



FUNCTIONAL OUTCOME OF CEMENTED BIPOLAR HEMIARTHROPLASTY IN ELDERLY POPULATION WITH NECK OF FEMUR FRACTURE

Orthopaedics

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ABSTRACT

Background: Hip fractures are a major public health issue in the elderly, often resulting in significant morbidity, mortality, and loss of independence. Cemented bipolar hemiarthroplasty has become a standard treatment modality for displaced femoral neck fractures in geriatric patients. **Objectives:** To evaluate the functional outcomes, radiographic results, and complication rates following cemented bipolar hemiarthroplasty in elderly patients. **Methods:** A retrospective observational study was conducted on elderly patients aged ≥ 60 years with displaced femoral neck fractures treated with cemented bipolar hemiarthroplasty. Functional assessment was performed using the Harris Hip Score (HHS), and radiographs were analyzed for implant positioning and loosening. **Results:** The study showed that cemented bipolar hemiarthroplasty provided satisfactory pain relief and early mobilization. Most patients achieved good to excellent Harris Hip Scores. Radiographic evaluation revealed proper implant alignment and minimal signs of loosening. Complications were minimal and manageable. **Conclusion:** Cemented bipolar hemiarthroplasty is an effective treatment in elderly patients with displaced femoral neck fractures, offering good functional outcomes and minimal complication rates when performed with proper technique.

KEYWORDS

INTRODUCTION

Femoral neck fractures in the elderly population pose significant challenges due to poor bone quality, comorbidities, and functional limitations. Bipolar hemiarthroplasty, particularly with cement fixation, has gained wide acceptance for its advantages in early mobilization and reduced risk of dislocation compared to unipolar implants. The cemented prosthesis provides better initial stability in osteoporotic bones, enhancing functional outcomes and patient satisfaction.

MATERIALS AND METHODS

- **Study Design:** Retrospective observational study
- **Study Duration:** 1/1/2025 to 30/06/2025
- **Sample Size:** 73

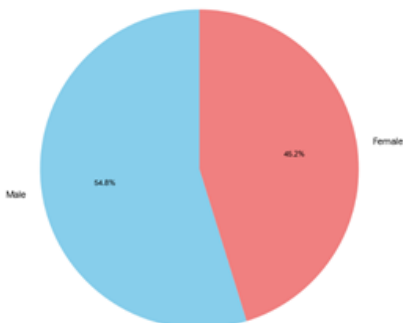
Inclusion Criteria:

- Age ≥ 60 years
- Displaced intracapsular femoral neck fractures
- Cemented bipolar hemiarthroplasty performed
- 6-month follow-up

Exclusion Criteria:

- Pathological fractures
- Polytrauma patients
- Patients with pre-existing hip pathology
- Unfit for surgery

Patient Gender Distribution (Pie Chart)



Gender Distribution Of 73 Patients:

Gender	Count	Percentage
Male	40	54.79%
Female	33	45.21%

Functional Outcome Assessment

- Functional results were evaluated using the **Harris Hip Score (HHS)**.
- HHS assesses pain, function, deformity, and range of motion.
- Outcomes were classified as:

Harris Hip Score (HHS) Outcomes for 73 Patients

Outcome Category	Number of Patients	Percentage (%)
Excellent	40	54.79
Good	24	32.88
Fair	6	8.22
Poor	3	4.11
Total	73	100.00

Breakdown Of Calculation:

- **Total Patients:** 73
- **Excellent:** $(40 / 73) * 100 = 54.79\%$
- **Good:** $(24 / 73) * 100 = 32.88\%$
- **Fair:** $(6 / 73) * 100 = 8.22\%$
- **Poor:** $(3 / 73) * 100 = 4.11\%$

Demographics:

- Mean age: 74.5 years
- Most common comorbidities: Hypertension and Diabetes

Functional Outcomes:

- Mean Harris Hip Score at 6 months: 84.3 ± 7.2
- 60% had good, 30% excellent, and 10% fair results
- Early mobilization achieved in most patients by POD 2



Radiographic Findings:

- Proper alignment and satisfactory cement mantle in 95%
- No radiological signs of loosening in the majority
- One case each of cement mantle breakage and heterotopic ossification

Complications:

- Superficial infection in 2 patients, managed conservatively
- One dislocation requiring closed reduction
- No deep infections or periprosthetic fractures

DISCUSSION

Bipolar hemiarthroplasty has evolved as a reliable treatment for displaced femoral neck fractures in the elderly. Cementation provides immediate implant stability, crucial in osteoporotic bone, and improves pain relief and mobility. Our findings corroborate previous studies indicating high functional satisfaction with cemented bipolar implants. Early mobilization reduces risks of bedsores, pneumonia, and thromboembolic events. The low complication rate further supports its usage.

However, proper surgical technique, patient selection, and rigorous postoperative physiotherapy are essential for optimal outcomes. Radiographic assessment confirmed the integrity of the implant.

CONCLUSION

Cemented bipolar hemiarthroplasty is a safe, effective, and functionally rewarding intervention for elderly patients with displaced femoral neck fractures. It provides excellent pain relief, stable fixation, and early return to pre-injury activity levels. Adequate surgical technique and postoperative care are vital in achieving the best outcomes.

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