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# What Treatment Works, What Does Not, When Is ENOUGH Enough?

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## Hand And Elbow Injuries

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# Goals of Talk

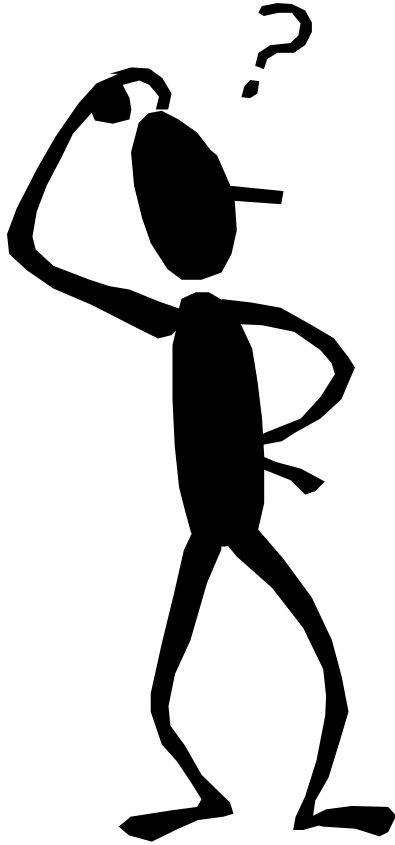
- Provide cases to stimulate discussion



- Present an approach when considering further surgery
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# Answers?



# Association Between Compensation Status and Outcome After Surgery

## A Meta-analysis

“ Compensation status is associated with poor outcome after surgery.

This effect is **significant, clinically important, and consistent.**”

“...the association between compensation and **poor outcome** to be stronger in studies of **revision surgery**. Analysis ...showed this association to be **highly significant.**”

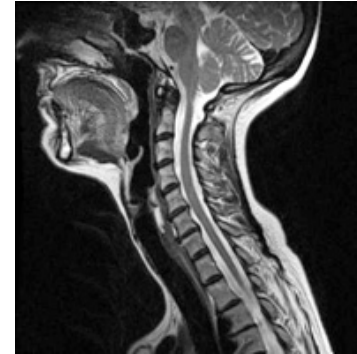
# Multiply Operated Patient: Hotel Cook

- 54 year old hotel cook/supervisor developed pain in the neck, left arm, finger tingling and right elbow pain after working Comic Con
- PT, chiropractic therapy, NSAIDS, TTD
- Still symptomatic

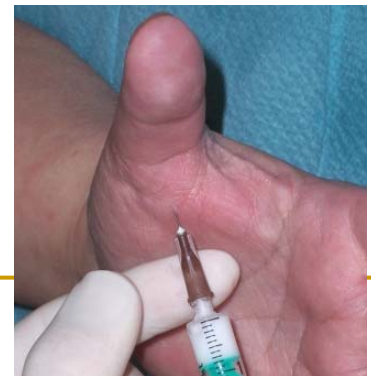


# Multiply Operated Patient: Hotel Cook

- MRI neck: Multilevel DJD



- NCV: Left cubital tunnel, CTS, Guyon's canal, no radicular findings
- Left thumb starts locking and is injected.



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# Multiply Operated Patient: Hotel Cook

- **Surgery 1: Left CTR/Guyon's canal decompression**
  - Left ring and small still numb, triggering recurred
  - **Surgery 2: Left cubital tunnel, Left trigger thumb release**
  - Right arm develops the same symptoms of numbness
  - NCV right: R CTS moderate, cubital tunnel mild
  - **Surgery 3: Right carpal tunnel release endoscopic, converted to open**
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# Multiply Operated Patient: Hotel Cook

- Right shoulder pain: MRI: Rotator Cuff Tear
- **Surgery 4: Right rotator cuff repair**
- Residual Symptoms:
  - neck pain.
  - Right hand web space neuritic pain improving
  - Left ring and small finger numbness persisted for months
  - Right wrist ulnar sided swelling and tenderness
  - Right elbow sore
    - MRI shows right lateral epicondylitis,
- When do you stop?





# Multiply Operated Patient: Hotel Cook

- Returns to work full duty at same job?
- Gets permanent modified duty position?
- Retrains to a different field?
- Applies for state disability then social security disability and never works again?



# Multiply Operated Patient: Hotel Cook

- Factors influenced positive outcome:
  - Supportive employer with on site nurse
  - Avoided adversarial relationship with insurer
  - Transition to work program
  - Job Satisfaction



# Multiply Operated Patient: Waiter

- 30 year old male waiter with persistent ring and small finger paresthesias
- NCV normal, positive tinels and elbow flexion test
- **Surgery 1: Subcutaneous anterior ulnar nerve transposition**
- Numbness resolves but the ulnar nerve subluxes back over the medial epicondyle
- **Surgery 2: Submuscular ulnar nerve transposition**
- Pain at IM septum and recurrent numbness
- **Surgery 3: Ulnar neurolysis**
- NCV abnormal, still painful



# Multiply Operated Patient: Waiter

- Returns to work full duty at same job?
- Gets permanent modified duty position?
- Retrains to a different field?
- Applies for state disability then social security disability and never works again?



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# Multiply Operated Patient: Waiter

- QME quote:

“The patient got worse after every procedure the surgeon performed”



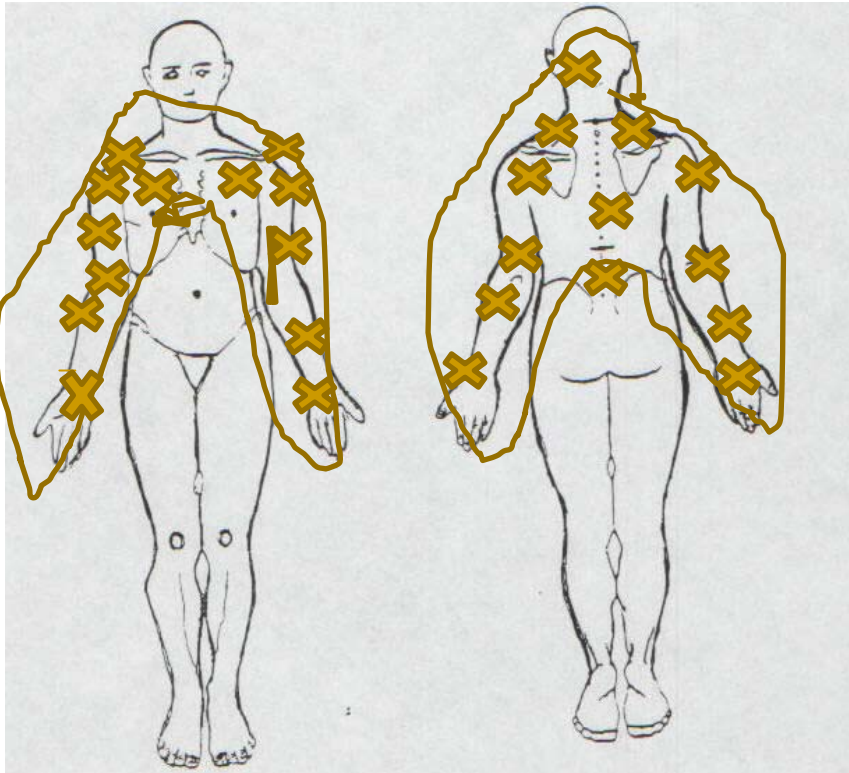
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# Warning signs:



- “I was better for a while after my surgery but now I am much worse”
  - “I came to you because I know **you** can make me better”
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# Warning signs:



Annex 1– Rate how well you were able to do the following activities last week by circling the appropriate response below:

	No difficulty	A little difficulty	Moderate difficulty	A lot of difficulty	I wasn't able to do it
1. Open a new glass jar, or one with a very tight lid	1	2	3	4	5
2. Write	1	2	3	4	5
3. Turn a key	1	2	3	4	5
4. Prepare a meal	1	2	3	4	5
5. Open a heavy door	1	2	3	4	5
6. Put something on a shelf above head height	1	2	3	4	5
7. Do heavy domestic tasks (such as washing the floor)	1	2	3	4	5
8. Do gardening work	1	2	3	4	5
9. Make your bed	1	2	3	4	5
10. Carry a bag or a small case	1	2	3	4	5
11. Carry a heavy object (more than 5 kg).	1	2	3	4	5
12. Change a light bulb above head height	1	2	3	4	5
13. Wash or dry your hair	1	2	3	4	5
14. Wash your back	1	2	3	4	5
15. Put on a closed blouse	1	2	3	4	5
16. Use a knife to cut food	1	2	3	4	5
17. Recreational activities that require little effort (such as playing cards or knitting)	1	2	3	4	5
18. Recreational activities that require strength or impact in the arms, shoulders or hands (such as playing volleyball or hammering)	1	2	3	4	5
19. Recreational activities in which you move your arm freely (such as fishing or playing shuttlecock)	1	2	3	4	5
20. Transport from one place to another (going from one place to another)	1	2	3	4	5
21. Sexual activities	1	2	3	4	5
	It didn't affect them	It affected them slightly	It affected them moderately	It affected them a lot	It affected them enormously
22. Last week, to what extent did your arm, shoulder or hand problem affect your normal activities with your family, friends, neighbors or colleagues?	1	2	3	4	5
	It didn't limit them	It limited them slightly	It limited them moderately	It limited them a lot	I wasn't able to do them
23. Last week, were your work or normal daily activities limited because of your arm, shoulder or hand problem?	1	2	3	4	5
	None	A little	Moderate	A lot	Extremely
24. Pain in your arm, shoulder or hand	1	2	3	4	5
25. Pain in your arm, shoulder or hand when you did specific activities	1	2	3	4	5
26. Discomfort in the skin of your arm, shoulder or hand (prickling)	1	2	3	4	5
27. Weakness in your arm, shoulder or hand	1	2	3	4	5
28. Difficulty in moving your arm, shoulder or hand	1	2	3	4	5
	No difficulty	A little difficulty	Moderate difficulty	A lot of difficulty	So difficult that I wasn't able to sleep
29. Last week, did you have any difficulty in sleeping because of pain in your arm, shoulder or hand?	1	2	3	4	5
	Totally disagree	Disagree	Neither agree nor disagree	Agree	Totally agree
30. I feel less capable, less confident and less useful because of my arm, shoulder or hand problem	1	2	3	4	5

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# Multiply Operated Patient

- Surgeries on multiple problems
- Multiple surgeries for the same problem





# Failed Lateral Epicondylitis Surgery

- Patient exhausted PT, TTD, MRI positive
- Lateral release performed
- Elbow still hurts six months later
- Etiology?
  - Incomplete surgery?
  - Too much surgery?
  - Additional diagnoses?



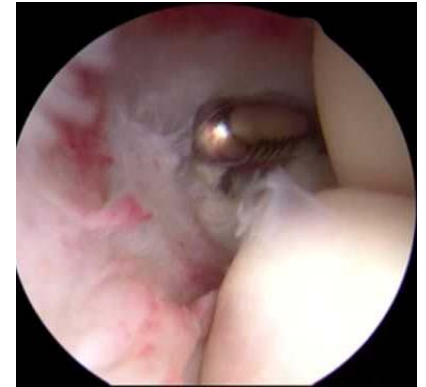
# Failed Lateral Epicondylitis Surgery

- Post operative MRI
  - ruptured LCL,
  - continued lateral epicondylitis
- MRI findings NOT helpful



# Failed Lateral Epicondylitis Surgery Treatment Algorithm

- For failed procedure:
  - Neuroma
    - If so, revise arthroscopic to open?
    - If open, is there missed intra-articular pathology?
      - Snapping plica, synovitis, radial capitellar lesions
  - Instability
    - EUA, arthroscopy, ligament reconstruction
  - Radial Tunnel



# Failed Lateral Epicondylitis Surgery Treatment Algorithm

- For failed procedure:
  - Radial Tunnel
    - Results best with positive middle finger test, pain with resisted supination, localized tenderness, relief with injection
    - Poorer outcome in injured worker



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# Carpal Tunnel Syndrome

- 43 year old medical secretary undergoes a carpal tunnel release with failure to improve after 6 months
  - 53 year old utility company worker with recurrence of numbness and tingling 1 year after carpal tunnel release
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# Carpal Tunnel Syndrome

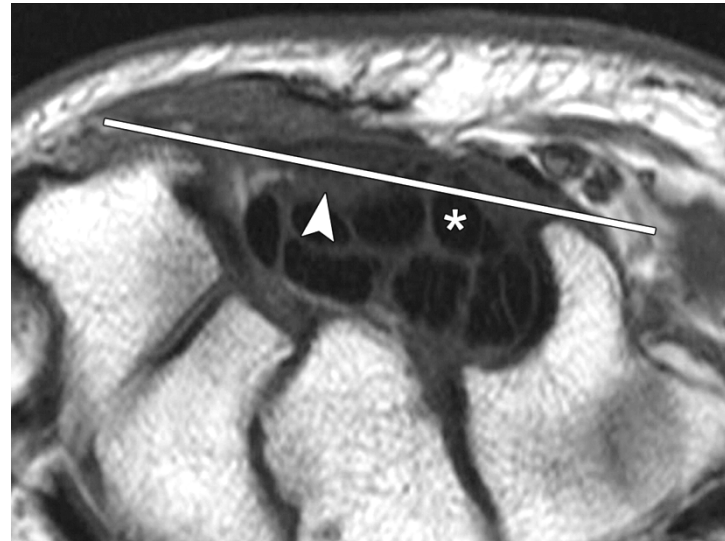
- Revision carpal tunnel release <5%
- Main causes of failed carpal tunnel syndrome:
  - **Incomplete release**, nerve adhesions/injury (MN or PCBMN)
  - **Incorrect diagnosis**
    - Polyneuropathy/ DM /Cervical radiculopathy/pronator syndrome



# Carpal Tunnel Syndrome

## Will reoperation help?

- Repeat NCV?
- MRI?
- Cortisone injection?

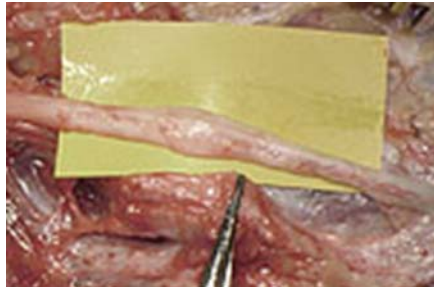


- Cortisone injection high predictive value for improvement after revision CTR

# Carpal Tunnel Syndrome

## Will reoperation help?

- Results:
  - Similar results for revision if incomplete release
  - Results deteriorate at 2<sup>nd</sup> revision
- Adjunctive procedures?
  - rotational flap, vein wrap, synthetic nerve tube





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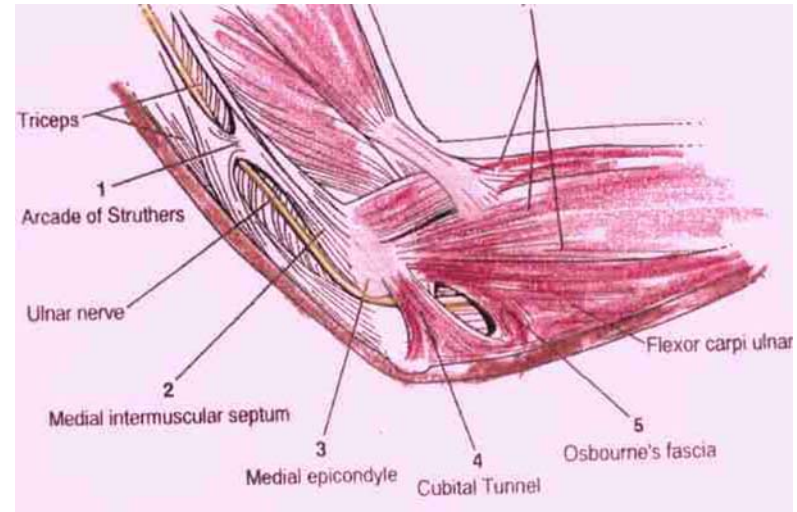
# Failed Cubital Tunnel Surgery

- 38 year old electrical company worker with numbness and tingling in the ring and small fingers and elbow pain one year cubital tunnel release
  - Reoperate?
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# Failed Cubital Tunnel Surgery

## ■ Potential causes of failure:

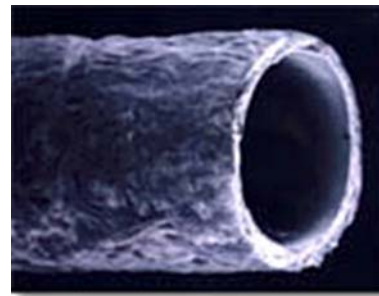
- ❑ Incomplete decompression
- ❑ Nerve instability
- ❑ Medial Antebrachial Cutaneous Neuroma
- ❑ Nerve Scarring/Adhesions



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# Failed Cubital tunnel Surgery Algorithm

- MABCN neuroma → Bury nerve
- In situ → Revise to transposition
- Subcutaneous transposition → Revise to submuscular
- Failed submuscular → ????
- Adjunctive procedures



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# Other Surgical Algorithms

- **TFCC**
    - Failed debridement for degenerative tear → Ulnar shortening
    - Repair with residual instability → DRUJ stabilization
  - **Carpal Instability**
    - Failed repair → Stabilization → Partial fusion → Complete wrist arthrodesis
  - **Fracture fixation → osteotomy, hardware removal**
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# Other Surgical Algorithms

- Trigger Finger Failure → FDS slip resection
  - DeQuervain's → Subsheat, radial neuritis
  - Tendon Repairs, ruptures and adhesions
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# Summary

- Poor outcome after upper extremity surgery has a variety of causes
  - Sometimes further surgery can be beneficial
  - Injured workers are significantly less likely to do well after revision surgery
  - Return to work is multifactorial
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# Summary

- Some things cannot be fixed



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# Thank you

- [drcage@cox.net](mailto:drcage@cox.net) for references and suggestions



SAN DIEGO

**HANDSPECIALISTS**

CARE OF THE HAND & UPPER EXTREMITY

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