ORIGINAL RESEARCH PAPER

Volume-7 | Issue-10 | October-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

RESULTS OF CEMENTED BIPOLAR HEMIARTHROPLASTY FOR UNSTABLE INTERTROCHANTERIC FRACTURES IN ELDERLY PATIENTS

Orthopaedics

Dr Himanshu D. Shah* Assistant Professor, Orthopaedics *Corresponding Author

Dr Viswanath H. Chavali Associate Professor, Orthopaedics

ABSTRACT

Intertrochanteric fractures are common in elderly osteoporotic population. Unstable intertrochanteric fractures in elderly population are notorious for reduction and fixation due to comminution posteromedial wall fracture. Conventional implants used for such unstable intertrochanteric fractures have higher failure rates due to associated osteoporosis with delayed weight bearing protocol in postoperative period with increase rate of morbidity and mortality. Fixation of fracture with appropriate implant still is considered gold standard for stable two part intertrochanteric fractures.

However for unstable fractures, bipolar cemented hemiarthroplasty is one of the surgical treatement which allows early pain free weight bearing and decrease in morbidity and mortality.

KEYWORDS

Unstable intertrochanteric fractures, bipolar hemiarthroplasty.

INTRODUCTION: Intertrochanteric fractures with unstable pattern is common in elderly individuals due to osteoporosis. The worldwide estimate of hip fractures in elderly patients was 1.66 million in 1990 and the number is projected to rise to 6.26 million in 2050. In india, the incidence is on rise in line with the population and life expectancy (1).

For stable intertrochanteric fractures, internal fixation either by proximal femoral nail or dynamic hip screw with plate still remains the treatment of choice. Whereas in unstable intertrochanteric fractures, internal fixation using such implants may result in implant failure with screw migration, rotational deformity, and revision surgery and associated morbidity. Prosthetic replacement with cemented hemiarthroplasty is another viable option for unstable intertrochanteric fractures in elderly individuals allowing early weight bearing and less implant related complications.

The purpose of this study was to evaluate the results of cemented hemiarthroplasty for unstable intertrochanteric fractures.

METHOD:

This was analytic study of 24 patients with unstable pattern of intertrochanteric fractures who presented to tertiary care teaching hospital between june 2016 to june 2017. All fractures were classified based on AO classification system.

The inclusion criteria were unstable intertrochanteric fractures of AO type 2.2 and 2.3 in elderly individuals from age 60 years and above.

stable intertrochanteric fractures and fractures extending into subtrochanteric region were excluded from the study.

All patients were operated for cemented hemiarthroplasty in lateral position approaching the standard modified Gibbson's approach used for hemiarthroplasty. After soft tissue dissection, the proximal fracture fragment was extracted using cork screw and preserved on side table for further use to augment medial calcar.

The femoral canal was prepared with rasp with increasing size. The acetabulum was cleared of any loose bony fragments and the ligamentum teres was excised. The head size was taken from extracted proximal fracture fragment. Greater trochanter was temporarily fixed using k wires. Trial prosthesis was inserted in the canal according to the size. The desired length was measured in respect to the tip of greater trochanter which is in the same horizontal plane as centre of femoral head. The deficient medial calcar was prepared from extracted proximal fracture fragment and trial taken with modular neck head prosthesis. Limb length was confirmed intraoperatively by longitudinal comparison of both limbs after reduction with trial prosthesis. Canal was prepared for cementing. The desired size stem was inserted in canal after cementing keeping calcar graft in situ. Again the trial was taken using modular neck and head components. Appropriate final head and neck component were inserted and reduction done.

Routine postoperative protocol as with regular hemiarthroplasty was followed.

After complete suture removal, all patients were followed up regularly at monthly intervals for 6 months and then at 9 months and 12 months. Harris hip score was assessed in each follow up.

FIGURE 1: Preoperative And Postoperative Radiograph Of Hip

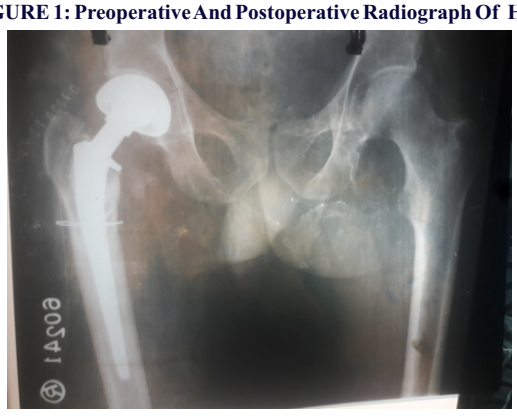

FIGURE 2: Postoperative Radiograph Of Pelvis With Both Hips

RESULTS:

We have enrolled 24 patients in this study who had unstable intertrochanteric fractures. Out of 24 patients, 22 had sustained trauma

due to fall from standing height and only 2 had sustained fracture due to road traffic accident. The average age in our study as 66 years. There were 17 female patients and 7 male patients. The average time duration for surgery was 100+- 15 minutes. Greater trochanter was required to be reconstructed in 10 patients.

All patients were allowed full weight bearing with support from 2nd postoperative day. 2 patients had shortening of more than 2 cm and 15 patients had equal limb length. One patient had lengthening of 1.5 cm while 6 patient had shortening less than 2 cm. There was no incidence of postoperative surgical wound discharge in any patient except one patient who had superficial infection which resolved within 5 days with intravenous antibiotics. The mean hospital stay was 12 days postoperatively. No complications were encountered in any patient during follow up period. Excellent to good results were obtained at final follow up of 12 months in 20 and 4 patients respectively.

The average Harris Hip Score was 75 at final follow up. Radiologically, in final follow up, there was no signs of loosening or acetabular erosion.

DISCUSSION:

Intertrochanteric fractures are one of the most common type of fractures in elderly individuals due to Osteoporosis (2). Of all the Intertrochanteric fracture, 40% are unstable variety with three or four part configuration with greater trochanteric fracture and posteromedial wall comminution (1,3). Routinely proximal femoral nailing and dynamic hip screw with plate is the treatment of choice for intertrochanteric fractures(2). But high failure rates are associated with unstable intertrochanteric fractures treated with conventional implants like nail and plates upto 20%.

Prolonged non weight bearing is associated with other complications like pulmonary embolism, DVT and pneumonia. Early weight bearing is precluded due to instability of fracture pattern, loss of posteromedial support in reduction, osteoporosis, three or four part of intertrochanteric fractures with greater trochanter as a separate fracture fragment (3,4).

Primary arthroplasty using cemented bipolar component is a described method of treatment for unstable intertrochanteric fractures for providing early mobility and decreased morbidity and mortality.

Earlier authors have noted increased duration of surgery and more blood loss. But availability of good surgical instrumentation and improved technique of cementing have contributed to decrease in duration of surgery and blood loss as well. In loss of posteromedial wall with intertrochanteric fractures, use of calcar replacing prosthesis is recommended. The advantages of replacing posteromedial defect with strut graft from patient's own extracted proximal fracture component include, Less expensive conventional bipolar prosthesis use, restoration of normal limb length, less of implant material used as compared to calcar replacing prosthesis so more native bone is available for future revision surgery if needed (2). We used standard bipolar prosthesis with cement in all patients with building of calcar using patient's own proximal fracture fragment put intramedullary to prevent future collapse of prosthesis and easy incorporation of graft in native bone by callous.

Tronzo was the first surgeon to use intramedullary stem prosthesis in intertrochanteric fractures.Rosenfield and Schwartz reported good results with the use of the Leinbach prosthesis.Rodop et al. had studied 37 unstable intertrochanteric fractures treated with bipolar prosthesis with excellent to good results. The earliest comparison of internal fixation and hemiarthroplasty was done by Haentjens et al. showing a good reduction in the incidence of pneumonia and bed sores in prosthetic replacement patients with intertrochanteric fractures. In a comparative study of cone hemiarthroplasty versus internal fixation, Kayali et al. reached the conclusion that clinical results of both groups were similar. Hemiarthroplasty patients were allowed full weight bearing earlier than the patients treated with conventional nails or plates (1,3,5).

Greater trochanter reconstruction during surgical procedure helps in restoring abductor lever arm and reducing postoperative lurch in gait due to abductor weakness (6).

In conclusion, cemented bipolar hemiarthroplasty provides stable, painfree treatment modality with early weight bearing protocol with significantly decreased complication rate.

REFERENCES

1. KH Sancheti, PK Sancheti, AK Shyam, S Patil, Q Dhariwal, R Joshi. Primary hemiarthroplasty for unstable osteoporotic intertrochanteric fractures in the elderly: A retrospective case series. Indian Journal of Orthopaedics 2010;44(4):429-34
2. Chandrashekar J Thakkar, Savyasachi Thakkar1, Rajshekhar T Kathalgere2, Malhar N Kumar. Calcar femorale grafting in the hemiarthroplasty of the hip for unstable inter trochanteric fractures. Indian Journal of Orthopaedics 2015;49(6): 602-9.
3. Chandra Prakash Pal, K. S. Dinkar, Vivek Mittal, Amrit Goyal, Mreetaunjay Singh, Asif Hussain. Role of bipolar hemiarthroplasty and total hip arthroplasty in unstable intertrochanteric fracture femur. Journal of Orthopaedics and Allied Sciences2016; 4(2):69-74.
4. Dr atul patil et al. Role of Cemented Bipolar Hemiarthroplasty for Comminuted Intertrochanteric Femur Fracture in elderly osteoporotic patients through a modified Transtrochanteric approach- "SION Hospital Modification". IOSR Journal of Dental and Medical Sciences2013; 9(4):40-47.
5. Kiran Kumar GN1, Sanjay Meena2, Vijaya Kumar N3, Manjunath S4, Vinaya Raj MK5 Bipolar Hemiarthroplasty in Unstable Intertrochanteric Fractures in Elderly: A Prospective Study. Journal of Clinical and Diagnostic Research 2013 Aug, Vol-7(8): 1669-1671.
6. Subramanian G V , Guravareddy A V , Anil Kumar Reddy K R , Chiranjeevi T. Greater Trochanter Reconstruction in Unstable Intertrochanteric Fractures Treated With Cemented Bipolar Hemiarthroplasty. Journal of orthopaedic case reports 2012;2(3):28-30.