

## A Multicenter Retrospective Study of the Treatment of 253 Geriatric Acetabular Fractures: Should We Be Performing More Arthroplasty?

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**Background/Purpose:** Treatment strategies for acetabular fractures in older adults include nonoperative, percutaneous fixation, standard open reduction and internal fixation (ORIF), or arthroplasty (THA) with or without ORIF. Currently there are no guidelines to determine the best treatment once the decision has been made to operate. The purpose of this study was to characterize current approaches to treating geriatric acetabular fractures. We hypothesized that patients with risk factors associated with poor outcomes after ORIF would be treated more often with THA.

**Methods:** A retrospective review of medical records from January 1-December 1, 2009 was conducted at 14 US Level I trauma centers for patients 60 years or older admitted for treatment of an acetabular fracture. Fracture characteristics, treatment, and patient demographics were collected. Three risk factors for poor outcome with ORIF identified from previous literature included presence of dome impaction, posterior wall fracture with marginal impaction, and femoral head impaction. The study group included 253 patients with unilateral acetabular fractures; 17% involved the posterior wall, 16% involved the anterior column, and 15% were anterior column–posterior hemitransverse. 60% of the fractures were treated operatively (n = 151), and of these 85% were treated with ORIF alone; 12% of patients received a THA as the initial treatment with or without concomitant ORIF.

**Results:** Among patients with at least one risk factor for poor outcome after ORIF (n = 102), only 15% (95% confidence interval [CI]: 8-22%) were treated with THA compared to 85% treated with ORIF. However, the odds of being treated with THA are 2.34 (95% CI: 0.61-13.33; *P* = 0.27) times higher for patients with compared to without at least one risk factor. The association is driven by the presence of dome impaction which was significantly associated with treatment with THA (odds ratio [OR] = 5.1; 95% CI: 1.57-19.42; *P* = 0.003). Interestingly, low-energy mechanism (eg, fall) was strongly associated with receiving treatment with THA (OR = 6.16; 95% CI: 1.95-21.78; *P* = 0.001); this may indicate that clinicians believe this is another risk factor for poor outcome with ORIF.

**Conclusion:** Consistent with our hypothesis, patients with risk factors for poor outcomes after ORIF were more likely to be treated with THA relative to patients with no risk factors. Nonetheless, clinicians at large trauma centers still commonly perform ORIF despite patients having risk factors for a poor outcome with that treatment; only 15% of at-risk patients are treated with THA. Data from a randomized trial are needed to determine how best to treat these injuries since it is currently unknown if these patients would have been better treated with arthroplasty.

- The FDA has not cleared this drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an "off label" use). For full information, refer to page 600.

**Risk Factors for Poor Outcome of ORIF and Injury Mechanism by Treatment, % (n)**

	ORIF (n = 128)	THA (with/ without ORIF) (n = 18)	<i>P</i> *
At least one risk factor	68% (87)	83% (15)	0.27
Dome impaction	34% (43)	72% (13)	0.003
Posterior wall marginal impaction	44% (57)	50% (9)	0.80
Femoral head impaction	20% (26)	28% (5)	0.54
Low-energy mechanism	24% (31)	66% (12)	0.001

*P* values from Fisher exact test.