RHEUMATOID HAND

History

Pain

Loss of function

Neck pain

Diminished ADL assessment:

Using toothbrush, hairbrush, knife, fork

Dressing - bra,

Pulling up trousers / stockings

Operating remote control

Hobbies

Main problem is inability to extend the MCPJ's enough to hold large objects

Treatment history Surgery

Medical history: MTX, Steroids

Examination

Expose above elbow, shoulder and neck assessment

Assessment of the hand

Dorsum	Interossie wasting
	Swelling around wrist
	Ulnar deviation of the finger, finger drop
	Button hole and swan neck deformity
	Thumb deformity
	Rheumatoid node; nail changes
	Surgical scar
	Prominence of the ulnar head
Lateral	Hypothenar wasting
	Volar subluxation of the wrist [UCL affected]
Volar	Thenar and hypothenar wasting
	Swelling around the tendon at proximal phalanx

Feel

Start with bones around wrist

Specific tender areas

Can the deformity: be passively corrected or not?

Is synovial thickening present or not [wrist and flexor finger]?

Special test

1. Bunnel's test for intrinsic tightness

2. Finger drop [D/D: PIN syndrome

ruptured tendon]

3. Myelopathic signs [check under neurology]

Range of movement of each joint

Pulp to palm distance

Functional assessment

Pinch grip

Key grip

Power grip

Also examine: Cervical spine; TMJ

Investigations

WBC (decrease. in Felty's syndrome)

Platelet count (decrease with NSAID's)

Hemoglobin (anemia of chronic disorders)

LFT (methotrexate)

ADL assessment by hand therapist

Planning treatment

Aims

Pain relief

Improve function

Prevent further damage

Cosmesis

Principles

Medical treatment first; early aggressive chemotherapy

Prophylactic synovectomy, if medical treatment fails, to prevent tendon rupture

More painful joint first

Operate on proximal joints then distal ie.wrist before MPJ and MPJ before DIP

Lower limb treated before upper limb (to avoid crutch walking)

Hand: wrist first and then fingers. (Radial deviation of wrist affects the ulnar deviation of fingers)

Tendon surgeries before joints

COMMON SURGERIES

1. Extensor synovectomy

Indicated when tenosynovitis is not resolved by medical treatment

Prevents tendon rupture

Use dorsal incision and protect superficial radial nerve and dorsal ulnar nerve

Tendons; relocated dorsal to the extensor retinaculum

Suave-Kapandji procedure (has no advantage over simple excision of ulnar head)

2. Chamay procedure

Indicated, if there is ulnar translocation or marked radial inclination of the carpus

The lunate is fused to the radius in the corrected position

It s a type of limited wrist arthrodesis

3. Wrist arthrodesis

4. Wrist arthroplasty

Wrist arthroplasty is acceptable in RA.

25% failure at 5 years

5. Metacarpophalangeal joint

Ulnar drift is caused by:

1. Radial deviation of wrist
2. Stretching of the extensor mechanism by synovitis (on radial side)
3. Loss of volar plate and collateral ligament. Stabilization of the flexor sheath
4. Erosion of metacarpal heads.
5. Direction of muscle pull
6. Gravity

Common surgery: MPJ replacement

If tendon has ruptured: reconstruct tendon first

MCPJ Replacement (Swanson's)

Transverse or vertical incision

Ulnar side of MPJ: soft tissue release

Release ulnar intrinsic

Release volar plate of the MPJ.

Metacarpal head resection and rectangular holes in metacarpal and proximal phalanx

Insert biggest possible prosthesis [sizing with respect to proximal phalanx]

Reconstruct radial collateral ligament

Double breast on the radial side of the capsule

Bulky dressing and a volar slab

After. 48 hours. apply outrigger splint to last for 3 months

Complications

Recurrent ulnar drift: loss of 50% or 6º or correction

Implant fracture : 20% at 5 yrs

Infection 1%

Silicone synovitis (very rare)

PIP [proximal interphalangeal joint] Surgeries

Arthrodesis or replacement

Arthrodesis is ideal for index and middle finger, whereas replacement is preferred on the ulnar side of the hand.

Swan Neck deformity

Definition: Extension at PIP and flexion deformity at the DIP

Causes

1. Long extensor over activity due to mallet deformity
2. Intrinsic over activity
3. Failure of PIPJ stabilizers
    a. Volar plate insufficiency
    b. FDS insufficiency
    c. Generalized joint laxity

Assessment

1. Inspect and define swan neck with degrees

2. Look for MPJ: Ulnar drift. If drift present bring the MCP joint into neutral position and then assess swan neck deformity.

3. Bunnel's test for intrinsic contracture

4. Now check FDS [its insufficiency could be the cause]

5. Stretching volar plate [no clinical test]

6. ROM: to determine the PIP joint movement is fixed and mobile

7. Check active extension of DIP

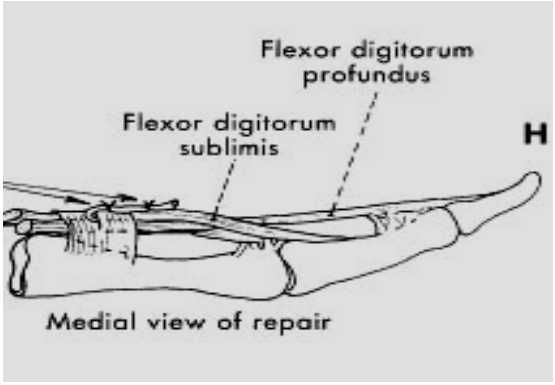
Treatment

1. FDS Tenodesis

When FDS insufficiency is the cause, perform FDS tenodesis.

Preserve A2 pulley and stitch the FDS through A2 pulley at 5º flexion of the PIP

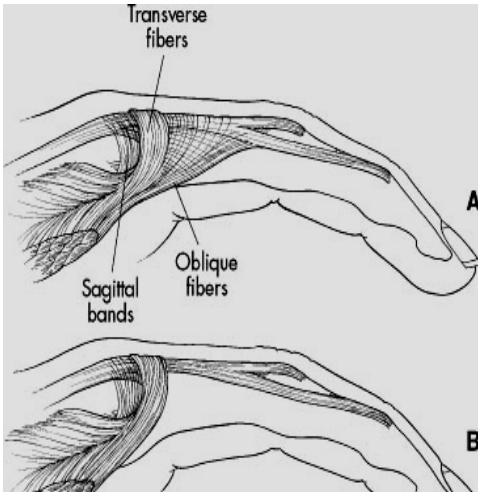
Problem: causes fixed flexion deformity of PIP.



2. Littler's distal release

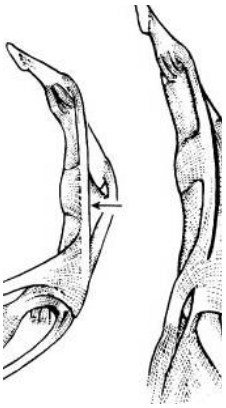
When intrinsic contracture present

Littler's distal release is recommended..In this technique, only the oblique fibres of extensor expansion are released.



3. When lateral bands have adhered dorsally

Lateral band mobilization through a dorsal incision.
The lateral band is mobilized and allowed to slide over the condyle of the joint and the PIP joint is held in flexion.



BOUTONNIERE DEFORMITY

Rupture of central slip of extensor tendon due to synovitis of PIPJ. The lateral bands dislocate in a palmar direction, being converted from extensors to flexors.

TREATMENT

Non-operative: works in majority of the deformity

Operative:

Mild (10-15deg.)	Extensor tenotomy over centre of middle phalanx [Fowler's technique]
Moderate ((30-40deg.)	Matev's procedure
Severe (fixed)	Index/ Middle: arthrodesis - position ranging from 20deg. index to 45deg
	Ring and little finger or arthroplasty for ring and little

Moderate Deformity

The lateral bands are mobilized by incising the transverse retinacular ligament longitudinally

Tenotomize the two lateral tendons just proximal to the DIP

When the central tendon appears to be stretched, plicate

Align the lateral bands with the central tendon at the proximal portion of the middle phalanx.

Be certain of 80 degrees of passive flexion at the PIP

Tranfix wirh a Kirschner wire PIP in extension.

THUMB

1. Flexor tenosynovitis

The most commonly affected leading to ruptures are the radial FDP and FPL.

Usually FDP to index finger (attrition on spike from scaphoid)

2. Mannerfelt Syndrome

FPL rupture

Clinical

Puffy thick feeling palm

Pinch test - thickened tenosynovium bulges, which can be 'pinched'

Test tendon function individually

Test function of FDP index and FPL by asking patient to pinch.

Surgery

1. FPL is common tendon rupture at the wrist

   (Bridge grafting or FDS transfer)

2. Flexor in the finger: synovectomy but retain A1 pulley

3. Arthrodesis of DIP

FINGER FDP RUPTURE

1. Primary tendon repair - rarely done
2. Primary tendon graft - fraught with difficulties and poor results
3. Tendon transfer - limited available on flexor side (palmaris longus, brachioradialis)
4. Side-to-side suture - good in older patients; wrist level.
5. Arthrodesis - DIPJ mainly.

EXTENSOR TENOSYNOVITIS

Piano sign

Rupture of extensor digiti minimi is common

Extensor digitorum of ulnar side commonly involved

EPL may be involved

PIN and extensor rupture: tenodesis effect by flexing the wrist may differentiate these two.

Treatment

Tenosynovectomy

Side to side

EI transfer

FDS transfer when there is multiple tendon rupture

RHEUMATOID THUMB

Do not treat thumb in isolation, treat the whole hand

Strategy

Proximal surgery first and then distal

Lower limb first then upper limb

Painful joint first

Have regard for stability, e.g. MP fusion

Avoid sacrificing movement at the base of the thumb

Follow simplest procedure

Steroid treatment for nodules

Assessment

1. Identify affected joint. CMC, MP or both
2. Nalebuff's classification

Type I	Common. MPJ involved.
Type II	CMC is involved with Boutonnière deformity. Rare.
Type III	Hyperextension of MPJ (swan-neck deformity)
Type IV	Destruction of MPJ (gamekeepers thumb)
Type V	"Main en lorgnette" (opera glass hand). Grossly deformed.

3. Early treatment with disease-modifying drugs like MTX and AntiTNF

Mild	Hydroxychloroquine
Moderate	Sulfasalazine
Severe	MTX, Leflunomide

4. Pre-operative Assessment:

Stop salicylates 1-2 wks before surgery

Stop NSAID: 2-5 days before surgery

Patients on corticosteroids should receive supplemental corticosteroid therapy

Methotrexate: Controversy over stopping or not. Depends on surgeons.

Lateral view of cervical spine: to rule out instability cervical spine

Goals of surgery

Relieve pain

Restore function

Correct deformity

Informed consent

(1) What the procedure entails

(2) The location of incisions

(3) The expected appearance after surgery

(4) The application of splints

(5) The expected length of stay in the hospital

(6) The type of anaesthesia

(7) The alternatives to surgery

(8) The after treatment and the rehabilitation period

(9) The expected benefit from the operation

Treatment

Early and when joints are not fixed	Most can be treated medically .MPJ synovectomy and extensor reconstruction in some cases
In fixed deformity with OA	MPJ arthrodesis [Common]
IP, MP and CM arthritis	MP and IP fusion [rarely MP arthroplasty] +/-
	Excision arthroplasty of trapezium, or replacement
	Or
	MPJ arthrodesis

I. Excision of Trapezium

II. E**xcision of trapezium and tendon interposition**

III Arthrodesis

MP arthrodesis: preferred option

Fuse in 0-10^0 flexion

Provided basal joint is intact: fusion of both MP and IP is compatible

Tension band wiring is a better fixation

Oblique wire and circumferential wire or 2 K wire and figure of 8