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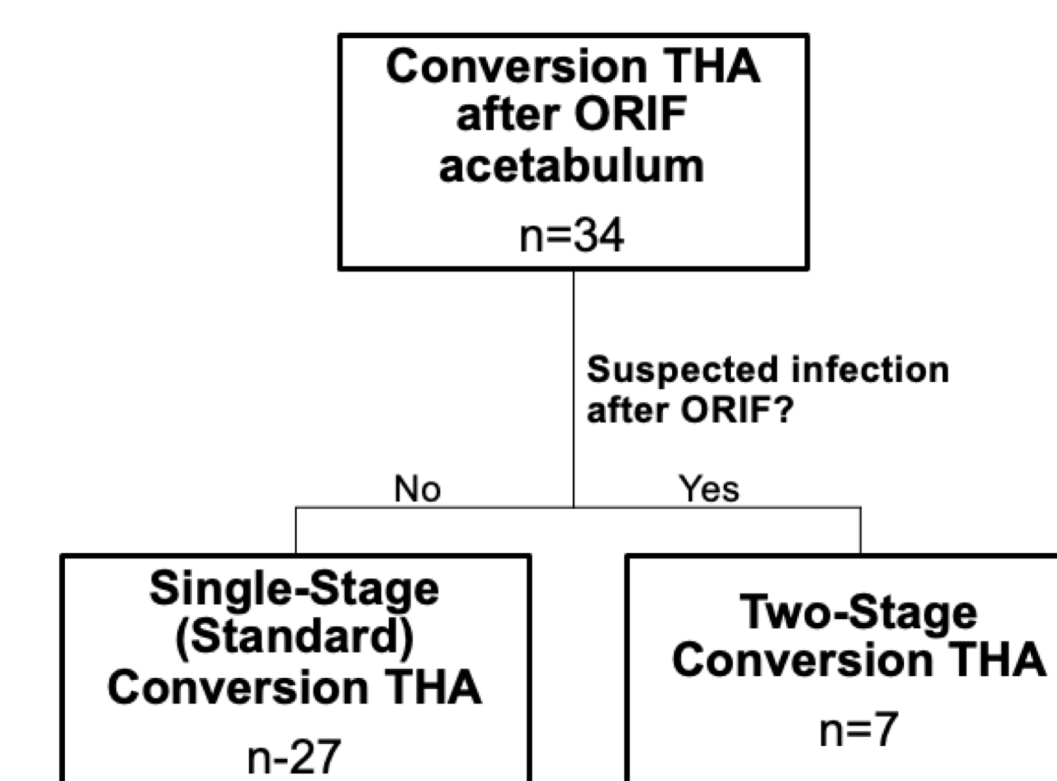
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## Introduction

- Acetabular fractures and subsequent operative fixation are associated with failure rates of 15-25% within 10 years and a median time to failure of 1.5 years.
- Post-operative surgical site infection after ORIF of acetabular fractures leads to many adverse sequelae including joint destruction, inferior healing, and decreased function.
- In addition, among patients who are converted to a THA after ORIF of acetabular fracture, those with a history of post-operative infection have a significantly higher risk of subsequent post-operative infection and need for revision THA.
- Studies have yet to examine whether patients who undergo two-staged conversion THA due to suspected infection after ORIF of acetabular fractures have different outcomes than those who undergo standard single-stage conversion THA after ORIF of acetabular fractures.
- We hypothesize that patients who undergo staged conversion THA due to prior post-operative infection will have inferior results due to recurrent infection and other complications compared with patients who undergo standard conversion THA and have no prior history of post-operative infection.

## Methods

This study was approved by the LSU Health-New Orleans Institutional Review Board. Informed consent was not required for the medical records review. Oral consent was obtained from patients prior to administering via telephone the Modified Harris Hip Score (mHHS) at follow-up.



**Patient selection:** Electronic medical records were queried for patients who underwent THA after prior ORIF acetabulum from December 2010-August 2018. Suspected infection was based on CRP and/or ESR, systemic signs of infection, radiographs, and hip aspiration (if indicated)

**Medical record review:** Initial injury, operative details, long-term clinical outcomes, and demographics were obtained using electronic medical records.

**Radiographic measures:** Leg-length discrepancy (LLD) were measured by two independent observers. Heterotopic ossification (HO) was classified using the Brooker Classification system.

**Modified Harris Hip Scores (mHHS):** Modified Harris Hip Scores were obtained via telephone interview.

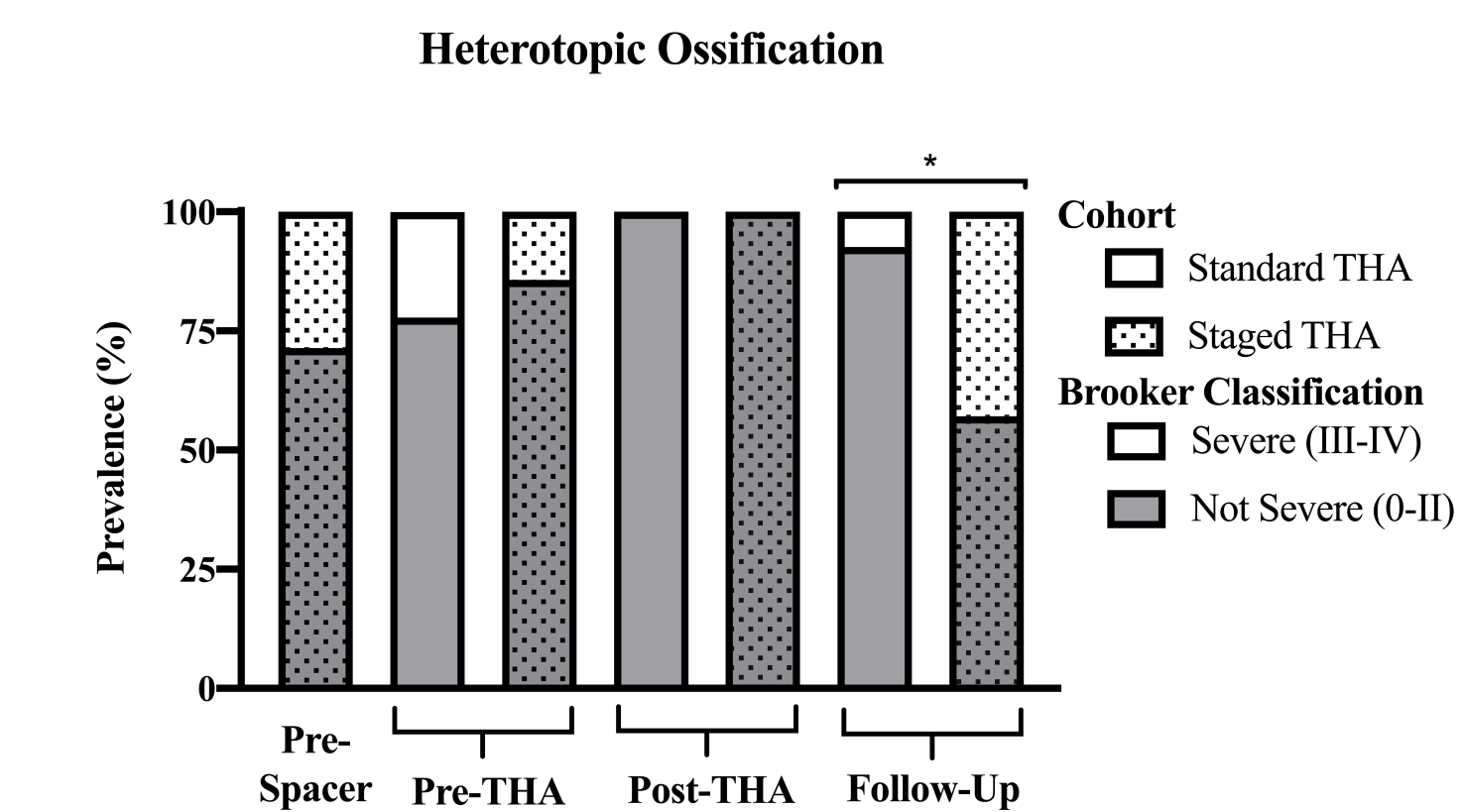
**Statistics:** Unpaired two-tailed t-tests and Mann-Whitney tests were conducted to determine the differences between continuous variables. Associations between categorical variables were determined using Fischer's exact tests and Chi-square tests. Statistics were calculated using GraphPad Prism 8.

## Results

- No statistically significant differences in patient demographics between groups except for past intravenous drug use, which was higher in staged THA group (43% vs 0%, p=0.006)
- No statistically significant differences between groups in mechanisms of injury, fracture features, and ORIF approach
- All patients receiving standard THA had CRP and ESR values within normal limits or values that were minimally elevated and did not have pre-operative culture-proven infections.
- Staged THA group had statistically significant higher median pre-operative CRP values (53.0 mg/L vs 4.10 mg/L, p<0.0001) and ESR values (35.00 mm/hr vs 12.5 mm/hr, p=0.006)
- 22% (6/34) of patients receiving a conversion THA had a positive intra-operative culture at some point after their ORIF acetabulum. 5/6 of these patients had prior suspected infection.
- Compared to patients who had a standard THA, those who had a staged THA had statistically significantly higher rates of periprosthetic joint infection (PJI), dislocation, severe HO, or further revision surgery.

Item	Standard THA (n=27)	Staged THA (n=7)	p value
Complications	% (n)		
Dislocation	0	29 (2)	0.037
Infection	0	29 (2)	0.037
Nerve injury	4 (1)	0	1.000
Revision	0	29 (2)	0.037
---median (range)---			
Leg length discrepancy, mm			
Pre-op	7.85 (2.25-31.7)	26.8 (1.95-76.4)	0.117
Post-op	4.00 (0.95-13.4)	3.00 (1.60-41.8)	0.702
Δ	4.75 (-2.5-29.0)	19.4 (0.2-48.0)	0.072
Modified Harris Hip Score (mHHS)	91.2 (17.6-100)	73.6 (47.3-81.3)	0.052
Time between THA and latest follow-up, years	3.41 (2.03-8.42)	6.91 (0.67-7.54)	0.617

**Table 1.** Post-operative outcomes after conversion THA. Fischer's exact test and Mann-Whitney tests with significance ≤ 0.05\*.



**Figure 1.** Severity of heterotopic ossification. Heterotopic ossification was determined using the Brooker Classification system and further grouped by severity as "not severe" (0-II) or "severe" (III-IV). Fischer's exact test with significance ≤ 0.05\*.

## Conclusions

- Patients with culture-proven infection or elevated CRP and ESR values have an increased risk of periprosthetic joint infection.
- Patients with low suspicion of infection can have a single-stage THA with a low rate of complications compared to those with clinical signs of infections.
- Infection after acetabular ORIF with subsequent staged THA dramatically increases the risk of complications compared with standard conversion THA.

## References

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