Arthroscopic-Assisted Anterior Glenoid Reconstruction Using Nonrigid Fixation With Distal Tibia Osteochondral Allograft: Two Alternative Techniques

Benjamin W Hoyt, Cory Riccio, Kelly G Kilcoyne, Lance E LeClere, John M Tokish, Jonathan F Dickens

Introduction

Traumatic anterior glenohumeral instability results in a capsulolabral (Bankart lesion) and/or an osseous injury with subsequent attritional bone loss, particularly with recurrence. As many as 88% of patients with recurrent instability experience glenoid bone loss, which predisposes them to future dislocations and subluxations, even if they undergo arthroscopic capsulolabral repair. Glenoid bone loss can be managed via various techniques, such as the Latarjet procedure or coracoid transfer, or via other osseous and osteoarticular autografts and allografts. However, surgical management of shoulder instability has increasingly shifted toward arthroscopic approaches with preservation of anatomy if possible.

Indications

Arthroscopic-assisted allograft distal tibia bone block augmentation of the anterior glenoid is indicated for revision anterior glenohumeral instability procedures in patients with anterior bone loss and in patients with primary anterior instability who have critical bone loss.

Technique

This technique for nonrigid arthroscopic anterior glenoid reconstruction with distal tibia allograft and anterior labral repair is performed, preferentially, with the patient in the lateral position and involves the use of standard instrument sets; therefore, no patient re-positioning is required. The pre-planned tibial bone block is prepared on a back surgical table either before or concurrent with the arthroscopic procedure. After the creation of portals, a motorized shaver and a burr or a retrograde reamer are used to create a perpendicular edge for apposition of the tibial allograft. The bone block is introduced through a mid-glenoid portal by pulling sutures retrograde through glenoid bone tunnels and is secured to the prepared surface under/medial to the liberated labrum. The articular surface of the graft and the glenoid are aligned, and suture-based fixation is used to compress the bone block against the native glenoid. The anterior labral tissue is then mobilized over the graft and repaired to the native glenoid if possible.

Discussion and Conclusion

The advantages of tibial allograft augmentation for anterior instability in patients with glenoid bone loss are anatomic joint surface restoration, including articular cartilage; lack of donor site morbidity; and a minimally invasive arthroscopic approach. If performed arthroscopically and with nonrigid fixation, this technique allows for concurrent anterior labral repair and anatomic reconstruction, safe graft passage without the necessity of a far medial portal, and rapid return to function.