

# Clinical and Functional Outcome of Cemented Total Hip Replacement in Osteonecrosis of Head of Femur.

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## ABSTRACT

**Background:** Osteonecrosis of the femoral head is one of the common causes of painful hip in more than 50yrs of age. At this age is associated with high functional demand. Osteonecrosis may have a devastating effect on the quality of life. The natural course of this disease is one of relentless progression with eventual collapse of the femoral head followed by secondary osteoarthritic changes in the hip. The management depends upon many factors including severity and location of necrotic lesion, patient factors and probability of collapse. Total hip replacement (THR) is needed in cases of collapse of femoral head, severe pain, osteoarthritis or destruction of hip joint. Moreover the factors like functional outcome after surgery implant longevity and need for revision surgeries must be considered while doing cemented total hip arthroplasty. In this context we conducted this prospective observational study to find out the clinical and functional outcomes of cemented THR in patients with osteonecrosis of femoral head. **Methods:** The treatment period were January 2017 to June 2018 and sample size 20. We did our cemented total hip replacement through posterior approach (moore) of hip and follow up was done at 4, 6, 8 weeks and thereafter every 3 months. Pre and post operative radiological and functional outcome has been compared. **Results:** In this study 18 patients (90%) had excellent results while 1 (5%) had good functional outcome and 1 (5%) had poor outcome after cemented total hip replacement in osteonecrosis of femoral head. **Conclusion:** The mean HHS and number of patients with good to excellent result in our study.

**Keywords:** osteonecrosis of femoral head, Total hip replacement, cemented total hip replacement.

## INTRODUCTION

Cemented Total Hip Arthroplasty is an operative procedure in which the diseased and destroyed hip joint is resected and replaced with a new bearing surface.

Total Hip Arthroplasty is the indication for nearly all patients with osteonecrosis of femoral head that causes severe pain and significant functional impairment. It is the definitive treatment for end stage hip arthritis and has been shown to improve quality of life in a highly cost effective manner. Arthroplasty is the surgical refashioning of a joint, aims to relieve pain and to retain or restore movement. Total hip arthroplasty involves

replacing both the acetabulum and the head and neck of femur. The primary indication for total hip arthroplasty was incapacitating pain in patients with Osteoarthritis in whom conservative measures have failed, and secondary importance was the improved function of the hip. Different systems of pre and postoperative assessment of hip are used but the commonly used system is the Harris scoring system.

### Objective

The result of this study will be evaluated after total hip replacement in a case of osteonecrosis of head of femur by clinical, radiological and functional scoring

### Specific objectives of study

- To assess outcome on the basis of clinico-radiological parameters.
- To assess functional outcome of procedure.
- To assess complications associated with.

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## MATERIALS AND METHODS

The study has been conducted after obtaining clearance from institutional ethical committee with informed consent from participating patients.

**Study Area:** Burdwan Medical College & Hospital in department of orthopaedics and radiodignosis.

**Study Population:** Patients attending OPD and emergency in the age of >50 years with osteonecrosis of femoral head.

### Inclusion Criteria:

1. Patients of age more than 50yrs & of either sex
2. Diagnosed clinically and Confirmed with radiologically arthritic changes of hip
3. X Ray of the patient's hip must show well established arthritic changes
4. Patients willing to give informed consent

### Exclusion Criteria

1. Patients less than 50yrs age
2. Patients medically unfit for major surgery
3. Patients with clinically detectable focus of active infection
4. History of previous any hip surgery.
5. Any motor neurodeficit.

**Study Period:** January 2017-June 2018[1.5 years]

**Sample Size:** 20 patients

**Sample Design:** Selective sampling of cases meeting the inclusion criteria.

**Study Design:** It is a institutional based prospective study. The patients will be examined thoroughly with emphasis on radiological, functional, socioeconomic status. Operative intervention will be done on due course and post op follow up will be done for at 4weeks then 6th week then 8th week. And thereafter every 3 months. Pre and post operative radiological and functional outcome will be compared.

### Parameters To Be Studied

- A) **Clinical Parameters**  
To be determined by Modified Harris Hip score.  
Lengthening  
Rotation
- B) **Radiological parameters (squaring of the pelvis)**
- i. Level of greater trochanter with respect to the femoral head
  - ii. Pelvic tear drop
  - iii. Level of LT compare with other side.

### Study Tools

- A. Measuring tape
- B. Goniometer
- C. Radiograph
- D. MRI
- E. Surgical instruments
- F. Blood reports and investigation.

### Study Technique

- a. Clinical evaluation will be done by modified Harris hip score
- b. Radiological evaluation to be done in both pre and post operative period
- c. Statistical analysis to be done thereafter

## RESULTS

The study consisted of 20 patients diagnosed to be having osteo necrosis of head of femur. Out of these 20 patients 16 were males and 4 patients were females with a M: F ratio of 4:1. The most common age group affected was 50-60 years (50%) followed by 61-70 years (40%) and 71-75 years (10%). Majority of the patients with osteonecrosis of femoral head had a body mass index between 25 to 29.99. Co-morbidities like diabetes or hypertension were seen in 13 (65%) patients. 15 (75%) patients were having history of either alcohol consumption or smoking. 5 patients had some predisposing factor for AVN in the form of either steroid therapy, history of trauma and none of the patients were found to be having idiopathic osteonecrosis. The most common presenting complaints in the studied cases were found to be pain and difficulty in walking (90%) and most of the patients (80%) had symptoms for more than 1 year. Majority of the patients had right hip joint involvement (60%) followed by left (30%) and only in 2 patients (10%) there was bilateral involvement of hip joint. There was a statistically significant difference in preoperative and postoperative total Harris hip score, pain score, range of motion, gait and daily activities like climbing stairs and distance walked. Finally in this study 18 (90%) patients had excellent results while 1 (5%) had good functional outcome and 1 (5%) had poor outcome after cemented total hip replacement for osteo necrosis of femoral head.



Pre-operative X-Ray



Intraoperative Pics



Post-operative X-Ray: (immediate)



After 12 Wks Follow Up

## DISCUSSION & CONCLUSION

Cemented THR has been performed in the management of a wide range of pathologies, namely osteoarthritis, rheumatoid arthritis, developmental dysplasia of the hip, avascular necrosis, ankylosing spondylitis, and juvenile idiopathic arthritis (Joshi et al. 1993, Sochart and Porter 1997b, Lehtimäki et al. 1997, Wroblewski et al. 2010). The mean HHS and number of patients with good to excellent results in our study is comparable with other series from specialist centers or teaching hospitals with long-term follow-up (Lehtimäki et al. 1997, Goodman et al. 2014). A majority of our patients were pain free with a well-functioning hip at final follow-up. However, our rate of deep infection (5%) was equal to other series with long-term follow-up, with rates of 1.2% to 8% (Wroblewski et al. 2009, Warth et al. 2014). Good cementing technique is essential. Early

studies of cemented THR have reported low revision rates in patients followed up for less than 5 years (Halley and Charnley 1975, Bisla et al. 1976). Subsequently, higher rates of revision ranging from 12% to 37% at 15- to 20-year follow-up were reported (Joshi et al. 1993, Boeree and Bannister 1993, Caton and Prudhon 2011, Warth et al. 2014). Various authors have stressed on the importance of long-term follow-up as aseptic loosening is progressive (Eftekhari 1987, Wroblewski et al. 1992, Keener et al. 2003). Based on our number of cases we agree with these studies and suggest that regular long-term clinical and radiographic review should be standard practice. The Get it Right First Time (GIRFT) report by the British Orthopaedic Association (BOA) recognized the need to standardize the use of total hip replacement implants in the National Health Service with a move towards cemented implants (Briggs 2012).

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