved comfortable, unassisted bipedal ambulation.

Outcome according to HHS	Number of Patients	Percentage of Patients
Excellent	4	20%
Good	12	60%
Fair	3	15%
Poor	1	5%

The other parameters are as tabulated below:

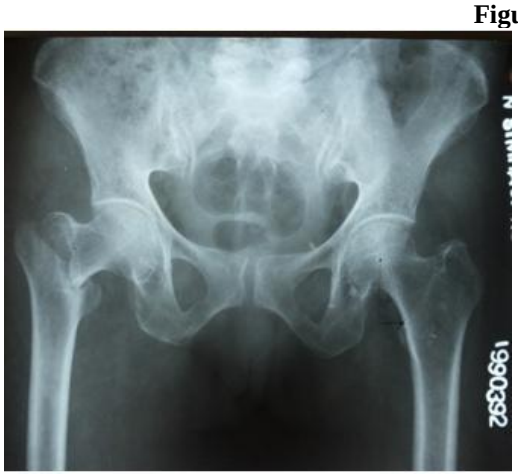
Mean hospital stay	10 days
Mean interval between fracture and surgery	3.4 days
Mortality during followup	none
Mean time taken to achieve independent ambulation	8 days
Number of revision surgeries	none
Number of dislocations	none
Incidence of stem subsidence	0
Infection	2 patients had superficial surgical site infection, treated successfully with empirical antibiotic therapy

Figure I

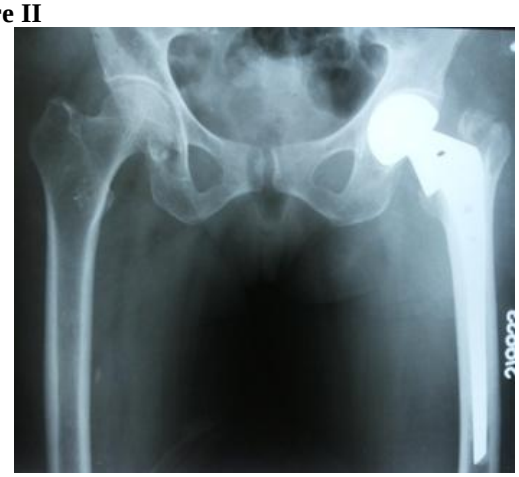
Ia Pre Operative Radiograph

Ib Post Operative Radiograph

Figure II



Iia Pre Operative Radiograph



Iib Post Operative Radiograph

IV. 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 [3, 4]. 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[5]. Tronzo pioneered the use of prostheses for the primary treatment of comminuted intertrochanteric fractures[6] . Stern and Goldstein also reported good results with the use of Leinbach prostheses[7]. The safety and effectiveness of bipolar hemiarthroplasty in this situation was further emphasized by the work of Liang et al[8]. Similar opinions were expressed by Grimsrud et al[9]. Kim and co-workers concluded that unstable intertrochanteric fractures treated with internal fixation with Dynamic Hip Screw were associated with high failure rates[10]. Haq and Dhammil also reported variable outcomes following osteosyntheses with the Dynamic Hip Screw[11] .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 post operative day itself.

V. Conclusion

In our study of 20 patients,19had excellent to fair outcomes with primary cemented bipolarhemiarthroplasty. The meticulous reconstruction of the posteromedial calcar area played a crucial role in the stable implantation of the bipolar prosthesis. 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.

References

[1]. Haidukewych GJ, Israel TA, Berry DJ. Reverse obliquity fractures of the intertrochanteric region of the femur. J Bone Joint Surg Am. 2001; 83(5):643- 50.
[2]. Kang SY, Lee EW, Kang KS, et al. Mode of fixation failures of dynamic hip screw with TSP in the treatment of unstable proximal femur fracture: biomechanical analysis and a report of 3 cases. J Korean Orthop Assoc. 2006; 41(1):176- 80.
[3]. Kyle RF, Cabanela ME, Russell TA, Swiontkowski MF, Winquist RA, Zuckerman JD, et al. Fractures of the proximal part of the femur. Instr Course Lect. 1995; 44:227-53.
[4]. Haidukewych GJ, Israel TA, Berry DJ. Reverse obliquity fractures of the intertrochanteric region of the femur. J Bone Joint Surg Am. 2001; 83:643-50.)
[5]. Baumgaertner MR, Levy RN. Intertrochanteric hip fracture. In: Browner BD, Levine AM, Jupiter JB, editors. Skeletal Trauma. Vol 2. Philadelphia: W B Saunders; 1992; 1833-81.
[6]. Tronzo RG. The use of an endoprosthesis for severly comminuted trochanteric fractures. Orthop Clin North Am. 1974; 5:679-81.
[7]. Stern MB, Goldstein TB. The use of the Leinbach prosthesis in intertrochanteric fractures of the hip. Clin Orthop Relat Res. 1977; 128:325-31.
[8]. Liang YT, Tang PF, Guo YZ, Tao S, Zhang Q, Liang XD et al. Clinical research of hemiprosthesis arthroplasty for the treatment of unstable intertrochanteric hip fractures in elderly patients. Zhonghua Yi Xue Za Zhi. 2005; 85:3260-62.
[9]. Grimsrud C, Monzon RJ, Richman J, Ries MD. Cemented hip arthroplasty with a novel cierclage cable technique for unstable intertrochanteric hip fractures. J Arthroplast. 2005; 20:337-43.
[10]. Kim WY, Han CH, Kim JY. Failure of intertrochanteric fracture fixation with dynamic hip screw in relation to pre-operative fracture stability and osteoporosis. Int Orthop. 2001;25:360-62.
[11]. Haq RU, DhammiI K. Clinical outcome following treatment of stable and unstable intertrochanteric fractures with dynamic hip screws. Ann Acad Med Singapore. 2012 Jun; 41(6):275-76.