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Long Term Results of Austin-Moore Prosthesis in Fracture Neck of Femur in Indian Context

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ABSTRACT

Background: *In developing country like India operation and prosthesis need to be cost effective and efficacious to improve quality of life in post op period. Hemiarthroplasty with Austein-Moore prosthesis is most promising treatment modality in Indian context as per our study.*

Objective: *The aim of this study was to assess the outcome of hemi replacement arthroplasty in which whole of the head and variable part of neck of femur is being replaced by a metallic made prosthetic implant.*

Methods: *The present study comprised of 60 patients of age group 40-80 years in which 32 were males and 28 were females was conducted on patients who had undergone hemireplacement arthroplasty.*

Results: *More than half of the patients were between 60-69 years (53.4%). Males were 53.4%. It was observed that patients treated by hemireplacement arthroplasty were having very less or negligible amount of limb length discrepancy. Majority of the patients started walking without any aid after the treatment. Only 16.7% used single stick for walking. Most of the patient had range of movement more than critical range which permitted easy ambulation for daily routine. The Harris Hip score was good in 53.3% of the*

patients and excellent was in 36.7%. The fair Harris Hip score was in only10% of the patients. The radiological assessment showed that most of the patients had good results both functionally as well as radiologically.

Keywords: *Prosthesis, Efficacious, Hemiarthoplasty, Neck femur*

INTRODUCTION

Femoral neck fractures, one of the most common injuries in the elderly, have always presented great challenges to orthopaedic surgeons. The incidence of these fractures has increased with improvement in life expectancy and is expected to double in the next 20 years and triple by 2050[1]. The goal of treatment of femoral neck fractures is restoration of pre-fracture function without associated morbidity[2].

Experience of the last four decades has shown that hip arthroplasty is the best treatment for intracapsular fracture neck of femur in elderly in terms of both short-term and long-term results[3]. In many cases, especially in the elderly, the medical and functional status may not return to the pre-injury levels. This imposes a great burden and expense on the medical system, and the families. Unipolar hemiarthroplasty with Austin Moore prosthesis is rarely employed in the developed countries though it is very commonly used in developing countries like India. It should ideally be reserved for very limited or non -ambulatory patients[4].

The aim of this study was to assess the outcome of hemi replacement arthroplasty in which whole of the head and variable part of neck of femur is being replaced by a metallic made prosthetic implant.

MATERIAL AND METHODS

The present study comprised of 60 patients of age group 40-80 years in which 32 were males and 28 were females was conducted on patients who had undergone hemireplacement arthroplasty at the Department of Orthopaedics, G.S.V.M Medical College, Kanpur & Era's Lucknow Medical College, Lucknow. The left and right side of injury was 30 each. The average follow-up was 6.2 years in both retrospective and prospective. A detailed history of chief complaints, previous history of treatment, course of the disease, time of weight bearing, detailed examination and X-ray of pelvis with both hips were taken in consideration. The consent was taken from each patient before enrolling in the study. Evaluation of Harris Score and scoring system devised by Dr. R.Nath, G.S.V.M Medical College,Kanpur was done.

RESULTS

More than half of the patients were between 60-69 years (53.4%). One fifth (20%) of the patients were between 50-59 and 70-79 years. Males were 53.4% (Table-1).

It was observed that patients treated by hemireplacement arthroplasty were having very less or negligible amount of limb length discrepancy. Majority of the patients started walking without any aid after the treatment. Only 16.7% used single stick for walking. Thus, all the

patients had better ambulatory function after the treatment. Most of the patient had range of movement more than critical range which permitted easy ambulation for daily routine. The Harris Hip score was good in 53.3% of the patients and excellent was in 36.7%. The fair Harris Hip score was in only10% of the patients (Table-2).

The radiological assessment showed that most of the patients had good results both functionally as well as radiologically (Fig.1).

Table-1: Distribution of cases according to age and sex in unipolar prosthesis treatment modality

	No.	**%**
Age in years		
40-49	04	6.6
50-59	12	20.0
60-69	32	53.4
70-79	12	20.0
Sex		
Male	32	53.4
Female	28	46.6

Table-2: Outcome of treatment

Outcome	**No. (n=60)**	**%**
Limb length discrepancy		
None	40	66.7
<2 cm	15	25.0
2-3 cm	5	8.3
Walking ability after prosthesis		
Without aid	48	80.0
With single stick	10	16.7
With crutches	2	3.3
Not able to walk	0	0.0
Range of movements hip (flexion)		
$>120^0$	12	20.0
$110\text{-}120^0$	8	13.3
$90\text{-}100^0$	40	66.7
$<90^0$	0	0.0
Harris hip score		
Excellent	22	36.7
Good	32	53.3
Fair	6	10.0
Poor	0	0.0
Failure	0	0.0

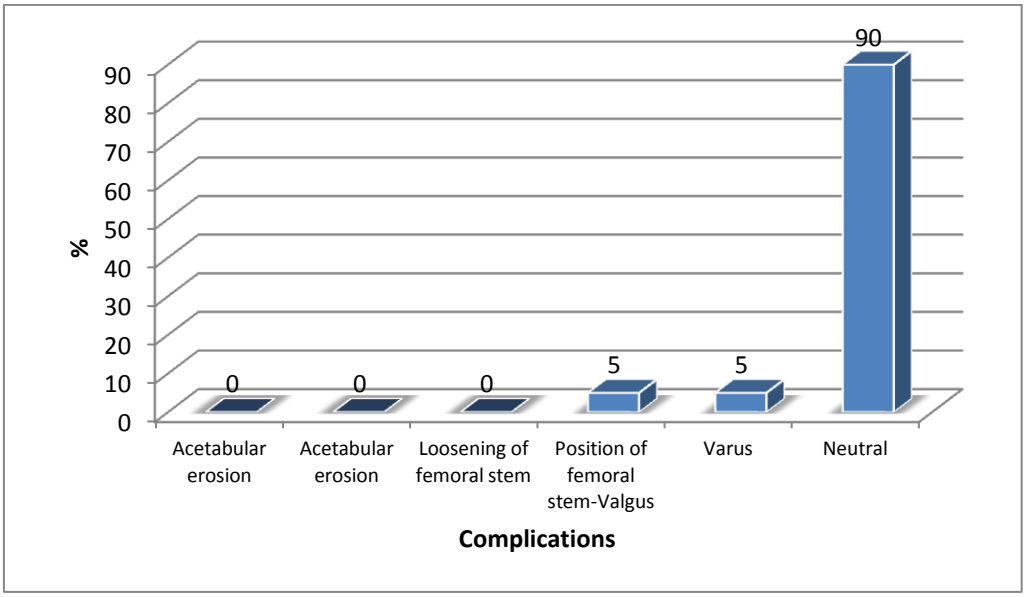

Fig.1: Complication

DISCUSSION

In this detailed clinic-radiological study, a total of 60 patients of fracture of neck of femur who were treated with Austein-Moore prosthesis were followed up in both prospective and retrospective manner for a time period of 2 month-8.5 years to know minor to major problem which might arise immediately after surgery to a long ambulatory period. In this study, patients who were pain free (66.6%) in immediate post op period remain pain free even after follow up period of 8.5 years. Most of the patients were older in this study. It has been shown that old and cognitive dysfunction correlate with poor post-fracture ambulation[5]. Unipolar hemiarthroplasty with Austin Moore prosthesis is reserved for elderly patients with minimal functional demands and is done primarily for pain relief rather than function[6].

Sonne-Holm et al[7], comparing Moore arthroplasty with and without cement, found that the patients with cemented Moore arthroplasties had a superior hip function during first 6 months of follow up. Few patients of this study complained gradually progressing pain while walking about 500 meters. In our study, we didn't get any case with complication of acetabular erosion.

In a study[8], the average Harris Hip Score improved from 65 preoperatively (range 42-73) to 87 (range 76-90) at 1 year postoperatively and to 86 (range 75-89) at the last followup. The overall complication rate was 4.5%. Majorities of patients treated with Austein-Moore prosthesis had no limb length discrepancy in this study. In our study according to HSS 36.6% patients got excellent results, 53.8% good results and 10% fair response; that show about 80-90% patients got excellent to good results.

Several studies have been published concerning the results following total hip replacement in failed hemiarthroplasty. Amstutz and Smith[9] noted very high incidence of intra- as well as postoperative complications. Intraoperative femoral fractures (n=5), perforations of the medial femoral cortex (n=2), instability (n=2), infection (n=2), deep venous thrombosis (n=3), progressive

loosening (n=6) out of 41 patients. Amit et al[10] reported, the average functional score before the fracture was 22.87 and 10.43 after surgery.

Majority of patients in this study had range of movements at hip joint between 90^0- 100^0 (66.6%) which was more than enough for functional ambulation of patient. In most patients the decline in functional and ambulation ability was significant in the present study. Majority of patient walked without aid (80%), while some used stick (16.6%) mainly due to apprehension in this study.

CONCLUSION

When we compare the results of Austein-Moore prosthesis with other type of arthroplasty, we can conclude that this is the most cost effective, simpler and safer method of treatment in elderly patients of neck femur fracture in comparison of other highly technical arthroplasty.

Conflict of interest: None

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