Wrist deformities in RA
Etiopathogeny and biomechanical consequences

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Mechanical stresses

Inflamed joint

Capsular and ligament loosening

Mechanical stresses

Joint deformity

Increased and/or Fixed deformity

Distant deformity

Bony erosion
All these factors ended up with a typical rheumatoid hand.
To prevent or correct deformities

- One should know the mechanical stresses that are placed on finger/wrist
- One should know the structures involved by the disease that start the deformation
- One should know the evolution of deformation once started
The mechanical stresses

- All activities of daily living place loads on the fingers, hand and wrist
- Prevention and protection of diseased joints are an essential part of the treatment
Location of synovitis

- Synovitis starts in the most vascularized zones
- Penetration of the disease follows the vascular axes
- One can define three types of deformity according to the predominance of the vascular axis
Ulnar involvement (46%)

- ECU sheath
- TFCC
- Radio-carpal ligaments
ECU sheath involvement = Volar dislocation of the ECU

- Loss of ulnar inclination
- Radial inclination of the carpus
- Loss of wrist extension
- Anterior translation of the carpus
- Mano supinata
TFCC involvement = Instability of the DRUJ +/- bony erosions

« Dorsal dislocation of the ulna »

Contribute to extensor tendons rupture
- Radio-carpal ligaments involvement = Anterior instability of the carpus

- Anterior instability of the carpus

- Ulnar translation of the carpus
Evolution of ulnar side involvement

- Mano supinata
- Extensor tendon ruptures
- Ulnar drift of MP joint (linked to radial inclination of the carpus)
Central involvement (18%)

- Destruction of scapholunate ligament
- Destruction of radiocarpal ligaments
- Destruction of the lunate fossa
- Scapholunate instability
- Carpal collapse
- DISI deformity
- Mano supinata
Radiocarpal Lgts involvement

- Anterior carpal translation
- Ulnar translation
Lunate fossa destruction

Ulnar inclination / translation of the carpus
Evolution of central involvement

- Mano supinata
- Anterior dislocation of the lunate with secondary flexor tendon ruptures
- Swan-neck deformity (PIP) due to carpal shortening
Radial involvement (36%)

- Radio-carpal ligaments destruction
- Ulnar and anterior translation of the carpus
- STT joint destruction/instability
- STT joint involvement
- Anterior projection of the STT
- Radial inclination of the carpus
Evolution of radial involvement

- Mano supinata
- Ruptures of flexor tendons (FPL)
Combined type

- All combinations are possible and depends on the location of synovitis, and the quality of bony support
However

- These classifications are also modified by the natural history of the disease.
- Simmens described 3 types of evolution (stiff, dislocate, erosive) that cannot always be predicted.
Conclusion

- Knowledge of the physiopathology helps to understand the observed deformities, to correct them and to prevent them as they may also interfere with the fingers.

- However, the natural history of the disease is still unknown and surgical treatment should be complete to obviate secondary deformation.