



Management of Intra Capsular Fracture Neck of Femur With Austin Moore's Hemiarthroplasty"—A Clinical Study

KEYWORDS

HEMIARTHROPLASTY, AUSTIN MOORES PROSTHESIS, FRACTURE NECK OF FEMUR.

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ABSTRACT *INTRODUCTION:* Intracapsular fractures of neck of femur form a major share of fractures in elderly persons. The high rate of complications including non-union and avascular necrosis of femoral head has led to these fractures being deemed as unsolvable. Hip replacement arthroplasty is emerged as a most viable treatment option and in that hemiarthroplasty with Austin moores prosthesis is among the most commonly employed in elderly age group. The present study presents the short term results of prospective randomized trial of Hemiarthroplasty with Austin Moore's Prosthesis for the treatment of displaced femoral neck fractures in the elderly. Outcome at 6 months and 12 months were analyzed by modified Harris hip scoring system.

AIM AND OBJECTIVE: To assess the functional outcome of primary hemi-replacement arthroplasty of hip for displaced femoral neck fracture in the elderly patients by Austin Moore prosthesis. To substantiate the continued usefulness of Austin Moores prosthesis in modern day orthopaedic practice.

MATERIALS AND METHODS: Fifty cases of fracture neck of femur above the age of 60 years who were treated by hemiarthroplasty using Austin Moore's prosthesis were studied, analysed and the functional outcome was assessed. In all cases Moore's southern approach was used for surgical approach. Most of the cases are followed for 12 months and results are assessed using harris hip score.

RESULTS: In our study of the fifty cases 4 cases died after hemiarthroplasty due to associated medical co morbidities and two patients were lost for follow up. 30 patients (68.18%) out of 44 patients, had excellent results, 10 patients (22.72%) had good results, 3 patients (6.81%) had fair results and one patient had poor results according to HARRIS HIP SCORING SYSTEM. One patient developed periprosthetic fracture, Five patients developed superficial wound infection which were treated with antibiotics and regular dressings and wounds healed well.

CONCLUSION: Hemiarthroplasty by using Austin Moore prosthesis is a good option in elderly patients with displaced fracture neck of femur. The operative procedure is simple, mortality and morbidity associated with it is meagre. The complications are less disabling, weight bearing is early, functional results are satisfactory.

INTRODUCTION:

Intracapsular femoral neck fractures Form a major share of fracture in elderly. Osteoporosis, comorbidities, increased incidence of trivial trauma increases the incidence & complicates the treatment of these fractures. Treatment goal is to return the patient to his or her pre morbid status of function. Ambrose pare initially described fractures of proximal femur in 1564. Sir Jacob Astley Cooper in 1822 was first to describe intra and extracapsular fracture neck of femur. Femoral neck fractures have been considered as unsolvable fractures in older era of orthopaedics due to high rates of associated complications which include nonunion, avascular necrosis of femoral head. Intracapsular extent of fracture, tenuous blood supply to femoral head going through the neck & difficulty in maintaining fracture reduction have been cited as reasons for failure of fixation. In those days therapeutic options are few the patients are treated with bed rest, traction and derotation bars, Whitman's hip spica application etc., which resulted in recumbency. Attempts of internal fixation dates back to 1850 in which, SENN claimed higher rate of union in fracture neck of femur by using internal fixation in his canine trials in 1883, but his arguments are rejected outright. In 1916 Hey Grooves introduced his quadrifanged nail for fracture neck of femur. The first effective method of internal fixation was introduced by Smith Peterson by his triflanged nail. Later ' Multiple cannulated Pins ' for internal fixation of femoral neck fractures was used. Hip replacement arthroplasty {partial or total} developed through the mid-1900s and has emerged as a most viable treatment

option, as it allows immediate weight bearing to return elderly patients to activity, eliminates osteonecrosis & non union as complications of femoral neck fractures and reduce the incidence of reoperation compared with internal fixation in elderly. The Judet brothers introduced acrylic femoral head, Later modified by Frederick Röeck Thompson, who developed a Vitallium prosthesis in 1950 which featured a distinctive flared collar below the head and a vertical intramedullary stem. Austin Moore prosthesis is a first generation femoral head endoprosthesis that relies on interference fit between the stem and medullary canal. Even with development of bipolar endoprosthesis the Austin Moore prosthesis remain one of commonly used hip prosthesis in india how ever thigh pain & protrusio acetabuli in younger patients have been associated with this device. How ever in elderly patients, when the cost of treatment & potential complications of modern hip prosthesis are considered, it appear wise to limit the use of bipolar & total hip arthroplasties to patient who are most likely to benefit from them. Moreover studies on functional outcomes of Austin Moore prosthesis vs bipolar prosthesis have shown the end results to be same. This technique is used mainly as a salvage procedure in old fracture neck femur with non-union, for failed internal fixation and in elderly patients and fresh fracture neck femur in whom there is not much functional demand, particularly, people who lead a sedentary life. The present clinical study presents the short term results of prospective randomized trial of Hemiarthroplasty with Austin Moore's Prosthesis for the treatment of displaced femoral neck fractures in the elderly and to sub-

stantiate its use in modern day orthopaedic practice.

Outcome at 6 months and 12 months were analyzed by modified Harris hip scoring system.

AIM AND OBJECTIVE

To assess the functional outcome of primary hemi-replacement arthroplasty of hip for displaced femoral neck fracture in the elderly patients by Austin Moore prosthesis. To substantiate the continued usefulness of Austin Moore's prosthesis in modern day orthopaedic practice.

PATIENTS & METHOD OF STUDY

The present study was conducted in the department of orthopaedics at Alluri Sitarama Raju academy of medical sciences Hospital, Eluru, between June 2011 and September 2013 (over a period of 28 months). 50 adult patients with Intracapsular Fracture neck of Femur were selected for the present study. A total number of 1336 bony injuries were reported to ASRAM hospital casualty and Orthopaedic OPD during the above said period. Out of which 927 were lower limb fractures. The femoral fractures were 437(47.14%) and the femoral neck fractures are 264(60.41). The Intracapsular fractures are 115(42.5%). By deducting patients who come under exclusion criteria, 50 patients were selected for the Hemi replacement with Austin Moore's Prosthesis. Four patients died due to associated medical comorbidities, two patients were lost for follow up. Hence functional assessment was done on 44 patients.

INCLUSION CRITERIA:

1) Male and female patients more than 60 years of age with fracture neck of femur. 2) Fractures of the femoral neck which are otherwise unsuitable for osteosynthesis.

EXCLUSION CRITERIA INCLUDED:

1) Patients less than 60 years of age. 2) Patients who were nonambulatory 3) Severe infection present somewhere in body.

On admission all patients were evaluated clinically and radiologically and were stabilized hemodynamically. Radiographs of pelvis with both hips were taken. Skin traction was applied to the fractured limb as a preliminary measure. Routine laboratory surgical profile was done for all patients and were obtained fitness for anaesthesia and surgery. Patients were operated as early as possible using Moore's southern approach. Routine antibiotics and anti-inflammatory drugs were given after surgery. Post-operatively patients are advised non-weight bearing, Knee flexion, isotonic quadriceps exercises and Hip abduction, flexion and extension exercises after 48 hrs. Patients were made to stand up with support (walker) and were allowed to full weight bear and walk with the help of a walker on the tenth postoperative day depending on his/her pain tolerance and were encouraged to walk thereafter. Patients were discharged following suture removal after 10 days approximately. Radiological examination was done after 2nd post-operative day to assess prosthesis seating. Patients were called for follow up at 3 months intervals. Results were assessed by using HARRIS HIP SCORE.

OBSERVATIONS

INCIDENCE OF FRACTURES IN DEPT. OF ORTHOPAEDICS,

ASRAM BETWEEN JUNE 2011 AND SEPTEMBER 2013.

Total NO. of fractures	Lower limb fracture			Upper limb fractures	Other fractures
1336	927			382	27
	Femoral fractures		other fractures		
	437	490			
	Proximal Femoral fractures	Intracapsular fractures	others		
264	115	149			

A total number of 1336 bony injuries were reported to ASRAM hospital casualty and Orthopaedic OPD during June 2011 to September 2013. Out of which 927 were lower limb fractures. The femoral Fractures were 437(47.14%) and the femoral neck fractures are 264(60.41%) and the intracapsular fractures are 115(42.5%)

2. AGE OF THE PATIENT WITH INTRACAPSULAR FRACTURE NECK OF FEMUR.

The earliest age of patient in whom a prima

ry hemi replacement was performed in our se

ries is 60 years and the oldest patient was 85 years. Maximum number of patients in this study are el

derly and mean age is 72.5 year. >80 years(10%), 70-79 years(32%), 60-69 years(60%).

3. SEX

In the present study the intracapsular fracture neck of femur are more in males (52%) than in females(48%)

4. SIDE OF INJURY

In the present study intracapsular fracture involvement is more on left hip(68%) than right (32%).

5. MODE OF INJURY

Out of 50 patients, thirty nine patients (78%) sustained intracapsular fracture

neck of femur due to slip and fall at home. Nine patients(18%) due to significant

trauma and two (4%) were due to Road traffic accident.

6. INCIDENCE AS PER TYPE OF FRACTURE

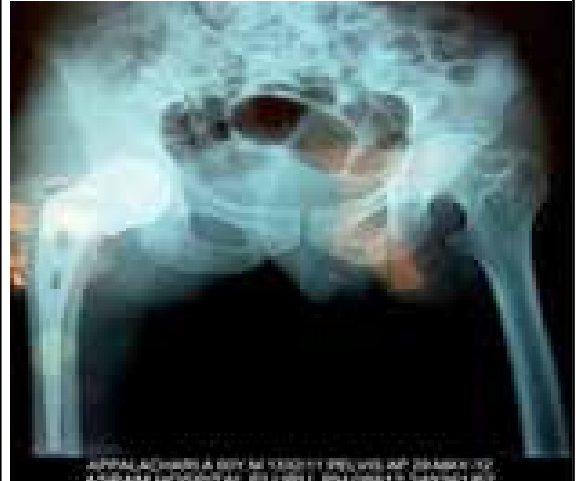
Out of 50 patients in the present 34 patients (68%) are subcapital fractures and 16 patients (32%) are transcervical type.

7. COMPLICATION

One patient(2.27%) developed periprosthetic fracture, Five patients (11.36%) developed superficial wound infection which were treated with antibiotics and regular dressings and wounds healed well. Five patients(11.36%) developed bed sores.

8. FUNCTIONAL RESULT IN THIS STUDY

In our study 30 patients (68.18%) out of 44 patients, had excellent results, 10 patients(22.72%) had good results, 3 patients (6.81%) had fair results and one patient (2.27%) had poor results according to HARRIS HIP SCORING SYSTEM.

PREOPERATIVE**POSTOPERATIVE.****AT SIX MONTHS****AT ONE YEAR****DISCUSSION**

Intracapsular fractures neck of femur carries a label called UNSOLVED FRACTURE world over. Increase in Ageing population introduced a scene of urgency to find out the best solution for the treatment of intracapsular fracture neck of femur in elderly patients. The advent of Austin moores endoprosthesis from the year 1952, greatly relieved the dilemma of orthopaedic clinicians in treating elderly patients with intracapsular fracture neck of femur.

The present study was undertaken to evaluate the functional outcome of hemiarthroplasty in 50 selected patients in our hospital. 44 patients were followed up as four patients had died due to associated medical comorbidities and two patients were lost for follow up. Most of the patients had come to the hospital after trying out analgesics and other means of treatment. Some patients residing in rural areas could not come to hospital immediately after injury. Poverty, ignorance, difficulty in transportation were the main explanations for the Delay. No patient was operated as an emergency and all were thoroughly prepared before the surgery. The average Age of the patients was 72.5 years. Older age being 85 years and early age being 60 years. Similar age distribution has been reported by

LUNCEFORD 48 et al (1965), with peak being between 70-80 years and average being 77 years.

26 were males and 24 were females out of the 50 patients. MOORE 46 & LUNCEFORD 48 et al., (1957 & 1965) respectively reported female predominance.

Left hip was involved in 34 (68%) patients out of 50 in the present study. IN THE STUDY OF LUNCEFORD 48 et al., (1965) there is predominance of left hip (56.52%).

Majority of the patients developed fracture following a trivial domestic fall. LUNCEFORD 48 et al (1965), MOORE 46 et al (1957) Stevens et al. 92 (1962) Scott and Gray 92 (1980), Urovitz et al (1977), Colonel, M.K. Seth (1937) believed that the intra-capsular fracture are stress fractures due to osteoporosis. Majority of patients in this study developed fracture following a fall at home thus making our belief that fracture may be due to pre existing weakness probably osteoporosis.

The common general medical problems in Present Series were gross anaemia, hypertension, diabetes mellitus, COPD. Seventy percent of our patients had one or more

of the problem. HINCHEY AND DAY 47 (1964) reported similar problems in 84.6% of their patients.

The maximum time interval between injury and surgery was 4 weeks. Average period of hospital stay was 24.5 days. STINCHFIELD AND .COOPERMAN 49 (1957) reported 31.5 days hospitalstay, S.DELKEL 50 (1976): 21 days.

.Austin Moores stainless endoprosthesis was used in all the cases. Whenever we have a doubt regarding the size of the prosthesis , we have used the smaller sized prosthesis.. ANDERSON 51 et al (1964)preferred smaller size prosthesis whenever there was doubt. SALVATI 52 et al.,(1974) advised not to use small head as it caused pressure atrophy in the centre of acetabulum and a large head results in circular atrophy of acetabulum edges.Therewere no significant intra operative difficulties in performing Austin Moores femoral head replacement.

One patient developed periprosthetic fracture. Five patients developed superficial wound infection which was treated with antibiotics and regular dressings and wound healed well.five patients had developed bedsore in second week of post operative period. Reported incidence of the Infection rate in SALVATI 52 et al was 8.3% .

Four patients died during the follow up of this study due to associated medical comorbidities. MOORE 46 (1957) 16.6 %, LUNCEFORD 48 et al 10 %,HINCHEY AND DAY 47 10%(1967) reported deaths in their studies.

All the results were assessed on the basis of HARRIS HIP SCORING SYSTEM(MODIFIED). In our study 30 patients (68.18%) out of 44 patients, had excellent results,10 patients(22.72%) had good results , 3patients (6.81%) had fair results and one patient had poor results.4 patients died before the assessment of results. HINCHEY AND DAY 47 et al reported excellent results in : 72.8% and LUNCEFORD 48 et al reported 81% of excellent results ; HINCHEY AND DAY 47 (1964) observed that the poor results were due to preexisting medical conditions and pain following arthroplasty.

Chronologically lower age group of senior citizens in our study (60-70years) patients had excellent outcome in our series. Most of the poor results were seen in the elderly age group patients >75 years with associated medical comorbidities and associated Osteoarthritis of the knee.The mean Harris Hip score was in our series was 74%(GOOD).

SUMMARY AND CONCLUSION

We have made an attempt to substantiate the use of Austin Moore prosthesis in the treatment of fracture neck of femur in the geriatric population.

This is relevant especially in view of the fact that Austin Moore hemiarthroplasty

remains one of the common orthopaedic procedures in India, even in the face of the plethora of treatment options available and the choice of the other biomechanically better implants. In this study fifty cases of fracture neck of femur who were treated by hemiarthroplasty using unipolar Austin Moore's prosthesis were followed up and functional outcomes were analysed and discussed. Most of the patients were in the age group of 60-69 years with average age of 72.5 years. Majority of the fractures were subcapital and were due to trivial trauma. Most common associated medical condi-

tions were hypertension, diabetes and gross anaemia. In all cases Moore's southern approach was used and the appropriate sized prosthesis were selected depending on the size of the femoral head. Patients were ambulated early and were discharged within 2 weeks of surgery. Of the fifty cases 4 cases died after hemiarthroplasty due to associated medical comorbidities and two patients were lost for follow up. Thus overall remaining 44 patients were followed up for the analysis of functional results. There were 68.18% excellent results and 22.72% good results. Thus there were 91% satisfactory results.

From this sample study we conclude that Hemiarthroplasty by using unipolar Austin moore prosthesis is a good option in elderly patients with displaced fracture neck of femur. The operative procedure is simple, mortality and morbidity associated with it is less. The complications are less disabling, weight bearing is early, functional results are satisfactory .

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