

The Distal Radioulnar Joint: Contemporary Perspectives

The distal radioulnar joint (DRUJ) has been the subject of renewed interest recently because many procedures and techniques of long-standing use have been found to have imperfect results. Distal radioulnar arthritis and instability remain vexing problems, and a variety of techniques have been presented to deal with these issues (Table 1). Repair, reconstruction, resection, and fusion options have provided varying results and have introduced problems of their own. Arthroplasty, including prosthetic arthroplasty, has been revisited as materials have improved. It is into this setting that a number of techniques have been proposed involving unilateral or total joint arthroplasty of the DRUJ. Although many techniques have been described, it is yet uncertain as to the precise indications for each technique.

The DRUJ consists of the ulnar head, sigmoid notch, and its restraining anatomical factors. Those patients who present with instability due to failure of the restraining anatomical factors can be managed with anatomic repair of the soft tissue constraints, if there is adequate soft tissue, or soft tissue reconstruction, if there is none. Those patients with instability secondary to a bony deformity can be managed with an osteoplasty or osteotomy.

Those DRUJ problems that have significant articular pathology are often an indication for a DRUJ arthroplasty. Historically, this has been an excision arthroplasty such as a Darrach procedure, Sauvé-Kapandji procedure, or a hemiresection arthroplasty. Interposition arthroplasty with capsule, retinaculum, and pronator quadratus muscle can also be used. Replacement arthroplasty is now being increasingly performed. Those patients with isolated ulnar head pathology and intact restraints can be managed with an ulnar resurfacing prosthesis, thereby preserving the natural soft tissue restraints. Ulnar head replacement can be performed for ulnar head pathology and allows surgical repair of the soft tissue restraints at the completion of the procedure. Pathology to both sides of the joint can now be managed with a nonconstrained total joint replacement.

Lastly, there are those patients for whom both joint pathology and instability are major concerns. An important subgroup are those patients who lack bone stock as might be seen after a Darrach procedure. Longer stem ulnar components, which also allow repair of restraints, custom-made prosthesis, and constrained total joint replacements are options for this difficult group.

At present, the provision of these new techniques to deal with the varying DRUJ pathologies allows the surgeon to better address the anatomical problems identified.

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TABLE 1. *Treatments of the Pathologies Associated With the DRUJ*

Pathology	*Treatment*
Instability	
Acute instability	Acute repair
Chronic or irreparable instability	Reconstruction
Bony insufficiency instability	Bony osteoplasty or osteotomy
Joint pathology	
Ulnar positive	Ulnar shortening
Sigmoid notch maloriented	Distal radial osteotomy
Isolated ulnar degeneration	Ulnar resurfacing
Ulnar and sigmoid notch joint degeneration	Ulnar and sigmoid notch arthroplasty
Instability and joint pathology	
Isolated ulnar degeneration associated with instability and repairable or reconstructible soft tissue constraints	Ulnar head replacement
DRUJ joint pathology with unreconstructible soft tissue constraints	Constrained DRUJ arthroplasty