Tricortical Bone Graft for Primary Reconstruction of Comminuted Distal Humerus Fractures

Giannoudis, P V MD, EEC(Ortho); Al-Lami, M K FRCS; Tzioupis, C MD; Zavras, D MD; Grotz, M R W MD, PhD


Distal humerus fractures are relatively rare and exhibit bimodal distribution, occurring in young males and older females (1). The level of difficulty in reconstruction is directly related to the amount of comminution. For elderly women, whose fractures can be complicated by osteopenic bone, the literature reports good outcomes with primary total elbow arthroplasty for comminuted, intraarticular distal humerus fractures (2,3). For younger patients, in whom joint replacement is less desirable, reconstruction with preservation of the joint cartilage can be difficult or impossible.

Giannoudis et al. present a case report of a salvage procedure for an open, intraarticular distal humerus fracture in a young patient. The lateral aspect of the trochlea as well as a portion of the capitellum were irreparable secondary to the comminution, leaving a bony defect. The authors chose to harvest autogenous corticocancellous bone graft from the iliac crest. Although the iliac crest does not provide articular cartilage, its shape is similar to that of the trochlea and can provide structure and stability. Similar use of crest graft to reconstruct the trochlear articulation has been described in late correction of distal humeral malunions (4). Cobb and Linscheid reported three successful outcomes with this technique (4).

The technique described by Giannoudis provides an option for an irreparable articular surface in a young patient to salvage a stable, pain-free elbow joint.

Reviewed by Judith A. Siegel, M.D.

Department of Orthopaedic Surgery
Boston University School of Medicine
Boston Medical Center; Boston, Massachusetts
