

# The synovial flap in true recurrent carpal tunnel syndrome

about 17 cases and literature review

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# Introduction

- No surgical consensus for Recurrent Carpal Tunnel Syndrome (RCTS)
- Synovial flap
  - *Wülle, Hand Clinics 1995*
  - *Pelissier, Chir Main 2015*
- Series of 17 patients
  - true RCTS reoperated
  - opened approach and synovial flap
- Analysis of the literature about RCTS

# Material and method

4007

- Total number of carpal tunnel from 2006 to 2016

53

- Number of reoperation of carpal tunnel with flap

40

- - 13 fat flap vs 40 synovial flap

34

- - 6 with other cause (iatrogene)

33

- - 1 schwannoma

31

- - 2 with preoperative normal EMG

30

- - 1 complication of chemotherapy

20

- - 10 without free interval = progressive disease (insufficiency of release)

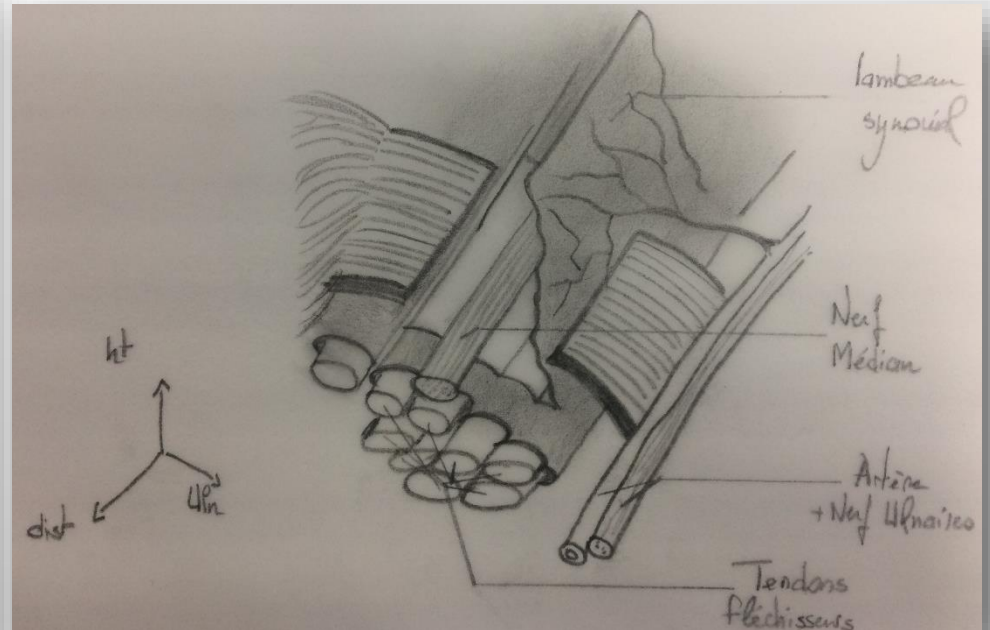
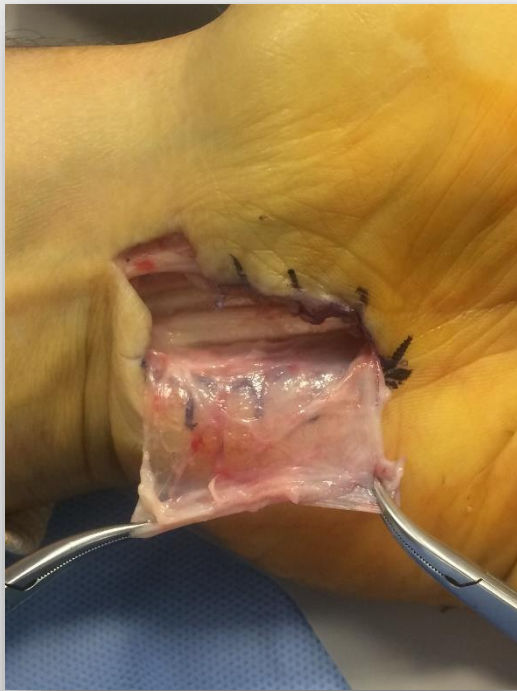
17

- - 3 lost view

# Material and method

- Post operative assessment
  - Patients' characteristics
    - Dominant hand
    - Smoking habits
    - Diabetes
    - Work / manual activities (if retired)
    - Work disease status
  - Pain : VAS
  - Return to work / manual activities
  - Subjective
    - Paraesthesia, numbness, weakness
    - Feeling about recovery : healed / ameliorated / stabilized / aggravated

# Material and method



# Results

- Characteristics of our population
  - 17 patients, 19 hands
  - 13 females
  - Median age 51y
  - 8 right hands
  - Comorbidities : 5 smokers, 3 diabetes
- Reported symptoms
  - 7 Pain
  - 4 Numbness
  - 11 Weakness
- Intraoperative findings
  - 5 ligament reconstruction
  - 5 circumferential fibrosis

# Results

- Follow-up = 60 months
- Work and satisfaction
  - 13 hand workers
  - 11 hand disorders
  - 11 return to work/manual activities
  - Satisfaction
    - 5 full recovery
    - 9 amelioration
    - 2 stabilization
    - 1 aggravation
  - 3 Complex Regional Pain Syndrom
- Total improved patients : 14/17

# Discussion : about RCST

- ONLY RCTS

*Tung TH, Mackinnon SE, PRS 2008*

- Free interval : 3 months

*Raimbeau, Chir Main 2008*

- Objectives

- Reduce the carpal tunnel volume
- Add a gliding plane
- Avoid scar entrapment
- Bring vascularisation



# Discussion : the different technics used in literature

- Synthetic material
  - Collagenic tube, *Soltani, Ann Plast Surg 2014*
  - silicon implant (Canaletto), *Livernaux, JHS Eur 2012*
- Non vascularized tissu
  - Vein graft, *Varitimidis, JHS Br 2000*
  - free dermal fat graft, *Le Nen, Chir Main 2008*
- Free flap : microvascularised omental transfer  
*Goitz, PRS 2005*
- Pediculed flaps
  - Rares : Synovial intersseous flap (*Vögelin, Handchir Mikrochir Plast Chir 2008*), radial transverse synovial flap (*Tham, JHS Am 1996*), perforator based radial forearm flap (*Mahmoud, JHS Am 2013*)
  - **Hypothenar fat pad flap**  
**Synovial flap**

# Hypothenar fat flap vs Synovial flap

HYPOTHENAR FLAP		SYNOVIAL FLAP	
	results		results
<i>Fusetti, Am J Orthop 2009 20 patients, mixte aetiology</i>	18/20 patients healed	<i>Gannon, OpTech Orthop 2007 20 patients, mixte aetiology</i>	90% improvement
<i>Mathoulin, Hand Surg 2000 45 patients, mixte aetiology</i>	49% excellent 45% good	<i>Wülle, Hand Clinics 1996 27 patients, only RCTS</i>	81% excellent and good
<i>Strickland, JHS 1996 62 patients, mixte aetiology</i>	95% satisfaction	<i>Poujardieu 17 patients, only RCTS</i>	82% improved

# Discussion : review of the literature

- No differences in outcomes

*Cobb, JHS 1996 – Chammas, Chir Main 2015*

- Technique
- Flap

- Results of RCTS

- Worse than primary carpal tunnel release

*Raimbeau, Chir Main 2008*

- Higher success rate with a flap
- More complications because of the flap

*Soltani, PRS 2013*

- 30 to 40% of the patients may still be unsatisfied with the outcomes

*Neuhaus, Orthop CI North Am 2002*

# Conclusion

- Importance of the first surgery
- The synovial flap
  - Reliable
  - Technically easy
  - Reduce the carpal tunnel volume
  - Remove the synovial tissue to limit the post operative fibrosis
- Our study
  - More than 80% of healed or ameliorated patient
  - Similar to the other studies
  - Good routine skill
- Outlooks : use at first surgery
  - High pre operative denervation
  - Alternative to a isolated tenosynovectomy
  - Palmar subluxation of the median nerve