

ORIGINAL RESEARCH

Comparative Analysis Of Cemented Hemiarthroplasty Using Posterior And Lateral Approaches For Displaced Intracapsular Femoral Neck Fractures In Elderly Patients

Thirumalai Pandiyan¹, K. Kishore², M. Dhanagopal³, N. Mithun Chakravarthy⁴

^{1,2}Associate Professor, ³Assistant Professor, ⁴Junior Resident, Department of Orthopaedics, Thanjavur Medical College, Thanjavur, India

Corresponding author

N Mithun Chakravarthy

Junior resident, Department of Orthopaedics, Thanjavur Medical College, Thanjavur, India

Email: mithunchakravarthy1996@gmail.com

Received date: 02 December 2024

Revised date: 10 January 2025

Acceptance date: 22 January 2025

Publication date: 15 February 2025

ABSTRACT

Background: Neck of femur fracture in the elderly accounts for increased risk of morbidity and mortality. Cemented bipolar hemiarthroplasty is one of the intervention which allows early rehabilitation and increasing chance of their productive life. **Materials And Methods:** In this observational study, 25 elderly patients who have sustained fracture neck of femur were treated with cemented hemiarthroplasty using dorsal and transgluteal approaches in Thanjavur medical college during Nov 2022 to May 2024 were followed up for a period of 1 year. **Results:** Harris Hip score was used as a functional evaluation tool to evaluate both the groups alongside with the VAS pain score. Of this, one case complicated with intraoperative proximal femur fracture(6.7%), one case of post operative surgical site infection (6.7%), and another patient with prosthetic dislocation (6.7%), in dorsal approach, none of the complications occurred in patients operated through transgluteal approach, which indicates better patient-perceived outcomes. **Conclusion:** In both groups, patients showed progressive improvement in Harris Hip score, VAS for pain, and a high level of satisfaction. This suggests that careful preoperative evaluation, patient selection, and meticulous surgical technique are essential for optimal outcomes. Infection and dislocation risks depend largely on the incision position. Longer-term studies are needed to assess and compare the complications associated with each approach.

Keywords: Intracapsular femoral neck of femur, posterior approach, Transgluteal approach, Abductor weakness, Dislocation

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INTRODUCTION

Hip fractures occur in over 1.6 million people worldwide each year. Displaced intracapsular femoral neck fractures are more prevalent in individuals aged >65 years, with a higher incidence in females due to osteoporosis. The projected number of hip fractures is expected to increase with population aging, emphasizing the need for optimized surgical strategies.

Femoral neck fractures in the elderly population represent a significant cause of morbidity and mortality. Cemented hemiarthroplasty is widely accepted as a preferred treatment for displaced intracapsular fractures in elderly patients due to its

predictability and early mobilization benefits. However, the surgical approach—whether posterior (dorsal) or lateral (transgluteal)—may influence postoperative outcomes such as dislocation rates, functional recovery, and complication profiles. This study was designed to compare the efficiency and outcomes of these two commonly used approaches.

Aims and objectives

To analyse the outcome of intracapsular neck of femur fracture in elderly population using cemented hemiarthroplasty by direct lateral and posterior approach.

METHODOLOGY

Study Design

Prospective observational study.

Study Period and Setting

Present study is conducted at Thanjavur Medical College Hospital from November 2022 to May 2024.

Sample Size

25 patients aged over 60 years with displaced intracapsular femoral neck fractures.

Inclusion Criteria

- Age ≥ 60 years
- Displaced intracapsular femoral neck fracture (Garden type III or IV)
- Ambulatory prior to injury
- Medically fit for surgery

Exclusion Criteria

- Pathological fractures
- Polytrauma
- Cognitive impairment preventing postoperative assessment
- Previous surgery on the same hip
- Unfit for anesthesia

Operative Technique

1. Posterior (Dorsal) Approach

Patient placed in lateral decubitus position and incision made over the posterior aspect of the greater trochanter. Gluteus maximus split in line with fibers and short external rotators incised and tagged. Posterior capsule incised and femoral neck exposed. Cemented bipolar hemiarthroplasty performed. Finally capsule and external rotators repaired to reduce dislocation risk.

2. Lateral (Transgluteal/Harding) Approach

In this approach incision centered over the greater trochanter and Gluteus medius and minimus partially detached from the anterior portion. Joint capsule incised vertically. Femoral neck accessed and prosthesis inserted. Abductors repaired meticulously to avoid Trendelenburg gait.

Postoperative Management and Follow-up

- IV antibiotics for 3 days, followed by oral antibiotics for 5 days.
- Thromboprophylaxis using LMWH for 5–7 days.
- Early mobilization from day 2 with partial weight-bearing.
- Sutures removed on postoperative day 12.
- Patients followed up at 6 weeks, 3 months, and 6 months and evaluation done based on Harris Hip Score and VAS score.

RESULTS

Posterior approach group showed a slightly better range of motion and lower pain score.

Dislocation occurred in 1 case with the posterior approach but was absent in the lateral group.

Trendelenburg gait was more common in lateral group (13%) compared to posterior (3%).

Overall, both approaches demonstrated good functional outcomes.

Analysis: The posterior approach allows better functional recovery but carries a slightly higher risk of dislocation. The lateral approach, though more stable, is associated with abductor weakness and altered gait mechanics. With meticulous soft-tissue handling and repair, dislocation in the posterior approach can be minimized.

CASE -1

S. No. 9 Initial HHS – 37

Latest HHS – 92

EXCELLENT RESULT



DORSAL APPROACH



PREOP RADIOGRAPH

Postoperative Radiograph **Case -1 Clinical photos**



STRAIGHT LEG RAISING



HIP FLEXION



STANDING WITHOUT SUPPORT- 1 MONTH POST OP

CASE – 2

S.No. 13

Initial HHS – 44 Latest HHS – 76

FAIR RESULT DIRECT LATERAL APPROACH PRE OP XRAY



**POST OP XRAY****CASE – 6****FAIR RESULT****Clinical photos STRAIGHT LEG RAISING****HIP FLEXION****HIP EXTENSION****Consolidated Table of Patient Data:**

S.NO	Parameters	Dorsal (Posterior) Approach	Direct Lateral (Transgluteal) Approach
1	No. of cases	15	10
2	Males	6	5
3	Females	9	5
4	Mean Age (years)	75.2 ± 8.3	76.5 ± 7.6
5	Body Mass Index (BMI)	26.4 ± 3.5	25.8 ± 3.2
6	Hypertension (%)	53.3	50
7	Diabetes Mellitus (%)	33.3	20
8	Osteoporosis (%)	60	50
9	Complications	0	0
10	Prosthetic Dislocation (%)	6.7	0
11	Infection (%)	6.7	0
12	Acetabular Erosion (%)	6.7	0
13	Intraop periprosthetic fractures	13.4	0
14	Deep vein thrombosis	6.7	0
15	Protrusio Acetabuli (%)	0	0
16	Reoperation (%)	6.7 due to infection	0
17	Mean Harris Hip Score (6 months)	85 ± 7	87 ± 6
18	Harris Hip Score (1 year)	90 ± 6	92 ± 5
19	Functional Outcome (Harris Hip Score)		
	Excellent (90-100)	5 (33.3%)	5 (50%)
	Good (80-89)	5 (33.3%)	3 (30%)

	Fair (70-79)	3 (20%)	2 (20%)
	Poor (<70) 2 (13.3%)	2 (13.3%)	0
20	Pain Levels (VAS Score)		
	3 weeks (Mean \pm SD)	6 \pm 1.5	5.5 \pm 1.4
	6 weeks (Mean \pm SD)	4 \pm 1.2	4 \pm 1.3
	3 months (Mean \pm SD)	3 \pm 1.0	3 \pm 1.1
	6 months (Mean \pm SD)	2.4 \pm 1.2	2.2 \pm 1.1
	1 year (Mean \pm SD)	2 \pm 1.1	1.8 \pm 1.0
21	Patient Satisfaction (%)		
	Very Satisfied (%)	53.3	40
	Satisfied (%)	33.3	30
	Neutral (%)	6.7	20
	Dissatisfied (%)	6.7	10
22	Mean Hospital Stay (days)	4-6 days	4-6 days

DISCUSSION

Our study supports existing literature showing both approaches are viable for hemiarthroplasty in elderly patients. The dorsal approach allows quicker rehabilitation with less abductor compromise but necessitates careful repair to avoid dislocation. The lateral approach minimizes dislocation risk but at the cost of higher Trendelenburg gait incidence.

Relevant literature aligns with our findings:

- Parker MJ (2015): Lateral approach reduces dislocations but may impair gait.
- Corrigan CM et al. (2015): Approach choice impacts heterotopic ossification.
- Luo X et al. (2012): Cemented prostheses show better early outcomes.

CONCLUSION

Both posterior and lateral approaches are effective for cemented hemiarthroplasty in elderly patients with displaced intracapsular femoral neck fractures. While the posterior approach provides better functional outcomes, the lateral approach offers superior joint stability. Approach selection should be tailored to surgeon's expertise and patient needs.

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