



Cemented Bipolar Hemiarthroplasty In Femoral Neck Fractures In Elderly

KEYWORDS

cemented bipolar, femoral neck fractures, hemi-arthroplasty.

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ABSTRACT

Femoral neck Fracture is a common orthopaedic problem in the elderly. Failure and complications following internal fixation have led to increase in replacement Arthroplasty procedures. Problems are more so with displaced fracture i.e. Garden type-III and type-IV.

While it is essential to make them mobile as early as possible, to help rapid physiological recovery and avoid complication of immobilization, it is difficult to ensure non-weight bearing in the post-operative period.

A total of 40 bipolar hemi-arthroplasties were performed in fracture neck femur (fresh and old) and patients were followed for a maximum period of four years. The results were evaluated on the basis of Harris Hip scoring system. The average Harris Hip score in this study was 82 points.

Hemi or total hip Arthroplasty is an accepted treatment of fracture neck of femur in the elderly. (1, 2) cemented prostheses have been used with high success rates. (1, 5, 6)

Thompson and Austin more prostheses and their derivatives have been widely used in the treatment of conditions requiring replacement of femoral head. Despite the over-all clinical satisfaction, with the use of these implants, there have been several complications. The incidence of femoral loosening, acetabular wear, demonstrated by the presence of joint space narrowing in x-ray have been well documented.

The bipolar concept was born out of the necessity to establish firm fixation of the stem in the femoral shaft and yet to eliminate shear forces between metallic prosthetic head and acetabular cartilage by the interposition of the low friction inner ultra-high molecular weight polyethylene bearing insert (UHMWPE) within the implant. The overall range of motion is predictably greater than that of conventional, Austin Moore or Thompson femoral head prostheses.

INTRODUCTION

MATERIAL AND METHODS:-

The prospective study is based on the evaluation of 40 bipolar Hemi-Arthroplasties of the hip performed at Tripura Medical College and DR. B.R. Ambedkar Teaching Hospital, Hapania, Agartala over a period of four years (from 2008 – 2012). These patients were followed up regularly in the out patients department.

A fixed bipolar prosthesis has been used in our study. We used Sushrut bipolar prosthesis with outer head size 39 mm to 51 mm.

Combined spinal – epidural anaesthesia was given to all patients. We used the anterolateral approach, with anterior hip dislocation. Bed side sitting were started on the 1st to 2nd post operative day (POD) and patients were made to stand on 2nd to 3rd POD, toe touch with walker were started on the 3rd POD and walking up to toilet were allowed on 5th POD with full weight bearing. Patients were discharged on 10 to 14 days of POD. Removal of stitches was on 14th POD.

Patients were reviewed post operatively at 2 weeks, 6 weeks, 3 months, 12 months and then yearly. Patients were evaluated clinically and radiographically at each follow-up. Harris hip scores and pain scoring (using visual analogue scale) were used as clinical outcome measures. Radiological evaluation included standard antero-posterior and lateral radiographs at 3 months, 6 months, 12 months and then yearly for evidence of

stem subsidence, lysis or loosening, as well as to look for acetabular erosion or protrusion or heterotrophic ossification.

RESULTS:-

The average duration of surgery was 36 min from skin to skin and average blood loss 270 ml. Average blood transfusion was 1.4 units (0-03 units). Mean duration of hospital stay 11.8 days. We had no preoperative mortality or serious morbidity.

Most of the patients were told to discontinue walking aid 3-6 weeks postoperative. The age distribution of patients varied from 61 years to 92 years with mean of 81 years. Out of these 24 were females and 16 were males.

Number of patients 1) Fresh 28, 2) old 12, total 40.

Out of 40 patients 2 patients died within 2 months of operation due to massive myocardial infarction, 3 patients were lost to follow-up after being discharged.

Thirty five patients were followed to final follow-up, average 36 months (range 26-49 months).

About 62% of the patients had no pain, 30% had mild pain & 8% had moderate pain during activities of daily living.

Total number of patients – 35.

RANGE OF MOVEMENTS		NO. OF PATIENTS	PERCENT-AGE
FLEX-ION	100 degree – 120 degree	24	70
	60 degree – 100 degree	11	30
	< 60 degree	0	0
AB-DUC-TION	30 degree – 40 degree	21	60
	20 degree – 30 degree	14	40
	< 20 degree	0	0
AD-DUC-TION	20 degree – 30 degree	14	40
	10 degree – 20 degree	21	60
	< 10 degree	0	0

In all, 60% patients could walk a distance equal to pre-fracture stage without the help of crutches after completion of one year.

COMPLICATIONS:-

Patients had superficial infection in 2 cases which subsided with antibiotic and dressings.

Result	Point	Percentage
Excellent	90-100	35
Good	80-90	50
Fair	70-80	15
Poor	<70	0

The average Harris score in this study was 82 points.

PREOPERATIVE XRAY OF 72 YEARS OLD MALE



POSTOPERATIVE XRAY OF 72 YEARS OLD MALE



DISCUSSION AND CONCLUSION:-

The treatment of femoral neck fractures in the mobile elderly is directed at rapid restoration of pre-injury functional and ambulatory status. (1, 3)

Algorithms for femoral neck fracture treatment have been defined; Leighton et al (3) recommended prosthetic replacements for patients more than 60 years old and having a displaced femoral neck fracture. Unipolar or bipolar (cemented) hemi-arthroplasty has shown the most reliable predictable outcomes.

Literature abounds with success stories with the use of cemented bipolar hip replacement in the early stage; it is reported to be associated with relatively few complications and low mortality rates.

The bipolar prostheses has two sets of movements with an inner low friction bearing where a small metallic head articulates with ultra high molecular weight polyethylene bearing insert (UHMWPE) and the outer stainless steel or titanium shell covering polyethylene insert which articulates against the acetabulum. A friction differential thus exists at two places of movements so that in the presence of even minute irregularities of acetabular surface, most of the motion tends to occur at the inner bearing. The small diameter of inner head reduces resistance to motion and thereby the forces of mechanical loosening of the femoral stem are also reduced. Due to the size and geometry of the inner bearing the rim of polyethylene insert impinges upon the metallic neck of the prosthesis after certain arc of abduction- adduction movements occur between acetabulum and outer metallic cup of the prosthesis. This is because of the co-efficient of friction among stainless steel acetabular cartilage and joint fluid. Less friction and motion means less acetabular erosion. This motion concept has been demonstrated cinerentgenographically by Bateman (1990) Philips (1987) and (1990).

Bipolar hemi-arthroplasty permits early weight bearing, less post operative pain and more range of motion.

It provides better stability and allows much rapid rehabilitation.

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