



Distal radioulnar joint injury in distal radius fracture

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Dear Editor

Distal radius fracture is the most common bone injury encountered in emergency clinics with overall incidence of about 15% to 20%.

Despite the Abraham Colles' famous remark that the casted wrists "will at some remote period again enjoy perfect freedom in all of its motions and be completely exempt from pain," (1), a large number of patients yet suffer from this type of injury which continues to cause some disabilities mostly directly related to the distal radioulnar joint (DRUJ). Prevention of this complication needs restoration of bone, articular surfaces and ligaments of DRUJ during first six weeks of the injury.

These types of lesions traditionally are classified into three types: stable, unstable and potentially unstable lesions.

1. Stable lesions: ulnar styloid tip avulsion or stable ulnar neck fractures. Prognosis for this type of injury is generally good and early motion may be initiated according to fixed distal radius fracture.

2. Unstable lesions: ulnar styloid base fractures or triangular fibrocartilaginous complex (TFCC) rupture. Late DRUJ degenerative changes and motion limitation are main complications to these types of injuries. Unstable lesions are clinically or radiologically unstable and must be treated promptly using 4-6 weeks casting in mid-supination position, TFCC repair, or ulnar styloid fixation.

3. Potentially unstable lesions: intra-articular fractures of sigmoid notch or ulnar head. Early degenerative changes and severe motion limitation are main complications of these injuries. The best treatment option is open reduction of

fracture, if possible, and early range of motion to prevent stiffness. It seems that computed tomography is the best modality to assess DRUJ congruity (2).

Main late complications of DRUJ incongruity associated with malunited distal radius fracture are pain and decreased arc of wrist rotational movement. If residual sagittal and frontal angulation of distal radius is less than 10°, only DRUJ stabilization is the proper treatment. In cases with more than 10° radial malunion, distal radius osteotomy might be necessary (3).

Another complication of distal radius fracture is shortening and ulnocarpal impaction. In presence of acceptable distal radius criteria except than shortening, ulnar shortening is a simple method of treatment if distal radioulnar joint is congruous according to CT-scan findings (4).

There are three main treatment options for DRUJ injuries associated with distal radius fracture: early mobilization, closed reduction and casting with or without radioulnar pinning, and operative treatment (open or arthroscopic). These are directly related to stability of distal radioulnar joint. Complete DRUJ dislocation treatment needs at least one marginal TFCC rupture (usually ulnar rather than radial side) and six weeks casting in neutral or 45° mid-supination. If radioulnar pinning is necessary, pins must be inserted proximal to DRUJ to prevent joint injury. The TFCC injuries associated with ulnar styloid base fractures maybe treated by ulnar styloid fixation or arthroscopic TFCC reattachment without styloid fixation. For DRUJ incongruity according to CT-scan findings, just few alternative treatments are available including: distal ulnar resection (Darrach procedure), Sauvé-Kapandji operation

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(distal radioulnar fusion and ulnar pseudoarthrosis creation), and finally distal ulnar hemiarthroplasty to regain functional arc of forearm rotation. In conclusion, whenever a benign looking distal radius fracture is observed, the distal radioulnar joint should not be disregarded!

References

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