Combined Opening Wedge Glenoid Osteotomy and Posterior Bone Block for Glenoid Dysplasia with Posterior Instability

Erel Ben Ari, Matthew Thomas Kingery, Dylan T Lowe, Young W Kwon

Glenoid dysplasia, characterized by underdevelopment of the posterior and inferior glenoid, often results in excessive retroversion leading to static posterior humeral head subluxation and glenohumeral instability. Unlike anterior instability, posterior instability often presents with vague, atraumatic shoulder pain and mechanical symptoms, making diagnosis challenging. Traditional soft-tissue instability procedures have poor outcomes when retroversion is severe, necessitating bony correction procedures.

This case demonstrates surgical management of a 26-year-old male with glenoid dysplasia and symptomatic posterior instability. Preoperative imaging demonstrated 32° of retroversion and significant posterior subluxation of the humeral head. The patient was indicated for a combined posterior opening wedge glenoid osteotomy and posterior bone block.

The surgical technique involves the release of the posterolateral deltoid from the scapular spine followed by an infraspinatus tenotomy. A posterior opening wedge glenoid osteotomy was performed 1cm medial to the articular surface, maintaining the anterior cortex as a hinge. A bone wedge harvested from the posterolateral corner of the acromion was impacted into the osteotomy site achieving a 15 mm correction and restoration of a neutral glenoid version. A 26 mm tricortical iliac crest allograft was then placed flush with the posterior rim as a bone block, fixed with cannulated screws and reinforced with capsular repair.

At six-month follow-up, the patient demonstrated excellent outcomes with resolution of his pain, full range of motion, and negative instability testing. Postoperative imaging confirmed correction of retroversion from 32° to 7° and improvement in the degree of humeral head subluxation. This combined osteotomy and bone block technique shows promise for severe dysplasia resulting in posterior shoulder instability.