WRIST ARTHRITIS

Primary wrist arthritis is rare. Usually secondary arthritis is due to an old scaphoid fracture, carpal instability or intra-articular fracture. It manifests: pain, stiffness and limitation of movement.

Indications for wrist arthrodesis
1. Rheumatoid arthritis.
2. Posttraumatic osteoarthritis, SLAC and SNAC.
3. A previous unsuccessful more limited arthrodesis.
4. Failed total joint replacement.
5. Brachial plexus palsy or spastic hand.

SLAC [Scapho-lunate advanced collapse]

Stage I  Osteoarthritis between the radial styloid and distal pole of the scaphoid.
Stage II  Arthritis of the proximal pole of the scaphoid.
Stage III  The capitate migrates proximally. Capito-lunate arthritis

SNAC [Scaphoid Non-union advance collapse]

Stage I  As for SLAC

II  Arthritis in capitate and proximal pole of the scaphoid

III  Capito-lunate arthritis

Treatment

1. Wrist arthrodesis

Position of fusion: 10° Dorsiflexion; long axis of III metacarpal in line with the radius.

Important joints included in the arthritis are:

Carpometacarpal joint of II and III metatarsal,

Capito-lunate ligament,

Scapho-luno-radial joint
Technique

Tourniquet

Midline incision: from III metacarpal: centered on Lister’s tubercle

The approach to the wrist for arthrodesis is dorsally between the third and fourth dorsal compartments.

Identify and protect superficial radial nerve and dorsal carpal ulnar nerve.

Extensor retinaculum are opened sharply close to the bone

The EPL is elevated radially over Lister tubercle, and the tubercle is removed.

Capsule of the joint is opened and lifted as a flap

Elevations or osteophytes are removed.

Cartilage removed: nibbler for small and curettage of important joints

Plate: first fix to the III metacarpal: 2 mm; 2.5mm screw for the metacarpal and 3.5mm for the radius.

Make sure there is no distraction at capiatolunate or radiocapitate joints

Cancellous bone graft can be obtained from the distal radius, just radial to Lister’s tubercle.

The dorsal capsule and extensor retinaculum are closed, and then the overlying skin is closed

3 types of plates:

- short carpal bend,
- long carpal bend,
- straight plate.

Complications

1. Nonunion
2. Plate tenderness
3. Extensor/flexor tendon adhesions requiring tenolysis
4. Carpal tunnel syndrome
5. Iliac crest donor complications
6. Distal radio-ulnar joint pain or dysfunction
7. Reflex sympathetic dystrophy
8. Wound-healing problems
9. Persistent unexplained pain
2. PRC [Proximal row carpectomy]

Pre requisite: preservation of capito-lunate joint
Dorsal longitudinal incision between the III and IV compartment and elevate flaps as for arthrodesis.
Lunate is excised first, then scaphoid and triquetrum by sharp dissection [joystick technique].
Try to preserve radio-carpal ligaments
Routine styloidectomy is not needed
Dorsal capsule is repaired
K wires not recommended
Cast below elbow for 3 weeks
X ray: to make sure that the capitate is located in the lunate facet

3. Corner arthrodesis

Indicated in the presence of capito-lunate joint arthritis.
Incision like PRC
Scaphoid is excised first
The opposing surfaces of capitate, hamate, lunate and triquetrum decorticated
Volar capsule attachment of these carpal bones retained
Lunate is reduced on to capitate and stabilized with staples, K wire or screws. Or fixed with a special plate. Screws are preferred.
Iliac bone graft

4. STT fusion

Current indications for STT

STT arthrosis
Kienbock’s disease,
Carpal instability

Contraindication: radio-carpal arthritis

Technique

Make a dorsal vertical incision
Open the III compartment.
Make a vertical dorsal capsular incision.
Exposing the capsule between ECRB and ECRL

Expos the radial styloid and scaphoid junction.

Remove the distal 5 mm of the styloid with a rongeur. It is critical in an STT fusion to have normal articular cartilage between the distal radius and the proximal scaphoid. If abnormal, wrist arthrodesis is indicated.

Drive one or two K-wires from the trapezium and trapezoid into the scaphoid, avoiding impingement of the radio-scaphoid joint. [when possible use Acutrak screws for fixation]

Densely pack cancellous bone into the spaces between the trapezium, the trapezoid, and the scaphoid.

Outcome of STT fusion:
70% of the dorsiflexion–palmar flexion motion was preserved.
30% had major surgical complications: development of postoperative arthrosis, damage to superficial radial nerve, non-union, 15% were dissatisfied
STT fusion is still controversial.

5. Neurectomy
Limited neurectomy (Berger technique)
70% of patients have 70% pain relief 7 years after surgery

6. Arthroplasty
Indicated for low demand patients (rheumatoid arthritis) with good bone stock.
Loosening is seen in 15% over 10 years
Small dislocation rate