

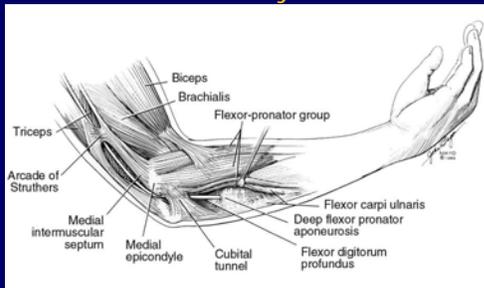
Ulnar Nerve Release Transposition

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Ulnar Nerve Entrapment

Cubital Tunnel Syndrome
Guyon's Canal Syndrome

Anatomy



The role of the cubital tunnel in
tardy ulnar nerve palsy

Feindel, W. & Stratford, J.

Canadian J. Surg. 1:287, 1958

Feindel & Stratford

Described new syndrome:

- Idiopathic
- Non-traumatic
- No cubitus valgus

Cubital Tunnel Syndrome

- Arcade of Struthers
- Intermuscular septum
- Osborne's fascia
- Medial Epitrochlearis
- Two heads of FCU

Cubital Tunnel

- Flexion stretches nerve & changes canal contour from ovoid to elliptical
- Nerve elongates 2-3 cm
- Decreased vascularity

Cubital Tunnel Syndrome

- No defined cause
- Sustained elbow flexion
- Repetitive elbow flexion
- Musicians
- Throwing athlete

Cubital Tunnel Syndrome

- Variable complaints
 - Medial elbow pain
 - Sensory symptoms in small & 1/2 ring fingers
 - Weakness

Cubital Tunnel Syndrome

- Loss of dexterity in hand function
- Dystonia in musicians

Cubital Tunnel Syndrome

- Exam
 - tender nerve
 - positive Tinel's
 - subluxation / dislocation
 - positive elbow flexion test



Cubital Tunnel Syndrome

- Exam
 - altered 2 point discrimination
 - weakness of intrinsic
 - positive Wartenburg's sign
 - positive cross finger test
 - weak pinch
 - dynamic nerve entrapment

Cubital Tunnel Syndrome

- Treatment
 - behavioral modification
 - avoid inciting activity
 - Splint: ante-cubital fossa
 - Elbow pad-rotate

Cubital Tunnel Syndrome

- Surgical indications
 - persistent symptoms
 - weakness
 - intrinsic wasting

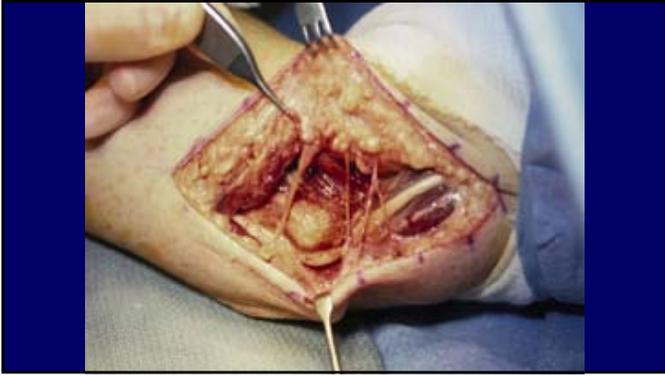
Cubital Tunnel Syndrome

- Extensive differential diagnosis
- EMG/NCS

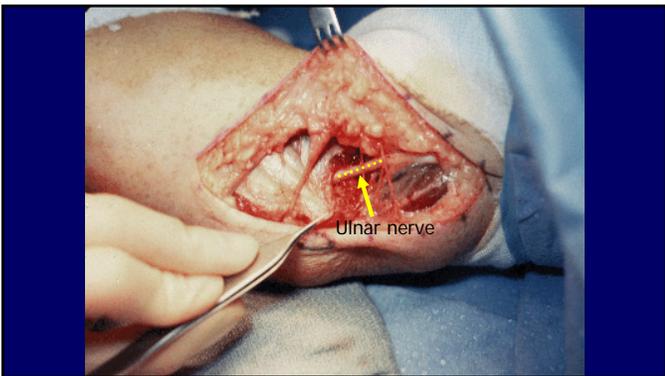
Surgical Alternatives

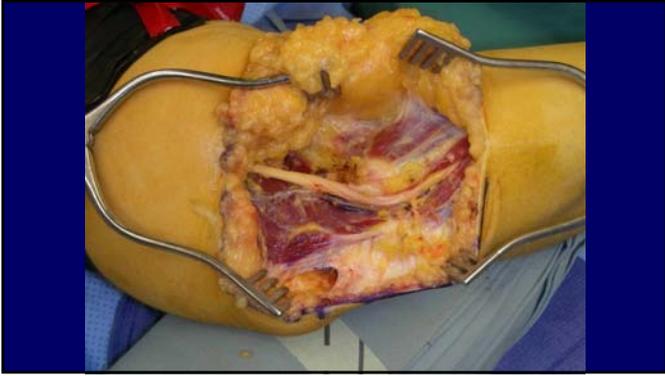
- Cubital tunnel release-in situ
- Cubital tunnel release and anterior transposition
 - Subcutaneous
 - Subcutaneous with fascial sling
 - Intramuscular
 - Submuscular

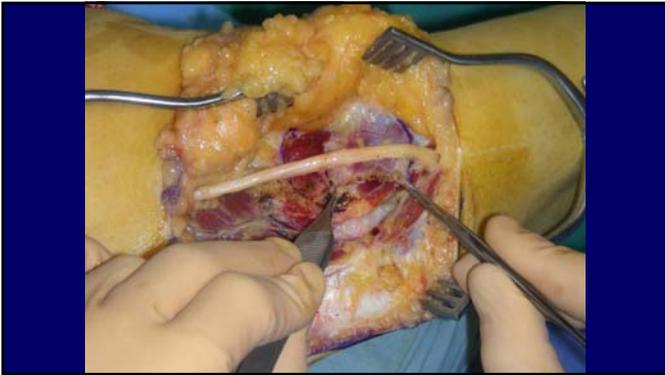






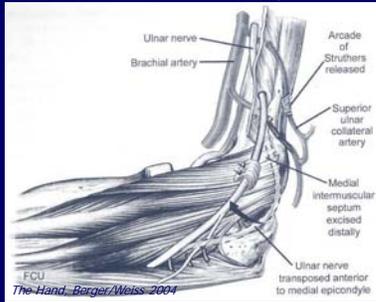








Subcutaneous Transposition



In-Situ Cubital Tunnel Release

- 2-3 cm incision posterior to epicondyle
- Pick up nerve posterior to intramuscular septum
- Less likely to find branches of MACN
- WALANT in thinner patients

Ulnar Nerve Decompression at the Cubital Tunnel

Manske, PR, Johnston, R, Pruitt, DL, Strecker, WB
Clin. Orthop. 274: 231, 1992

Ulnar Nerve Decompression at the Cubital Tunnel

- 26 patients
- Mild symptoms
- Symptom improvement in 85%
- Complete symptom resolution 77%
- Short follow-up

Which is the best surgical alternative

- In-situ decompression
- Transposition

Complete in situ decompression of the ulnar nerve versus submuscular transposition for the treatment of cubital tunnel syndrome

Allen E Peljovich, M.D., Michael Charness, M.D., Barry P. Simmons, M.D., Rick Papandrea, M.D., Susan L. Stewart, M.D.

Presented to the
American Society for Surgery of the Hand September
1999

Algorithm

- Same extensive nerve release in both groups
- In-situ decompression
 - Site of static entrapment
 - Flexor carpi ulnaris fascia-between 2 heads
 - Osborne's fascia
 - Arcade of Struthers
 - Stable nerve
- Submuscular transposition
 - All others

Decompression vs. Transposition

- 65 patients/70 procedures: 43 female, 22 male
- Average age 42 years
- Failed non-operative Rx
- Post-operative
 - Interview
 - Physical exam
 - Outcome questionnaire
- Similar cohort of transposition

Decompression vs. Transposition

- Statistically groups identical:
 - Age
 - Sex
 - Co-morbidity
 - Severity of disease

Decompression vs. Transposition

- Complete f/u 63 of 70 cases
- Length of f/u: 3.15 years
- Results
 - 81% satisfactory objective outcomes (McGowan grading)
 - Subjectively 91% patients satisfied

Decompression vs. Transposition

- Results (continued):
 - Improvement statistically significant in all cases
 - Equal outcomes in function, symptoms and leisure activities
 - Higher incidence of work difficulty after transposition

Decompression vs. Transposition

- Transposition
 - Wound numbness: 77%
 - c/o weakness: 92%
- Decompression
 - Wound numbness: 35%
 - c/o weakness: 59%

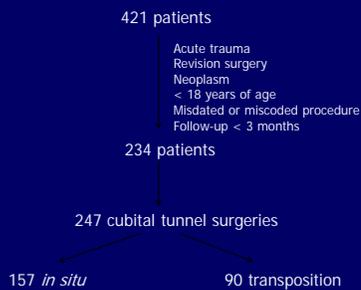
Post-Op Therapy

- Encourage early active, active-assisted, and passive elbow flexion, extension, and pronosupination to prevent elbow stiffness
- More rapid recovery after in-situ release

Complications of Ulnar Nerve Release

- D. Zheng, MD Philip Blazar, et al
- ASSH podium presentation Septmber 30, 2016

Methods



Results

- 247 cubital tunnel surgeries
 - 19 complications (7.7%)
 - 14 secondary surgery (5.7%)

Results

- 90 ulnar nerve transpositions
 - 11 complications (12.2%)
 - 9 persistent or recurrent cubital tunnel syndrome (10.0%)
 - 9 requiring revision transposition
 - 1 postoperative infection (1.1%)
 - 1 requiring reoperation
 - 1 MACN injury (1.1%) repair intraoperatively
 - 10 secondary surgeries (11.1%)

Results

- 157 *in situ* cubital tunnel releases
 - 8 complications (5.1%)
 - 3 ulnar nerve instability (1.9%)
 - 2 requiring transposition
 - 2 persistent or recurrent cubital tunnel syndrome (1.3%)
 - 2 requiring transposition
 - 2 postoperative infection (1.3%)
 - 0 requiring reoperation
 - 1 postoperative seroma (0.6%)
 - 0 requiring reoperation
 - 4 secondary surgery (2.5%)

Discussion

- Most common complications following *in situ* cubital tunnel release
 - ulnar nerve instability
 - persistent or recurrent cubital tunnel syndrome
 - infection
- Most common complication following ulnar nerve transposition
 - persistent or recurrent cubital tunnel syndrome
- Short-term complication rates of cubital tunnel surgery are low, but significantly higher for ulnar nerve transposition than *in situ* cubital tunnel release
- Secondary surgery rate after cubital tunnel surgery was low overall, but again significantly higher for ulnar nerve transposition than *in situ* cubital tunnel release

Cubital Tunnel Syndrome

- In-Situ Decompression is procedure of choice if nerve stable
- Transpose nerve in patients with Ehlers-Danlos
