

## **A “Dry Tap” in Prosthetic Joint Infection Workup of Total Hip Arthroplasty is Not Reassuring for the Absence of Infection**

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### **INTRODUCTION:**

Synovial fluid analysis is critical in the diagnosis of prosthetic joint infection (PJI). Attempted aspiration of a total hip arthroplasty (THA) results in a dry tap in up to 50% of cases. We hypothesize that the rate of culture positive PJI in patients with a dry tap of a total hip arthroplasty is significant and a “dry tap” should not be considered reassuring for the absence of infection.

### **METHODS:**

We reviewed all THA aspirations performed between 2014 and 2021 at a single academic institution. Aspirations were categorized as successful ( $\geq 0.5$  mL) or unsuccessful ( $< 0.5$  mL, “dry tap”). We compared patient factors including age, BMI, and sex as well as aspiration factors including imaging modality, needle size, and indication for aspiration. We collected culture data on all repeat aspirations and revision surgeries performed within 90 days of the initial dry tap.

### **RESULTS:**

A total of 275 consecutive THA aspirations were reviewed. A total of 100 (36%) resulted in a dry tap. A dry tap was more common in the fluoroscopic guided group than the ultrasound guided group (44% vs. 28%,  $p=0.0061$ ). No difference was seen in age ( $p=0.93$ ), BMI ( $p=0.34$ ), needle size ( $p=0.42$ ), or indication for aspiration ( $p=0.25$ ). Of the 100 patients with dry taps, 48 underwent revision surgery within 90 days of their initial dry tap, and 15 of these resulted in two or more positive cultures. Thus, the rate of culture positive PJI in the cohort of dry taps was 15%.

### **DISCUSSION AND CONCLUSION:**

Attempted aspiration of a THA resulted in a dry tap 36% of the time in this study. Of those patients who had a dry tap, 15% were subsequently found to have PJI based on two positive cultures at the time of revision surgery. Therefore, a “dry tap” does not exclude the diagnosis of infection.