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Long term results of uncemented hemi replacement fracture neck of femur in Indian context

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Abstract

Being human gives us the unique ability to walk on two limbs. Hip joint is responsible for this ability; neck of femur is an essential component of this joint, which is at high risk of being fractured specially in elderly persons. In developing country like India operation and prosthesis need to be cost effective and efficacious to improve quality of life in post op period. Uncemented Hemi arthroplasty is most promising treatment modality in Indian context as per our study.

- In our study 60 patients treated b hemiarthroplasty by using A.M. prosthesis and followed up for a period ranging from two(2) month to eight & half (8.5) years.
- Maximum fracture neck femur were in 60-69age group (53%) followed by 50-59&70-79 years (20%) each.
- In our study maximum excellent result were about 85%, with Harris Hip Score of 80% no poor result.
- In long follow up period no major problem detected except for moderate pain in about 10% cases and limb discrepancy of about 1 inch in <50% cases, but this didn't interfere with functional ambulation any way.
- Maximum range of post-operative movement at hip joint between 90*- 100* (66.6%), 110*-120* (13.3%), and > 120* about 20% which was > enough for functional ambulation
- Most of patients were of remote areas despite advise not to squat avoided by them and no any major complication was noted in our study.

Keywords: prosthesis, efficacious, hemiarthroplasty, neck femur

Abbreviations: GSVM-

Introduction

Hip fractures are developing as most common fractures in elderly persons in present era because of increasing life expectancy and increasing incidence of osteoporosis.

Varies problem faced by an orthopaedic surgeon in the management of fracture neck femur in elderly are:

1. Frequent Nonunion because of compromised blood supply of the head of femur due to insult of injury and also during manipulation or surgery.
2. Osteoporosis bone in elderly limit the stability of internal fixation devices.
3. Posterior cortex communication & unstable fracture limit the chances of union, shearing stress further leads to instability and chances of nonunion.
4. Synovial fluid washes off the attempts of formation of external callus.
5. Because of the femoral neck has essentially noperiosteal layer, all healing must be endosteal.
6. Risks of anaesthesia and surgery in old debilitated patient.

Hence attempts at osteosynthesis fail resulting in repetitive surgeries so in our set up hemi replacement arthroplasty is done 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 stud 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 hemireplacementarthroplasty at the department of orthopaedics G.S.V.M Medical College, Kanpur & Era's Lucknow medical College, Lucknow.

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 was taken in consideration.

Evaluation by hip by Harris Score and scoring system devised by Dr. R.Nath, G.S.V.M Medical College, Kanpur was done.

Observation and Results

Table 1: Distribution of Cases According To Sex

Treatment modality	Male	Femal	Percentage	
			Male	Female
Unipolar prosthesis	32	28	53.4%	46.6%

Table 2: Distribution of Cases According To Side of Injury

Treatment modality	Right	Left	Percentage	
			Right	Left
Unipolar prosthesis	30	30	50%	50%

Table 3: Period of Follow up

Mode of Treatment	Number of cases	Treatment of follow up		Mean
		Retrospective	Prospective	
Unipolar (A.M. Prosthesis)	60	3-8 years	2-14 months	5.5 years 8 month

It's clear from above data that most of patients who turned up for the regular follow up of uncemented type of hemi replacement arthroplasty were having good results after even maximum of 8 years of follow

Table 4: Distribution of Case According To Age

Age	NO. of cases	Percentage
40-49	04	6.6%
50-59	12	20%
60-69	32	53.4%
70-79	12	20%
80-89	00	00%

Its shows that majority of cases irrespective of sex belongs to 50-80 years of age of which most of them from 60-70 years of the life expectancy in our setup is usually below 70 years so data is clean cut show of the case predominance in this age

Table 10: Harris Hip Score of the Study

Mode	Score	Excellent	Good	Fair	Poor	Failure	Mean
Uncemented	H.S.S.	22	32	06	00	00	80-90%

Its clear from above data that main tool for functional assessment of hemi replacement arthroplasty which was mainly done by Harris Hip score ranges from excellent to good for patient.

Discussion

Moore & Bohima (1940) [1] introduced first metallic replacement prosthesis in a patient after removal of giant cell tumor of proximal femoral head.

In this detailed clinic-radiological study total 60 patients of

group.

Table 5: Degree of Pain after Treatment by Different Hemireplacement Arthroplasty

Mode of Treatment	No Pain	Mild pain	moderate pain	Severe pain
Unipolar prosthesis	40	15	05	00

Table 6: Limb Length Discrepancy

Mode of Treatment	None	<2 cm	2-3 cm	>3 cm
Unipolar prosthesis	40	15	05	00

Its shows that patients treated by hemireplacementarthroplasty Were having very less or negligible amount of limb length discrepancy.

Table 7: Walking Ability After Prosthesis

Mode of Treatment	Without aid	With single stick	With crutches	Not able to walk
Unipolar prosthesis	48	10	02	00

Its show that most of the patients treated by hemi replacement arthroplasty Were freely walking patients and having better ambulatory function.

Table 8: Range Of Movements Hip (Flexion)

Mode of Treatment	>120*	110-120*	90*-100*	<90*
Unipolar prosthesis	12	08	40	00

It's clear that most of the patient having range of movement more than critical range which permits easy ambulation for daily routine.

Table 9: Complications

Type	Unipolar
Acetabular erosion	None
Protrusioacetabuli	None
Loosening of femoral stem	None
Position of femoral stem-Valgus	03
Varus	03
Neutral	54

From above study by radiological assessment its clear that most of the patients had good results both functionally as well as radiologically

fracture of neck of femur who were treated with Uncemented 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.

- Patients who were pain free (66.6%) in immediate post op period remain pain free even after long follow up period of 8.5 years.
- Few patient complain gradually progressing pain while walking about 500 meters-

1. Most important factor for pain is loosening of implant
2. Deep subclinical infection and acetabular erosion.

Verbene (1983) [2] determined most frequent long term complication of HRA as Acetabular erosion with incidence of 25-30%.

In our study we didn't get any case with complication of acetabular erosion.

- Majority of patients have range of movements at hip joint between 90*- 100* (66.6%), 110*-120* (13.3%), and >120* about 20% which was > enough for functional ambulation of patient.
- Majority of patient walked without aid (80%), while some used stick (16.6%) mainly due to apprehension.
- Majorities of patients treated with Austein-Moore prosthesis had no limb length discrepancy (66.6%), and <2 cm discrepancy (25%).
- Lewis Anderson in 1964 used Uncemented prosthesis replacement in fresh patient of fracture neck of femur in young patients with poor general condition, in patient of parkinsonism, in patient with pathological fracture and also in patient above 70 years, 80.72% patient had excellent to good result.
- According to Nottage & McMaster (1981) 77% patient got excellent to good results on HSS, while 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.

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

Reference

1. Moore, Bohlman. introduced first metallic replacement prosthesis, 1940.
2. Verbene. determined most frequent long term complication of HRA as Acetabular erosion, 1983.
3. Lewis Anderson, 1964.
4. Nottage and Mc Master, 1981