

## BACKGROUND

- Chronic wrist pain causes substantial disability
- Conservative management includes non-steroidal anti-inflammatory drugs (NSAIDs) and splinting
- Surgical denervation of the wrist includes transection of the posterior interosseous (PIN), anterior interosseous (AIN), lateral antebrachial cutaneous, and branches of the superficial radial, ulnar, and median nerves
  - Partial wrist denervation (AIN and PIN or PIN alone) have high reported satisfaction
- Radiofrequency ablation (RFA) is a minimally invasive technique to destroy tissue using directed energy
  - Studied for treatment of abdominal, knee, and back pain

## METHODS

- Case study of patients referred to hand surgery following RFA for wrist pain
- Four cases in total identified
- All patients managed with splints and NSAIDs initially
- Initial response to nerve targeting assessed using ultrasound-guided nerve block (1% lidocaine)
- 17-gauge (cases 1&2) cooled RF needle or 22-gauge (cases 3&4) needle inserted
- Probe directed radial to ulnar, starting ulnar to Lister tubercle and passing deep to the 4<sup>th</sup> compartment
- Ablation at 80 C for 150 s (cases 1&2) or 90 s (cases 3&4)

## RESULTS

### Case 1

- 38 year-old male with chronic right wrist pain following crush injury
- Previous reconstruction including hand/forearm compartment releases, debridement and skin graft/flap coverage, wrist arthroscopy and TFCC repair
- Treated with RFA of PIN with initial 50% reduction in pain
- Pain recurred after several months, without relief from arthroscopy, surgical neurectomy, or PIN block

### Case 2

- 49 year-old female with chronic right wrist pain after fall
- Treated with cooled RFA of PIN with improvement in pain
- Pain recurred after three months, later treated with AIN/PIN excision
- Two months after RFA, EIP rupture noted
- Repaired end to side to index finger EDC tendon

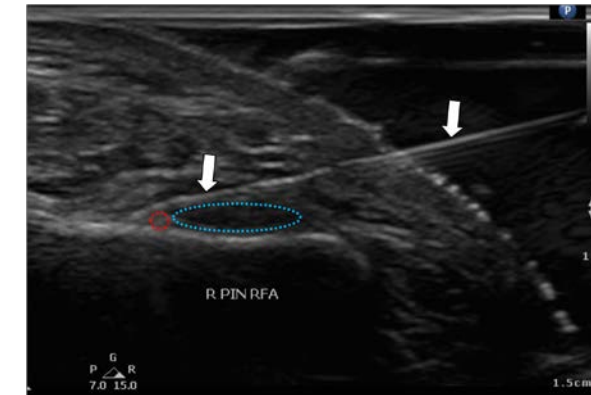
### Case 3

- 26 year-old female with chronic right wrist pain with no trauma
- RFA of PIN with initial improvement in pain
- Sudden “pop” six months after RFA with EPL rupture
- EIP to EPL tendon transfer performed

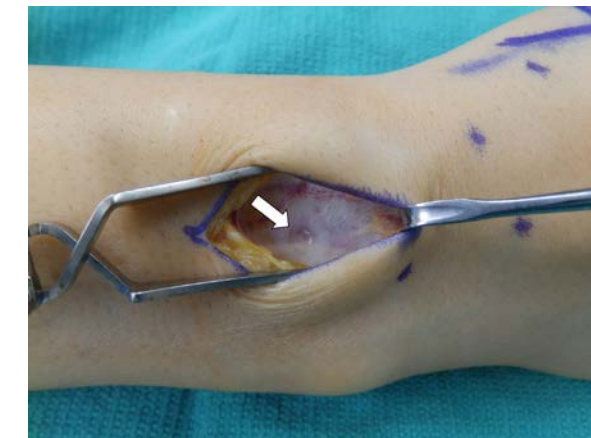
### Case 4

- 49 year-old female with chronic right wrist pain after gym injury
- Diagnostic wrist arthroscopy with no obvious etiology for pain
- RFA of PIN resulted in reduction of pain for 2-3 months
- “Pop” four months after RFA with EPL rupture
- EIP to EPL tendon transfer performed

## FIGURES



**Fig 1.** Ultrasound image showing PIN (red), EPL (blue), and probe from Case 4



**Fig 2.** Injury to EPL tendon with round defect in retinaculum

## CONCLUSIONS

- Minimally invasive radiofrequency ablation for wrist pain presents a substantial risk to patients
- The efficacy of RFA for wrist pain using currently available tools and techniques is unreliable
- Incorporation of technology should be tailored to the specific anatomic demands of the targeted site to avoid injury to critical structures