

# Treatment of Femoral Neck Fractures with Hemiarthroplasty via the Direct Anterior Approach Have a Decreased Discharge Disposition to Skilled Nursing Facilities

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**INTRODUCTION:** Hip fractures, including femoral neck fractures, are associated with high rates of morbidity and mortality with a 1 year mortality rate of 15-36%. When choosing a surgical approach to treat a femoral neck fracture, the minimization of complications and return to prior function are extremely important considerations. Literature regarding surgical approach for femoral neck fracture HHA has primarily focused on the direct lateral approach (DLA) versus posterolateral approach (PLA). However, a recent metaanalysis of surgical approach for femoral neck fracture fixation concluded that there is no clear superior approach between PLA, DLA, and DAA. The direct anterior approach (DAA) has recently gained popularity in the realm of total hip arthroplasty due to its benefits of improved pain control, less blood loss, and shorter hospital stays. This approach minimizes soft tissue damage as it utilizes intermuscular and internervous plane. Our study focused on the treatment of femoral neck fractures through either the PLA, ALA, or DAA approach with the primary objective being discharge disposition.

**METHODS:** After IRB approval, we retrospectively reviewed patients who underwent surgical fixation of a femoral neck fracture between 2/1/2017 and 2/1/2021. Inclusion criteria included >65 years old and isolated femoral neck fracture treated with hemiarthroplasty. Exclusion criteria included <65 years old, non-isolated injury, surgical treatment other than hemiarthroplasty, additional intraoperative procedures, and incomplete medical records. 277 patients met inclusion/exclusion criteria. Patients were stratified by surgical approach: ALA, DAA, or PLA. The PLA cohort was further stratified to match the time periods the ALA and DAA were utilized, PLA (ALA) and PLA (DAA), respectively. Operative data (approach, operative time, operative report, and implant type), inpatient outcomes (transfusion need and discharge disposition), and complications (30-day readmission, 1-year reoperation, and 1-year mortality) were collected. Sex, transfusions, discharge disposition, 30-day readmission, 1-year reoperation, and 1-year mortality are presented as frequencies and percentages – chi-square analysis used for comparison. Age was presented with means and standard deviations – Student's t-tests used for comparison.

**RESULTS:** 277 patients with 34 ALA, 101 PLA (ALA), 38 (DAA), and 104 PLA (DAA). Patients age, sex, and ASA were similar. Operative time, transfusion rate, 30-day readmission rate, 1-year reoperation rate, and 1-year mortality were similar. Discharge rates to a Skilled Nursing facility have no difference when comparing PLA (ALA) and PLA (DAA) (79.2% vs. 77.9% p=0.818). Discharge rates to a Skilled Nursing facility are significantly lower when comparing DAA and ALA (71.1% and 94.1%; p=0.021).

**DISCUSSION:** With current literature unclear on the optimal surgical approach for the treatment of femoral neck fractures, this study shows that through the lens of discharge to a skilled nursing facility, the DAA is superior to ALA. With the PLA (ALA) cohort having a similar rate of discharge to a SNF as the PLA (DAA) cohort, this indicated that the significant difference between ALA and DAA was not due to a holistic improvement of orthopaedic care. Additionally, the approaches had no difference in intraoperative measures such as operative time or postoperative measures such as complication rates. Limitations include the retrospective nature and that all of the ALA and DAA procedures were performed by a single surgeon while the PLA procedures were performed by a multitude of surgeons.

**SIGNIFICANCE/CLINICAL RELEVANCE:** For physicians wanting to perform an anterior based hemiarthroplasty for the benefits of added stability, the DAA showed significant decreased rates of discharge to Skilled Nursing facilities.

	ALA	PLA (ALA Period)	DAA	PLA (DAA Period)	Total	P value
n	34	101	38	104	277	---
Age mean $\pm$ SD (years)	79.12 $\pm$ 6.18	78.42 $\pm$ 6.58	81.08 $\pm$ 7.00	80.35 $\pm$ 5.42	79.56 $\pm$ 6.21	0.069
Female, n (%)	28 (82%)	71 (70%)	27 (71%)	78 (74%)	204 (74%)	0.517
ASA mean $\pm$ SD	3.06 $\pm$ 0.74	3.06 $\pm$ 0.60	3.00 $\pm$ 0.57	3.03 $\pm$ 0.58	3.04 $\pm$ 0.60	0.953

**Table 1. Demographic Data.** DAA= Direct Anterior Approach; ALA= Anterolateral Approach; PLA= Posterolateral Approach; SD= Standard Deviation; ASA= American Society of Anesthesiologists

	ALA	PLA (ALA Period)	DAA	PLA (DAA Period)	Total	P-values
n	34	101	38	104	277	
Discharge Disposition, n (%)						0.082
Home	1 (3%)	9 (9%)	8 (21%)	16 (15%)	34 (12%)	
Skilled Nursing Facility	32 (94%)	80 (79%)	27 (71%)	81 (78%)	220 (79%)	
Inpatient Rehabilitation Facility	0 (0%)	4 (4%)	3 (8%)	4 (4%)	11 (4%)	
Nursing Home/ Long-Term Care	0 (0%)	7 (7%)	0 (0%)	2 (2%)	9 (3%)	
Died in Hospital	1 (3%)	1 (1%)	0 (0%)	1 (1%)	3 (1%)	
Transfusion, n (%)	0 (0%)	8 (8%)	2 (5%)	5 (5%)	15 (5%)	0.345
30-Day Readmission, n (%)	2 (6%)	6 (6%)	6 (16%)	9 (9%)	23 (8%)	0.289
1-Year Reoperation, n (%)	1 (3%)	1 (1%)	0 (0%)	4 (4%)	6 (2%)	0.393
1-Year Mortality, n (%)	7 (21%)	27 (27%)	12 (32%)	32 (30%)	78 (28%)	0.635

**Table 2. Postoperative Outcomes by Approach.** DAA= Direct Anterior Approach; ALA= Anterolateral Approach; PLA= Posterolateral Approach; SD= Standard Deviation

	ALA	PLA (ALA)	DAA	PLA (DAA)
n	33	101	38	104
SNF %	94.1%	79.2%	71.1%	77.9%
ALA	---	p=0.062	p=0.021	p=0.048
PLA (ALA)	---	---	p=0.311	p=0.818
DAA	---	---	---	p=0.400

**Table 3. Percentage Discharge Disposition to Skilled Nursing Facility by Approach.** DAA= Direct Anterior Approach; ALA= Anterolateral Approach; PLA= Posterolateral Approach.