Upper Extremity Rheumatoid Arthritis

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Upper Extremity Self-Assessment
Biological response modifying medications (Enbrel, Remicade, Humira) used in RA work by the following mechanism of action:

A. Blocking tumor necrosis factor (TNF)
B. Binding cell messenger protein IL-1
C. Blocking of T-cell activation
D. Antagonist of DNA synthesis
E. B-cell depletion
Answer is A. Newer medications called biological response modifying medicines work by blocking enzymes in the immune activation cascade such as TNF, IL-1, B-cells and T-cells. They have much more targeted mechanism of action and more powerful effect on arresting disease progression.
76 y o f w/RA has sudden inability to extend small finger dominant hand. She denies trauma. One week later, she loses active extension of the ring finger. On exam, there is no active extension of RF & SF, but full passive extension. There is no EDC subluxation. Ulnar head is prominent dorsally. XRs show DRUJ degenerative changes with prominent dorsal osteophyte. Recommended treatment is:

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A. Immediate repair RF & SF extensors
B. Delayed bridge grafting of extensors
C. Tendon transfers to the ruptured extensors
D. Tendon transfers and Darrach resection
E. Realignment of the extensors

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Answer is D. There is attritional rupture of extensors due to prominent osteophytes at distal ulna. Direct tendon repair is not possible. Usual treatment is tendon transfer reconstruction (EIP to EDC ring and small) and distal ulna resection to prevent further ruptures.
65 y o f w/RA has lost ability to extend the fingers of her right hand. On exam, she has full passive MCPJ motion with intact tenodesis. What is the most likely cause of her disability?

A. Atlanto-axial subluxation
B. Cubital tunnel syndrome
C. Extensor tendon attritional ruptures
D. Intrinsic tightness
E. Posterior interosseous nerve entrapment
Answer is E. Differential diagnosis of inability to extend fingers includes attritional extensor rupture, MCPJ volar subluxation and ulnar drift leading to extensor ulnar subluxation and PIN entrapment at the arcade of Frohse due to elbow rheumatoid synovitis. Inability to extend the thumb suggests PIN entrapment.
Which structure must be reconstructed to correct the EDC subluxation associated with digital ulnar drift in RA?

A. Radial lateral band  
B. Central slip tendon  
C. Radial sagittal band fibers  
D. Triangular ligament  
E. Radial juncturae tendinae
Answer is C. Extensors are subluxed ulnarily between the MC heads. The attenuated radial sagittal band fibers at the MCPJ level must be repaired or reconstructed with the goal of centralizing the extensor tendon over the MCPJ head. Technique of imbrication works fine.
Silicone reconstruction of MCPJs in RA patients has been shown to significantly improve which of the following?

A. Grip strength  
B. Pinch strength  
C. MCPJ range of motion  
D. Jensen-Taylor test  
E. Subjective appearance
Answer is E. Most of the satisfaction is due to improved extension arc and improved ulnar drift placing the fingers in a more biomechanically favorable position. There is subjective improvement in ADLs.
At 14-year follow-up, what percentage of silastic MCPJ replacement implants are not fractured?

A. 15
B. 35
C. 55
D. 75
E. 95
Answer is B. Goldfarb found 37% not broken at 14 years. Of those NOT fractured, another 22% were severely deformed. Trail found 34% NOT fractured at 17 years. Crossed intrinsic transfer improved survival to 90% at 15 years.
69 yo f w/RA is having revision silicone MCPJ arthroplasty. What can be expected regarding pain relief, MCPJ motion and implant fracture at 5-yr follow-up?

A. Improved pain, improved motion, low fx rate
B. Improved pain, improved motion, high fx rate
C. Improved pain, unchanged motion, high fx rate
D. Persistent pain, improved motion, low fx rate
E. Persistent pain, unchanged motion, high fx rate
Answer is C. Burgess (2007, JHS) found excellent pain relief, no change in motion and high fracture rate at 5-yr F/U. Implant fracture rate may be up to 63%.
55 yo f with advanced bilateral wrist RA has failed nonoperative treatment and desires staged bilateral wrist procedures. On exam, wrist motion is painful but there is no synovitis. Tendons are intact. Neuro exam is normal. There is no involvement of shoulders or elbows. She would like to preserve some wrist motion to play Guitar Hero with grandchildren. Which surgical plan is supported by current literature?
A. Right silicone arthroplasty, left wrist fusion
B. Right wrist fusion, left proximal row carpectomy
C. Right total wrist arthroplasty, left wrist fusion
D. Right wrist fusion, left silicone arthroplasty
E. Right proximal row carpectomy, left wrist fusion
Answer is C. Arthrodesis is the gold standard treatment for RA of the wrist. Present generation total wrist replacements have addressed shortcomings of the prior generations including component loosening and instability. Fuse non-dominant side and perform total wrist arthroplasty on the non-dominant side.
60 yo f w/10-yr history RA has hyperextension deformity of dominant thumb IPJ. She cannot actively flex the joint which is passively mobile and radiographically normal. Most suitable surgical treatment is:

A. Thumb IPJ fusion
B. Middle finger FDS transfer to the thumb
C. Distal stump FPL tenodesis of distal phalanx
D. Primary FPL repair
E. Palmaris longus transfer to the thumb

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Answer is B. This is Mannerfelt lesion secondary to FPL attritional rupture at level of carpal scaphoid. Tendon transfer is required to restore function. Fusion is not best treatment for radiographically normal IPJ.
Patient w/RA has type II swan neck deformity in which PIPJ has full flexion, but flexion is limited with MCPJ in extension. Silastic MCPJ arthroplasties are planned. What procedure must also be done?

A. DIPJ fusion
B. SORL reconstruction
C. PIPJ fusion
D. Lateral band mobilization
E. Intrinsic release
Answer is E. Type II swan neck deformity occurs as the result of MCPJ synovitis and joint subluxation. Sagittal band attenuation weakens the extensor force and intrinsic contracture results. Procedures that limit PIPJ hyperextension are not sufficient. Intrinsic release combined with MCPJ arthroplasties is indicated. Lateral band mobilization is indicated when passive PIPJ motion is limited by a contracted extensor mechanism as in type III swan neck deformity.