Distal tibial allografts are a promising option for treating anterior shoulder instability

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Video Abstract

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Abstract

Bone graft performance is one of the most important factors for successful glenoid reconstruction to treat anterior shoulder instability. Although distal tibial allografts are gaining popularity over the more commonly used coracoid autografts, many orthopedic surgeons remain concerned about the potential for decreased healing and increased resorption when using allograft bone. To address these concerns, researchers compared patient radiological outcomes in the context of both graft types following glenoid reconstruction to treat anterior shoulder instability with significant glenoid bone loss. Their results suggest that tibial allografts are a promising option to recreate glenoid bony morphology. To reach this conclusion, the team retrospectively reviewed the radiographic findings from 36 patients who underwent tibial allograft and 12 patients who underwent coracoid autograft procedures to manage anterior shoulder instability with glenoid bone loss. Two fellowship-trained musculoskeletal radiologists assessed graft position, glenoid concavity, cross-sectional area, width, version, total cross-sectional area, osseous union, and graft resorption at a follow-up of 8 months, and clinical outcome in terms of instability was also assessed after 2 years. For nearly all measures, the distal tibial allografts showed comparable radiological and clinical outcomes to the coracoid autografts. Although there were no significant differences between the procedures for bone union or glenoid measurements, the coracoid autografts were more likely to result in a lateral step formation. This could be because the coracoid is round and completely composed of bone, whereas the distal tibia is flat and has a cartilage surface, potentially leading to better positioning. Step formation has been tied to the occurrence of osteoarthritis, so avoiding this may help prevent this outcome. The other main difference between the two graft types was related to bone resorption. The tibial allografts showed significantly higher rates of resorption than the coracoid autografts. Despite the higher resorption in the allograft patients, the final graft size for both groups was equal. It's possible the allografts showed greater resorption because the initial graft size was larger than that of the autografts. Overall, these findings reveal the unique advantages of using tibial allografts for glenoid bone reconstruction. Although additional studies are needed to track the longer-term performance of both graft types, it seems that tibial allografts are a promising alternative for patients requiring surgical management of shoulder instability.