

## CORRECTION OF FINGER DEFORMITIES

### Swan neck

Pathology	PIP joint hyperextension and a DIP joint extensor lag due to intrinsic over-activity and volar plate laxity
Causes	This may be secondary to MP, PIP or DIP joint pathology MPJ: Synovitis and often subluxation PIPJ: Synovitis and volar plate laxity DIPJ: Mallet type deformity
Surgical options	Ideally the original pathology should be resolved first eg MPJ arthroplasty or DIPJ fusion For the PIP joint: Dorsal – release/mobilisation of the lateral bands ± collateral ligaments (this is not necessary in the early fully mobile deformity) Volar – Tenodesis/dermodesis/volar plate tightening
Requirements	Hand set Fine bone nibblers Fine curette K wires and driver
Objective	Mobilisation of the PIPJ and prevention of recurrence
General	RA/GA Arm/forearm tourniquet
Dorsal technique	Long curved incision Mobilise lateral bands/collateral ligaments ensuring full PIPJ flexion and good gliding of the lateral bands without catching (this can be due to osteophytes which need removal) Take care to avoid pulling off the central slip in the fixed deformity by slow stretching or step lengthening Close the wound up to but not beyond the PIPJ
Volar techniques	<b>FDS tenodesis</b> Volar zig-zag incision to one side FDS slip mobilised as far proximal as possible through a window between the A1 and A2 pulleys and divided The proximal end of the tendon is passed around the A2 pulley and sewn back on itself holding the PIPJ flexed 20-30° (fixation to bone is an alternative) The PIPJ is held flexed 30° with a K wire Skin closure only

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### **Lateral band tenodesis**

Ulnar lateral hockey stick incision

Ulnar lateral band is mobilised from MPJ level keeping the DIPJ attachment

The tendon is passed volar to Cleland's ligament and fixed proximally to itself around the A2 pulley (as for the FDS tenodesis - fixation to bone is an alternative)

The PIPJ is held at about 30° and the DIPJ straight

The PIPJ is held flexed 30° with a K wire

Skin closure only

#### Rehabilitation

Volar plaster slab to protect the K wire

Change to a splint at 10-14 days and check wounds

Mobilise MPJ ± DIPJ (FDS tenodesis especially)

Remove K wire at about 3 weeks

Block PIPJ extension beyond 20° for at least 4 weeks

Mobilise with physiotherapy support

#### Complications

General

Infection

Nerve injury

Scar sensitivity

Stiffness

Specific

Recurrent deformity

### **Boutonniere**

#### Pathology

Central slip failure causing PIPJ extensor lag and secondary lateral band subluxation with DIPJ hyperextension

#### Causes

Synovitis

#### Surgical options

Do nothing (this is the least successful operation in RA – Souter 1989)

Release the DIPJ only (Fowler/Littler tenotomy q.v.)

Reconstruct the central slip (Littler)

### **Reconstruction**

#### Requirements

Hand set

K wires and driver

#### Objective

Restoration of active PIPJ extension and DIPJ flexion

#### Technique

RA/GA

Arm/forearm tourniquet

## CORRECTION OF FINGER DEFORMITIES

Dorsal longitudinal incision

Identify and shorten the central slip ± support from the lateral bands rolled over K wire the DIPJ in full extension

Skin closure only

### Rehabilitation

Volar plaster slab to protect the K wire

Mobilise the DIPJ early

Change to a splint at 10-14 days and check wounds

Mobilise MPJ ± DIPJ (FDS tenodesis especially)

Remove K wire at about 3-4 weeks

Mobilise with physio support but support the PIPJ ± the

DIPJ into extension for 2-3 months

### Complications

General

Infection

Nerve injury

Scar sensitivity

Stiffness

Specific

Recurrent deformity or inadequate PIPJ flexion

Patient dissatisfaction

### References

Souter WA. Planning treatment of the rheumatoid hand. Hand 1989, 11, 3.

### **Fowler (Littler tenotomy)**

#### Pathology

Central slip failure causing PIPJ extensor lag and secondary lateral band subluxation with DIPJ hyperextension

#### Causes

Synovitis

#### Surgical options

Divide the extensor mechanism over the middle phalanx

Fuse the DIPJ

#### Requirements

Hand set

#### Objective

Restoration of active PIPJ extension and DIPJ flexion

#### Technique

LA (ideal)/RA/GA

Arm/forearm/finger tourniquet

Dorsal longitudinal or transverse incision

Divide the extensor tendon over the middle phalanx at the junction of the proximal 1/3 and distal 2/3

Skin closure only for longitudinal incision, leave the transverse incision open

## CORRECTION OF FINGER DEFORMITIES

### Rehabilitation

Mobilise early  
Splint the DIPJ if a marked lag develops

### Complications

#### General

Infection  
Nerve injury  
Scar sensitivity  
Stiffness

#### Specific

Extensor lag  
Inadequate DIPJ flexion if the DIPJ is damaged