

# Hypothenar fat flap for median nerve coverage in recalcitrant CTS

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# History

**Cramer: Correspondance Newsletter ASSH 1985**

**Strickland: JHS 1996**

**Mathoulin: Hand Surgery: 2000**

# Anatomy

30 cadaveric dissection, after latex injection in ulnar artery



# Anatomy

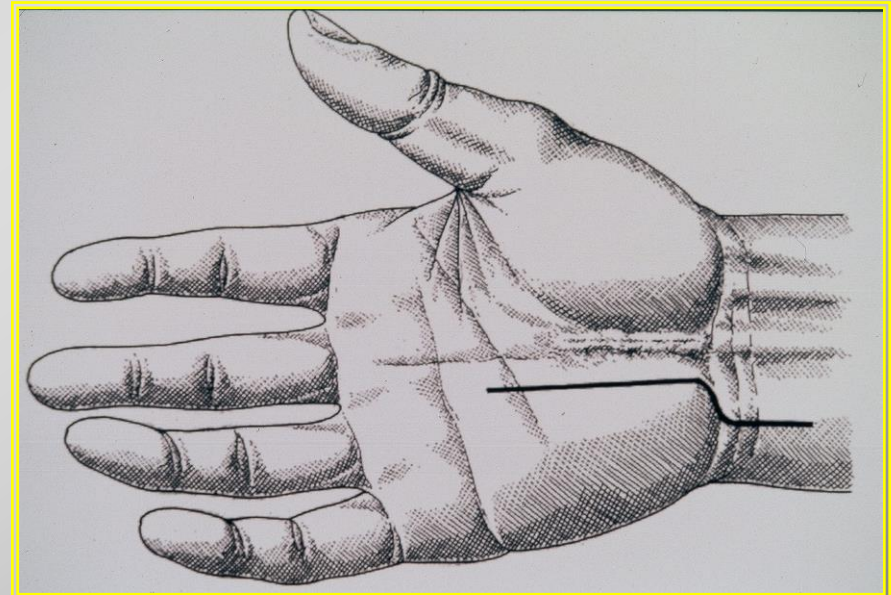
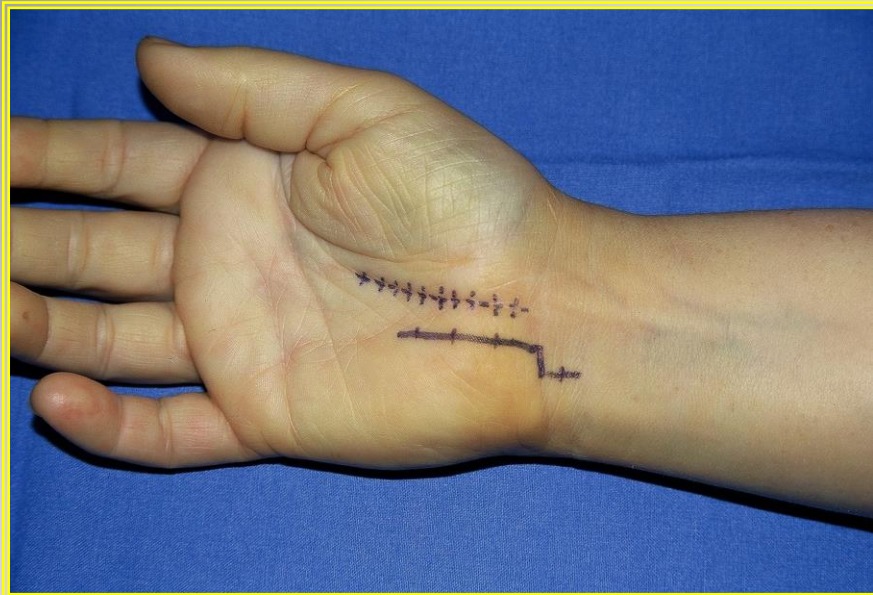
2 to 3 branches ( $\approx$  0.7 - 1.5 mm)

Adachi (1928), Jorge-Barreiro (1980)



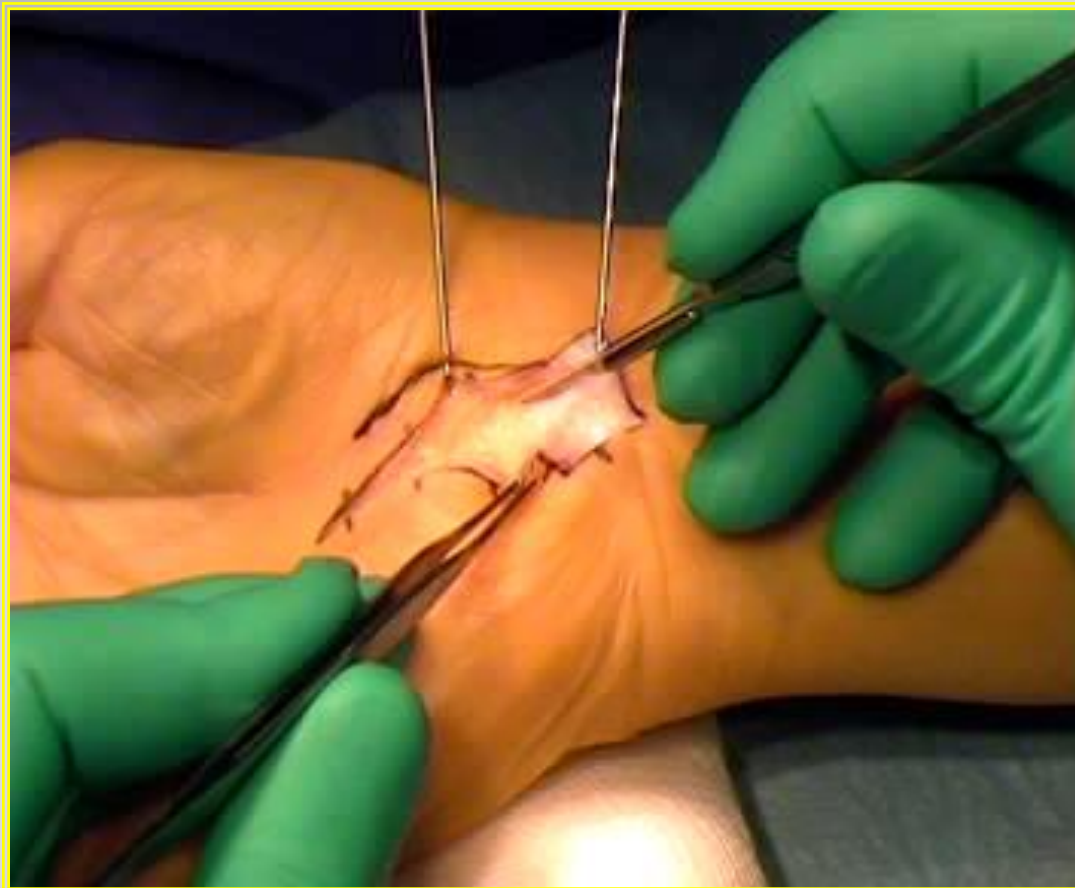
# Technique

New incision realized medially, because the nerve is frequently trapped into the transverse ligament



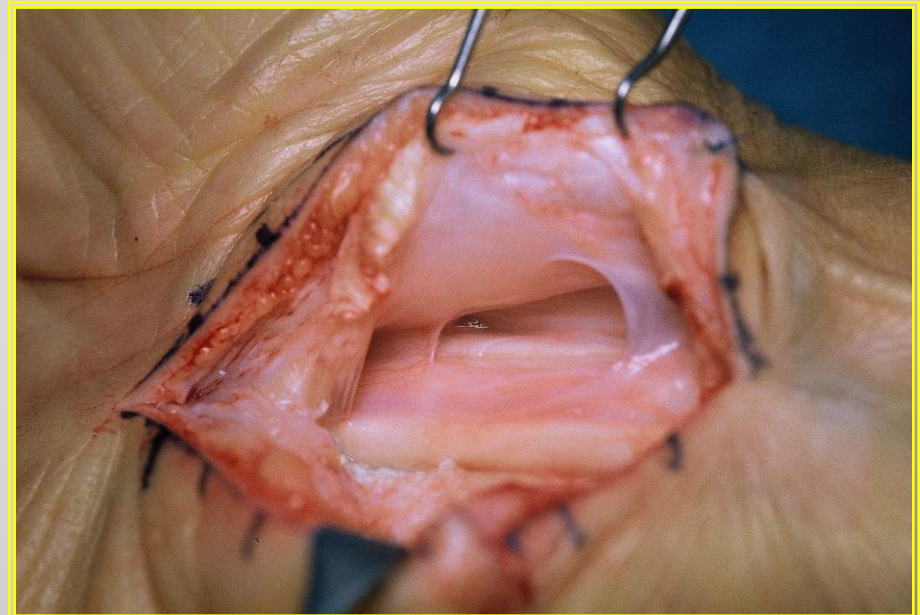
# Technique

New incision realized medially



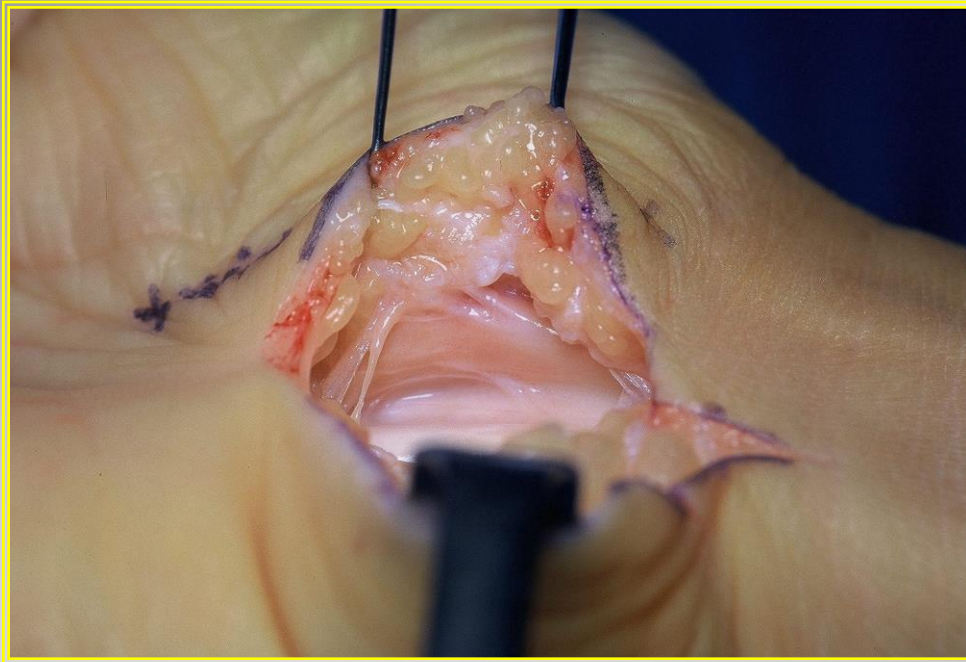
# Technique

Careful opening of the neo-transverse carpal ligament



# Technique

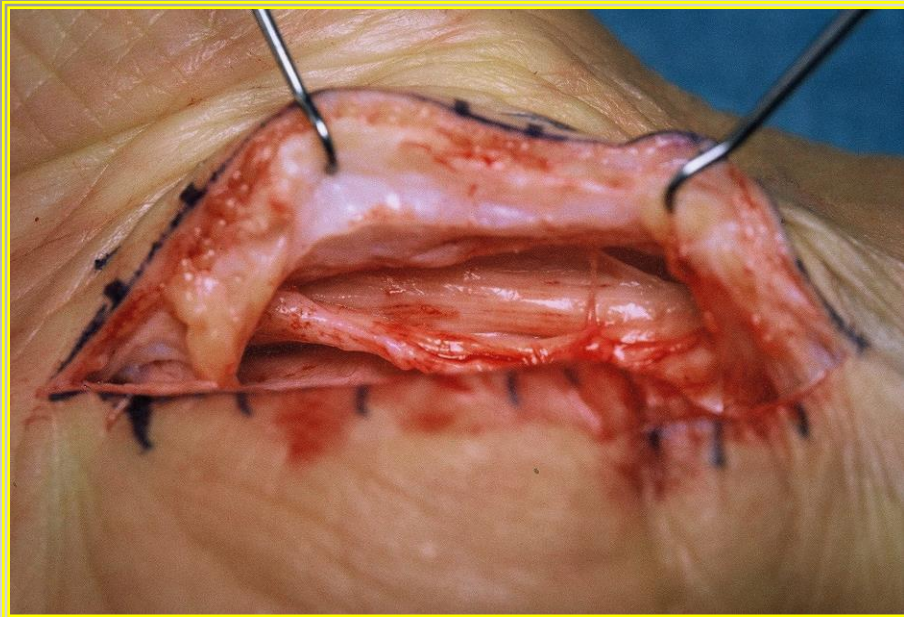
Careful opening of the neo-transverse carpal ligament





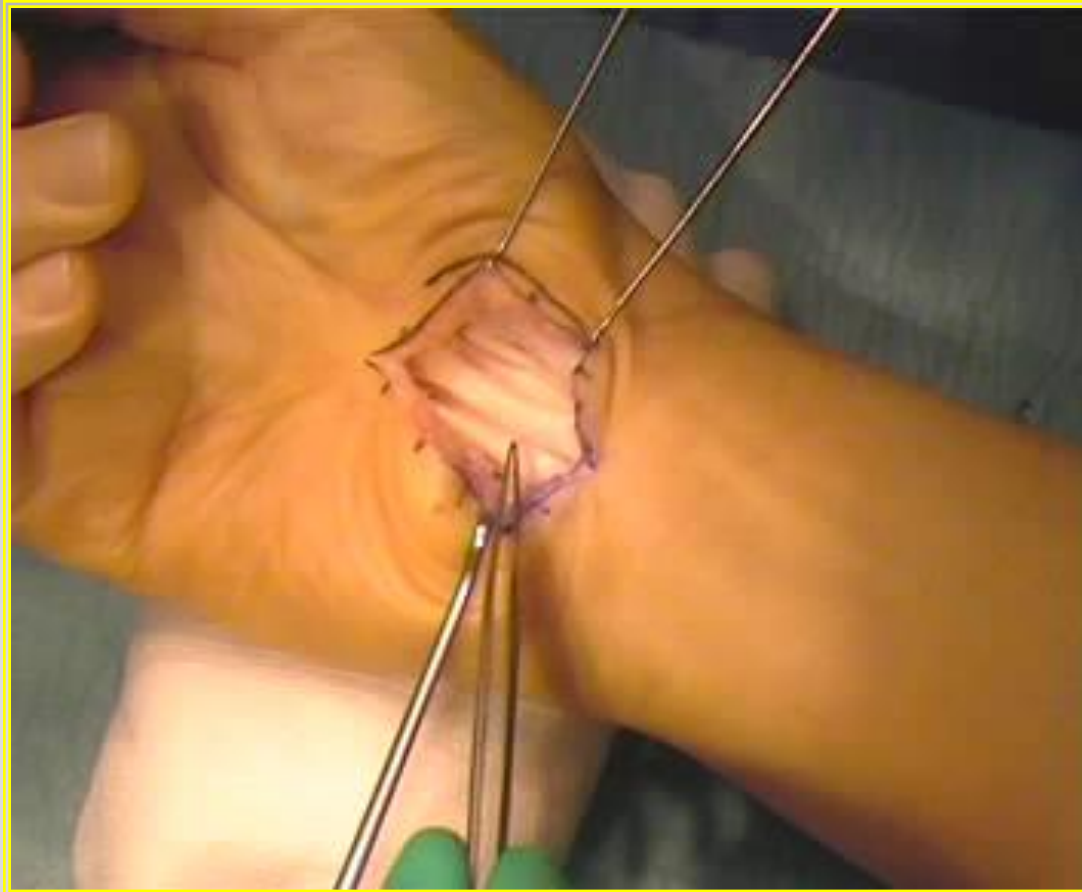
# Technique

Careful dissection and neurolysis of the median nerve



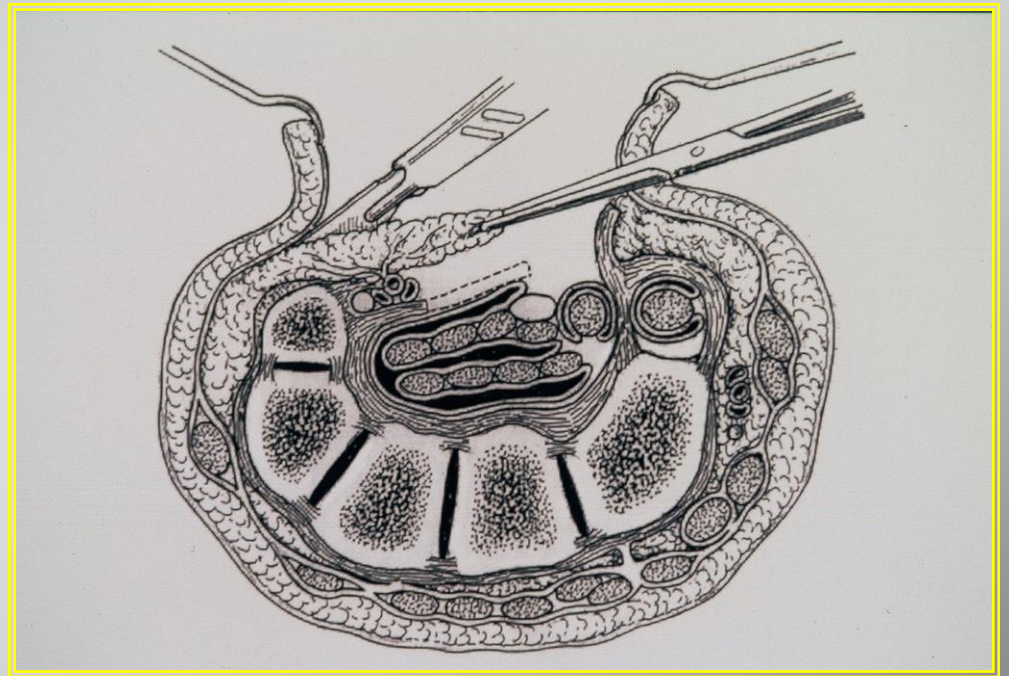
# Technique

Careful dissection and neurolysis of the median nerve



# Technique

Initial dissection of the hypothenar fat subdermal between the skin and the adipose tissue



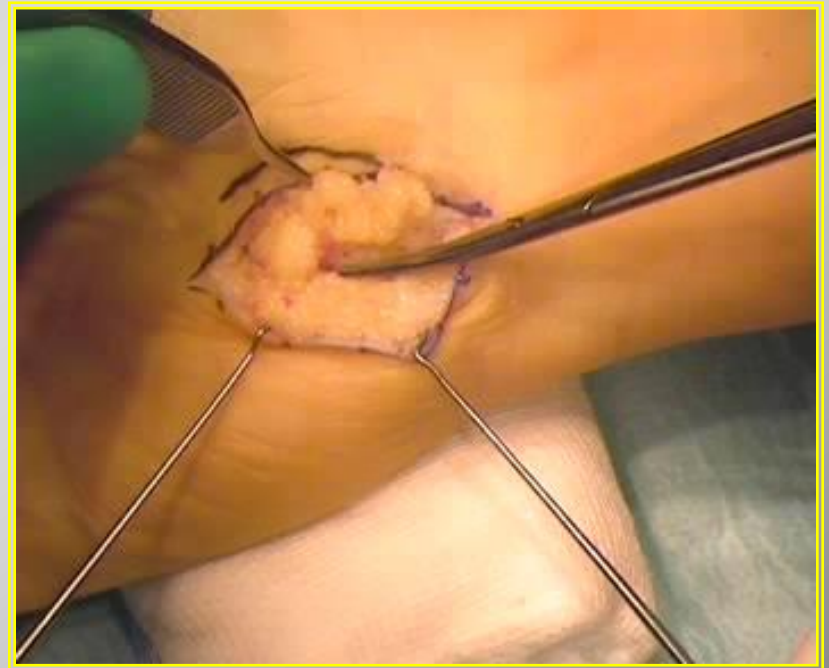
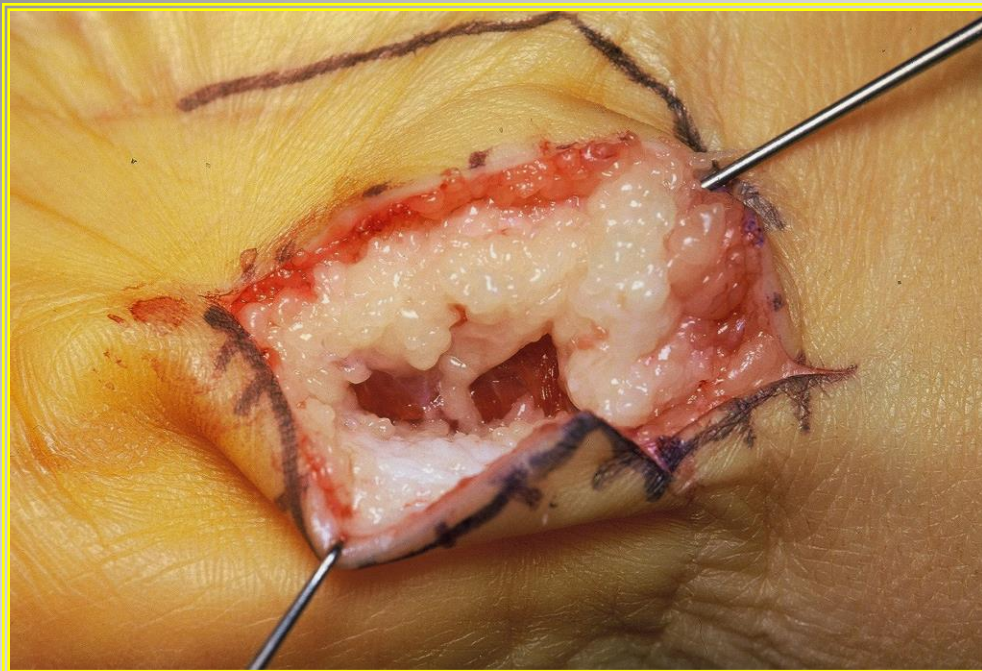
# Technique

Initial dissection of the hypothenar fat subdermal between the skin and the adipose tissue



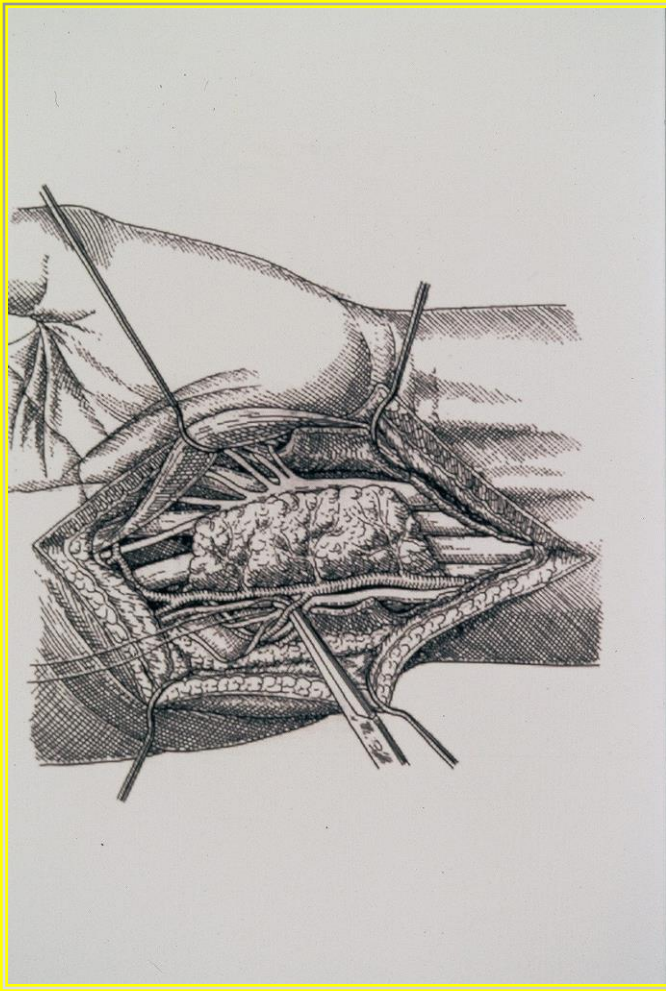
# Technique

After freeing the muscles fibers the ulnar pedicle is identified



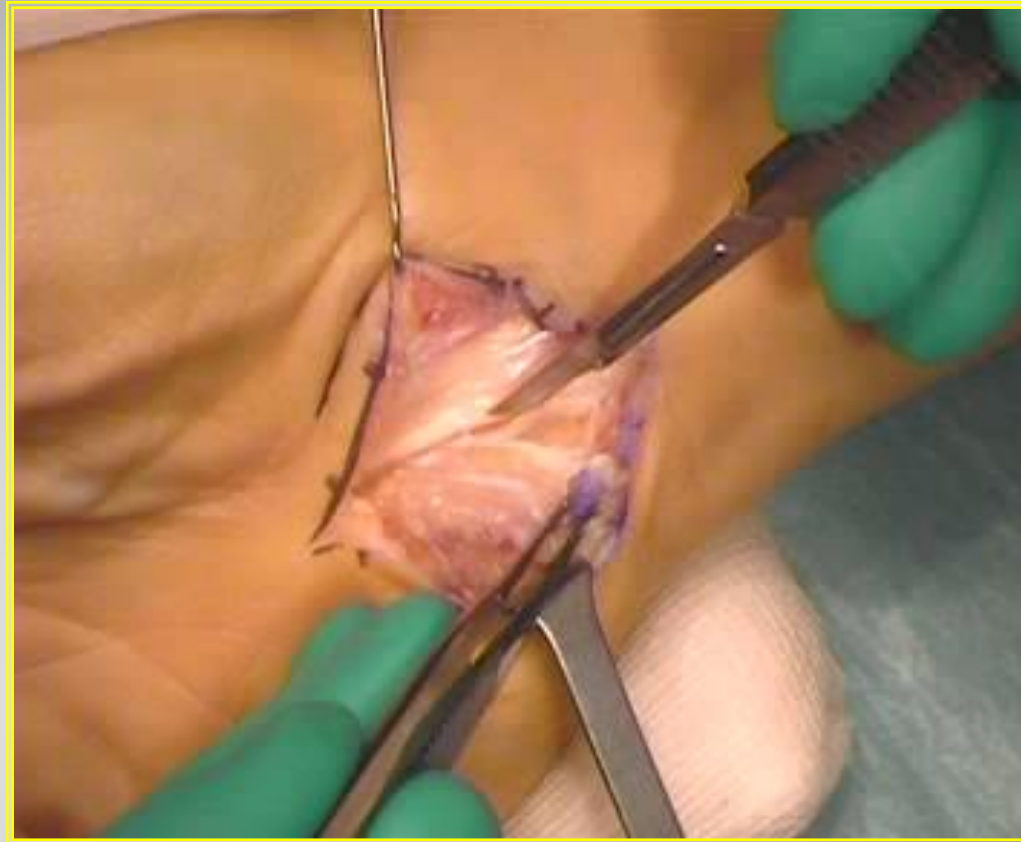
# Technique

Section of the deep branch of ulnar artery



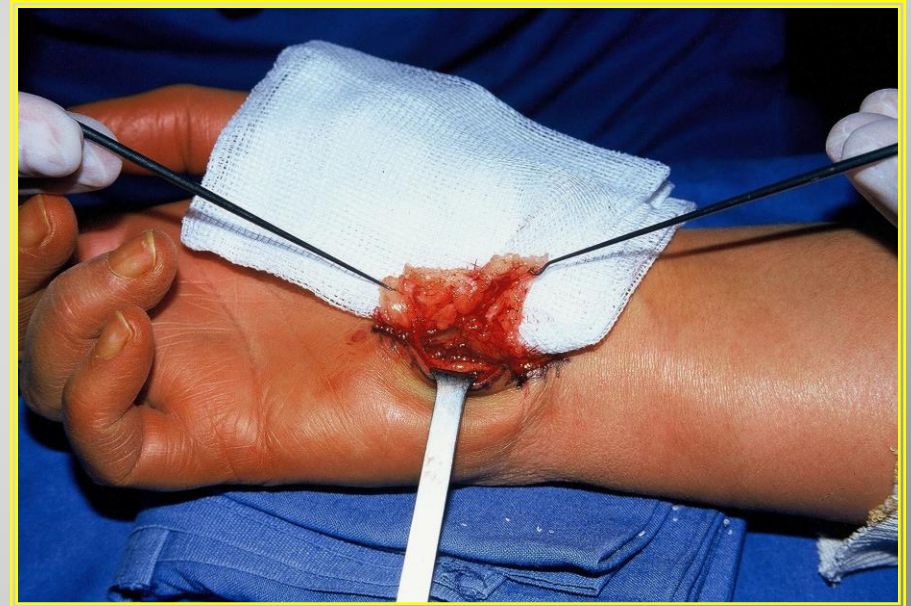
# Technique

Opening the lateral wall of Guyon's space



# Technique

## Release of tourniquet





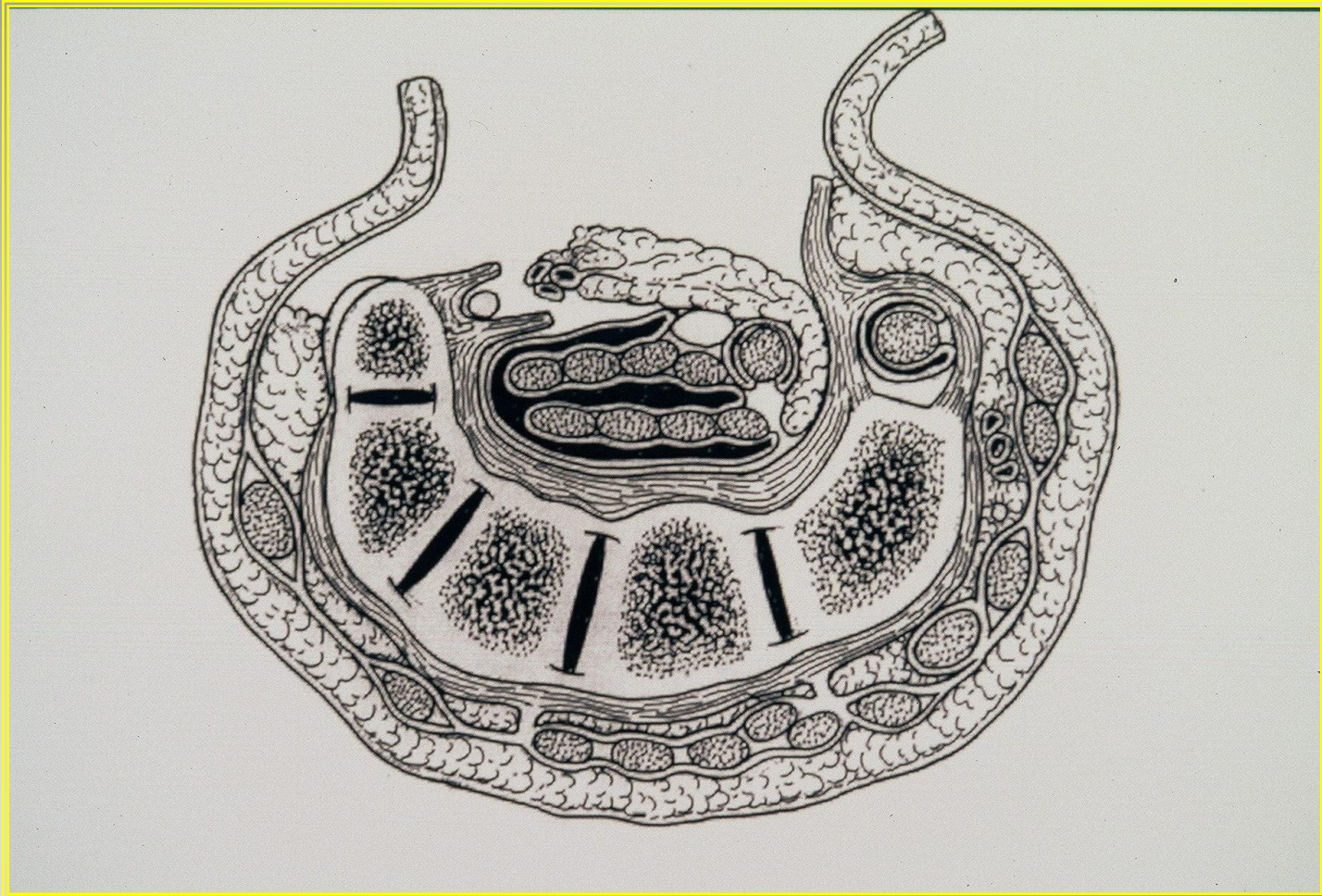
# Technique

Release of tourniquet



# Technique

The flap is then transferred onto the median nerve



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# Technique

The flap is then transferred onto the median nerve and attached with stitches to the radial wall of the carpal tunnel



# Material

56 patients (1991-2001)

38 women

18 men

Mean age : 56 yo (35 - 89)

# Material

42 cases with too lateral approach

Acroparesthesiae in all cases

Tinel on scare ++++++

Average delay: 16 months (1-49)

Strength decreased in all cases

# Materiel

ELECTROMYOGRAM

Comparative

Unchanged 22 cases

Aggravated 29 cases

Normal 5 cases

# Results

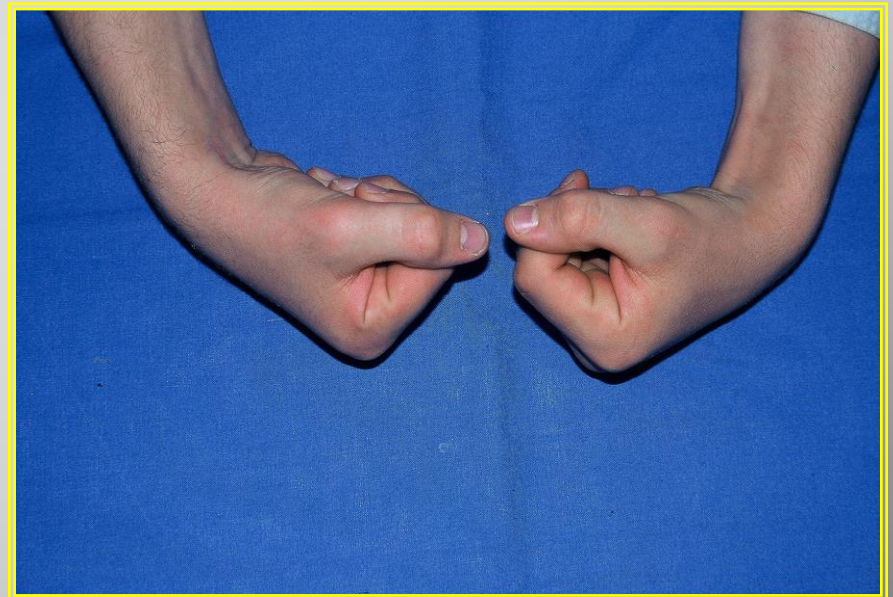
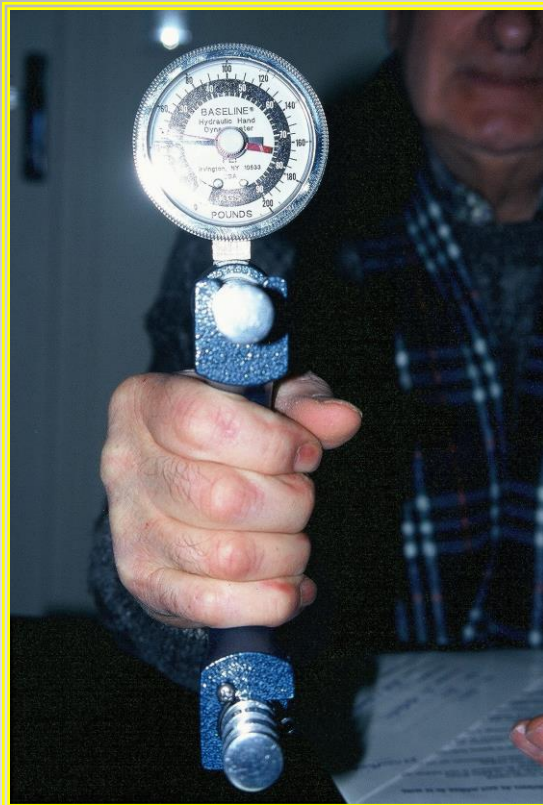
Recul moyen : 149 months (96 et 218)

- Painless : 51 cases
- Unchanged pain : 4 cases
- Aggravated pain : 1 cases



# Results

- Strength : range 50 to 75%
- ROM normal in 53 cases



# Results

## ELECTROMYOGRAM

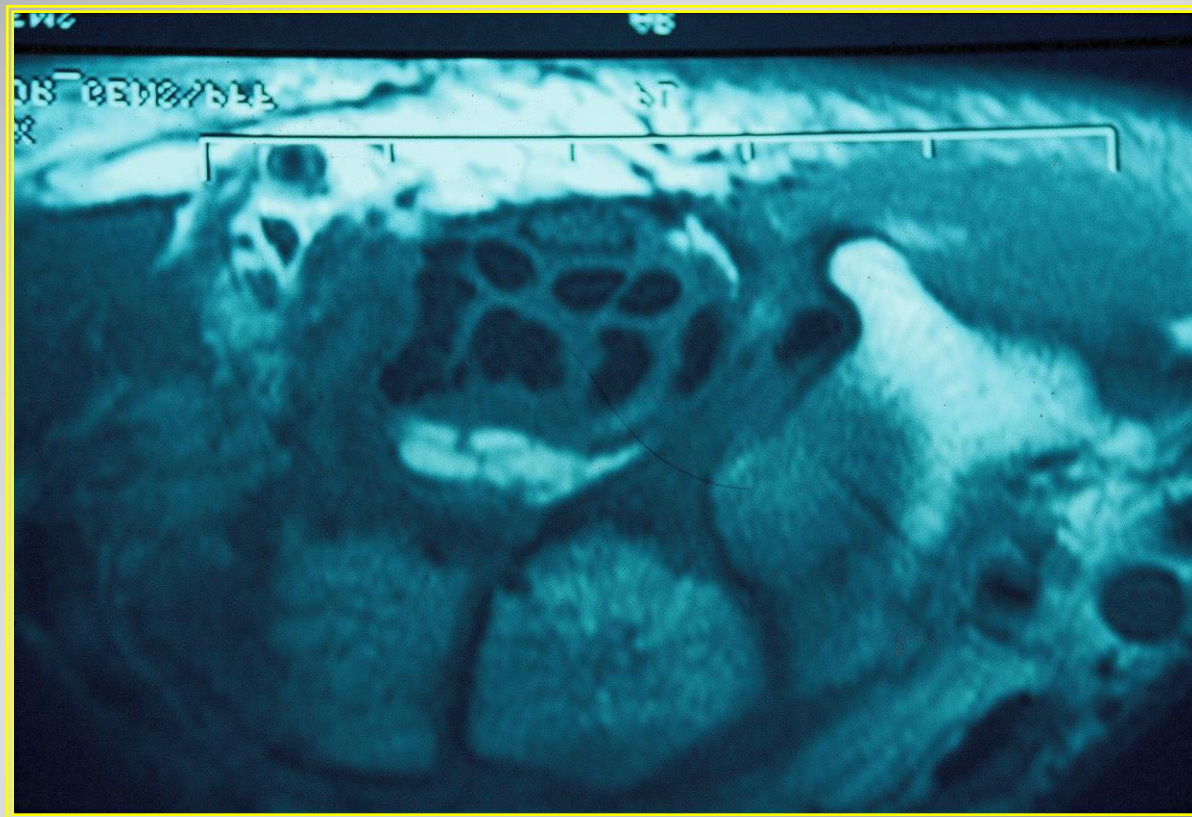
Unchanged 4 cases

Aggravated 1 cases

Normal 51 cases

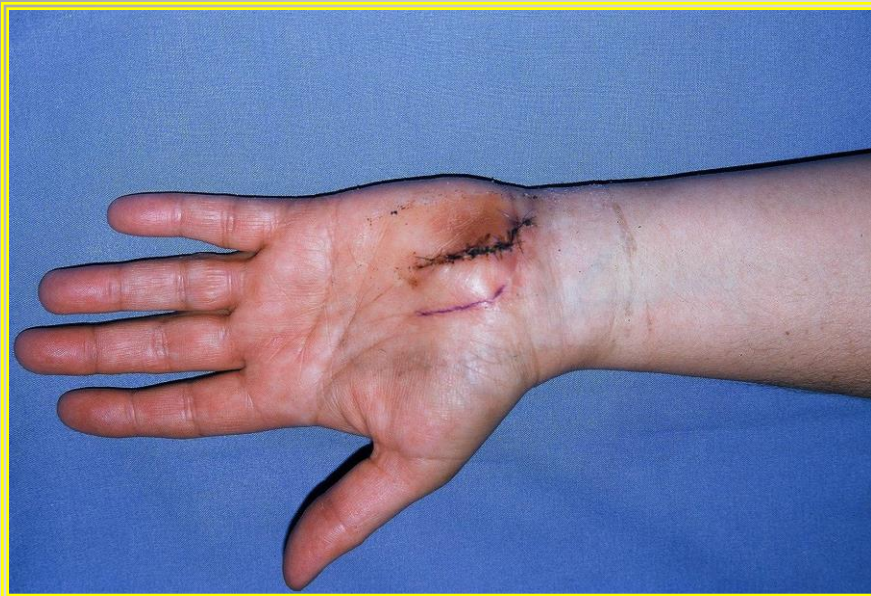
# Results

MRI in 14 cases after 6 months



# Complications

Scar problem : 14 cases



# Complications

Südeck's dystrophy : 2 cases

Hypoesthesia of hypothenar : 6 cases

# Discussion

- DELLON 1984 (pronator quadratus) : 9 cases 66%
- WULLE 1987 (synovial flap) : 9 cases 100%
- REISMAN-DELLON 1989 (Abductor di.mi.) : 12 cases 92%
- BECKER-GILBERT 1995 (ulnar flap) : 17 cases 88%
- ROSE 1996 (palmaris brevis) : 13 cases 71 %
- THAM 1996 (radial inversed flap) : 6 cases 100%
- CRAMER 1985 (Hypothenar Fat flap) : 3 cases 100%
- STRICKLAND 1996 (Hypothenar Fat flap) : 62 cases 89%
- MATHOULIN 2000 (Hypothenar Fat flap) : 45 cases 90%

# Conclusion

Le The use of a hypothenar fat flap to cover the median nerve in recalcitrant CTS is an elegant, simple and efficient solution.

It improves the trophic environment of the median nerve, and avoid median nerve to glue onto the transverse carpal ligament