

Novel Steroid Infiltration Technique

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BACKGROUND

- Carpal tunnel syndrome is the most common nerve entrapment syndrome of the upper limb and is often diagnosed using nerve conduction studies and ultrasound.[1]
- The nerve may be swollen in the proximal carpal tunnel and is susceptible to injury during needle infiltration.
- A number of papers have attempted to protect the nerve by describing particular anatomic landmarks during needle infiltration and anatomic variations of the median nerve.[2,3]
- This report describes the technique of steroid infiltration of the wrist to treat symptomatic carpal tunnel syndrome.
- The use of a blunt cannula allows infiltration directly into the carpal tunnel and advancement of the blunt tip minimises the risk of sharp trauma to the median nerve and adjacent tendons.
- This avoids the unpleasant, shooting pain frequently experienced by patients using traditional needle infiltration.

CASE DETAILS



A 54-year-old patient was referred to our services by haematology with long standing paraesthesia in her right hand and nerve conduction study-proven severe carpal tunnel syndrome.

- History of subclavian vein thrombosis in the symptomatic limb
- The patient was taking warfarin (INR 3.2) for this
- Symptoms of pain and paraesthesia along the distribution of the median nerve were noted.



- The patient was reluctant to consider surgery given her history of thrombosis and high INR
- Requested steroid infiltration over carpal tunnel release

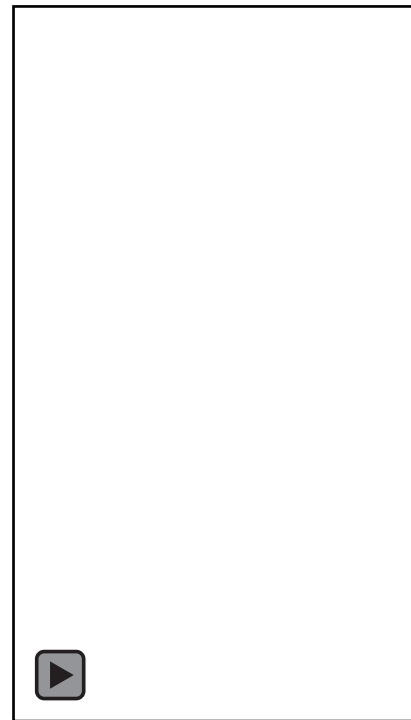
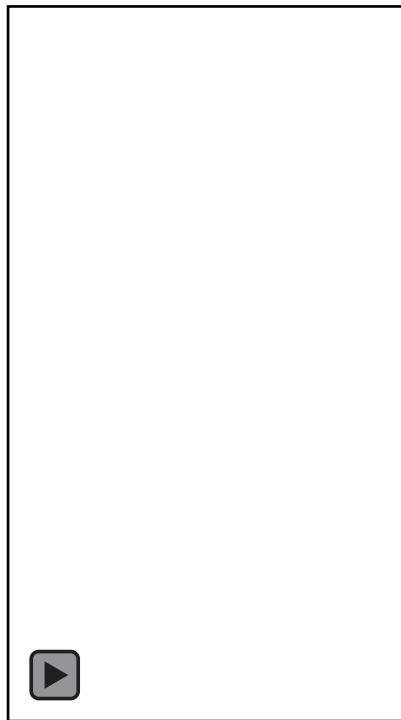
- ❑ Direct needle infiltration can involve pain and with the high baseline INR, there was also a potential risk of bleeding with sharp infiltration
- ❑ We discussed the use of a blunt tipped cannula to directly infiltrate the carpal tunnel to mitigate the potential risk of bleeding or haematoma formation

INFILTRATION TECHNIQUE

The median nerve was located by strongly flexing the fingers and thumb (Video 1; Left)

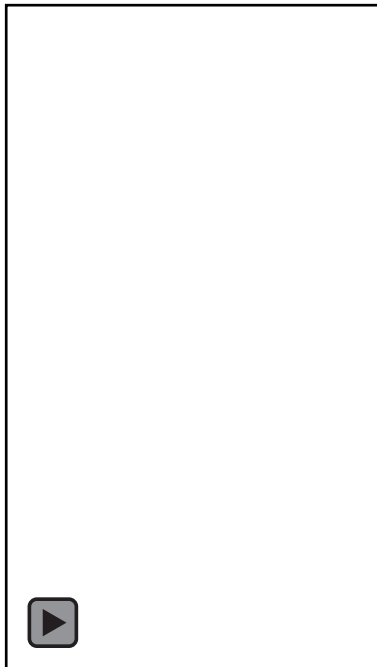
A small blister of local anaesthetic was infiltrated into the volar aspect of the wrist over the proximal wrist crease (Video 2; Right)

A small nick in the skin directly ulnar to the median nerve allows the cannula to pass through the antebrachial fascia and underneath the transverse carpal ligament



INFILTRATION TECHNIQUE

- The cannula is passed underneath the TCL
- The angle is further reduced to prevent contact with the median nerve as the cannula is fed distally (Video 3)
- The steroid (10mg of triamcinolone) is slowly infiltrated into the tunnel.



OUTCOME

- The patient was followed up in the outpatient clinic 4 weeks post injection.
- Patient remained symptom free at the 3 month follow up mark

DISCUSSION

- Definitive treatment remains surgical release
- To our knowledge, this is a new method of infiltrating the carpal tunnel
- The potential benefit of this technique is a pain free approach to infiltration

REFERENCES

- 1. Yoshii, Y., C. Zhao, and P.C. Amadio, *Recent Advances in Ultrasound Diagnosis of Carpal Tunnel Syndrome*. Diagnostics (Basel), 2020. **10**(8).
- 2. Brooks, R., et al., *Anatomic Landmarks to Locate the Median Nerve for Safe Wrist Block or Carpal Tunnel Steroid Injection*. Eplasty, 2019. **19**: p. e19.
- 3. Henry, B.M., et al., *The Prevalence of Anatomical Variations of the Median Nerve in the Carpal Tunnel: A Systematic Review and Meta-Analysis*. PLoS One, 2015. **10**(8): p. e0136477.