INTRODUCTION:
Biologic resurfacing of the glenoid with concomitant humeral head hemiarthroplasty has been used in the operative management of young, active patients with symptomatic glenohumeral arthritis with varying results. The purpose of this study is to compare the intermediate-term clinical outcomes of biological interposition arthroplasty of the glenohumeral joint using lateral meniscus allograft and GraftJacket tissue matrix.

METHODS:
Forty-five patients with a mean age of 42.2 years (range 18.1-60.2 years) treated with biologic resurfacing of the glenoid using either lateral meniscal allograft or Graftjacket regenerative tissue matrix were followed for an average of 2.8 years (range 0.7-8.2 years). Forty-one of the 45 patients (91.1%) were available for follow up evaluation. There were 30 males and 11 females with the dominant extremity involved in 24 patients (58.5%). Lateral meniscal allograft resurfacing was used in 31 cases and Graftjacket matrix interposition was used in 10 cases.

RESULTS SECTION:
The overall clinical failure rate was 51.2% (21 of 41 patients). Failure was defined as actual or recommended conversion to either a standard or reverse total shoulder arthroplasty, revision surgery for graft removal, patient reported disabling pain/loss of function and/or post-operative ASES score of < 50. The lateral meniscal allograft interposition cohort had a failure rate of 45.2% with a mean time to failure of 3.4 years. Those treated with a Graftjacket interposition had a failure rate of 70.0% with a mean time to failure of 2.2 years. Nine patients who failed treatment (22.0%) did so within 20 months of the procedure.

In the overall patient cohort the mean ASES score was 62.0, a significant improvement from the pre-operative score of 36.8 (p < 0.05). The SST score significantly improved from 4.0 to 7.0 (p < 0.01) and the VAS pain score decreased from 6.3 preoperatively to 3.0 (p < 0.02). Glenohumeral forward flexion and external rotation improved from 106.4° and 30.5° to 138.4° and 51.1° respectively (p < 0.01 for both comparisons).

DISCUSSION:
Despite significant improvements in pain, shoulder range of motion and function compared to pre-operative baseline values, we believe that the high clinical failure rate at this relatively early follow up time point should preclude the use of biologic resurfacing in young, active patients with symptomatic glenohumeral arthritis.