Arthroscopic Polyethylene Exchange: Technique and Insight Into Failure Mechanisms of Modular Metal-Backed Glenoids

Brandon Anthony Romero, Nicolas Mandel, Joung Heon Kim, Andrew Frederic Kuntz[1], David L Glaser
[1]University of Pennsylvania

Background
Management of glenohumeral arthritis in young patients, especially in those with bone loss, is technically challenging and associated with poor long-term survivorship. Nonarthroplasty solutions are associated with unpredictable outcomes. Total shoulder arthroplasty (TSA) can predictably provide pain relief and result in good restoration of function; however, concerns for longevity because of glenoid failure increases concern for its use in younger patients, especially those with bone loss. A metal-backed glenoid with a modular polyethylene component is an arthroscopic option for revision surgery in patients with polyethylene wear.
Methods
This video presents a series of two patients who underwent a novel technique of arthroscopic polyethylene exchange (APE).
Results
Patient one underwent APE 5 years after TSA. At 9-month follow up, the subjective shoulder value was 90, the American Shoulder and Elbow Surgeons Score was 100, and the Penn Shoulder Score was 97. Patient two underwent APE 1.5 years after TSA. Preoperative radiographs demonstrated posterior subluxation indicative of rotator cuff imbalance. The patient continued to experience pain and ultimately underwent reverse TSA.
Conclusion
The APE technique offers a minimally invasive method to revise a modular metal-backed glenoid, obviating the need for repeat subscapularis takedown. Surgeons must scrutinize preoperative imaging studies and note the balance of the rotator cuff before indicating a patient for APE. The contrasting outcomes between these patients offer a rare insight into potential failure mechanisms for modular, metal-backed glenoid implants.