**Kume K, Amano K, et al. In de Quervain's with a separate EPB compartment, ultrasound-guided steroid injection is more effective than a clinical injection technique: a prospective open-label study. J Hand Surg Eur Vol. 2012 ;37(6);523-7.**

PMID: 22095403

Design: randomized clinical trial

Purpose of study: in patients with de Quervain's disease (dQD) characterized by a separate extensor pollicis brevis (EPB) compartment, to compare the outcomes of steroid injections done with and without ultrasound guidance

Population/sample size/setting:

* 44 patients (39 women, 5 men, mean age 45) treated for dQD at a rheumatology clinic in Hiroshima
* All patients had had high-resolution sonograms of the wrist and had been found to have definite septation between the extensor pollicis brevis (EPB) and the abductor pollicis longus (APL) tendons
  + All patients with septation were found to have tendinosis of the EPB only, and not of the APL
  + There were 311 patients with clinical dQD who underwent sonography; 252 lacked clear septation, the sonogram was unclear in 14 patients, and there was definite septation in 44 patients
* Inclusion criteria age over 18 were a history of pain in the first dorsal compartment of the wrist aggravated by excessive use of the thumb and a positive Finkelstein’s test, with pain on a 100 point VAS of 50 or greater despite 4 weeks of NSAID treatment; all patients were considered to be candidates for surgery
* Exclusion criteria were pregnancy, rheumatoid disease, or prior intra-sheath injection of the wrist

Interventions:

* All patients received an injection of 20 mg triamcinolone and 1 ml of 1% lidocaine by one of the authors
* Randomization was to ultrasound-guided (n=22) or manually guided (n=22) injection
  + The US guidance was designed to deliver the injectate to the side of the septum containing the EPB tendon using a high-resolution linear probe

Outcomes:

* After baseline, followup was done at 4 weeks
* Pain VAS, the primary outcome, was ascertained at the four week followup by a rheumatologist who was unaware of treatment group
* In addition to pain, the other outcome was the number of patients who elected to switch to surgery 6 weeks after the injection
* 2 patients in the US group and 3 in the manual group did not attend the 4 week followup visit
* For the primary pain endpoint, both groups had significant benefit at 4 weeks
  + The US group VAS went from 80.3 to 25.6
  + The manual group VAS went from 78.0 to 58.2
  + This represented a significantly greater pain reduction with US than with manual injection technique
* After 6 weeks, 2 patients in the US group and 9 in the manual group elected to proceed to surgery, a significantly lower number for the US group
* No patients experienced adverse events such as tendon rupture, atrophy, infections, numbness, etc.
* There was good inter-rater reliability of the presence or absence of septation, with a value of the Kendall’s W coefficient of 0.94

Authors’ conclusions:

* Steroid injection under US guidance is more beneficial than injection under manual guidance in patients with dQD when there is a septum between the APL and the EPB
* The main lesion of dQD may be in the EBP rather than the ABL
* In patients without septation, the injected steroid gains access to both tendons; this is why the study enrolled only patients with septation of the tendon sheath
* However, the EPB is deeper and in a smaller space than the APL, and US guidance may be more beneficial in this setting as well

Comments:

* The technique for manually guided injection is sparsely described, and the injecting physician may or may not have used palpable landmarks which can reliably guide the injection to the target area
  + There may be non-US guided injection techniques which can deliver adequate amounts of steroid to both tendons of the first dorsal compartment of the wrist
* The entry criterion of VAS>50 could have been at rest, with activity, or with physical loading of the wrist; it is not clear which of these was intended
* For a comparison of two steroid injection techniques, a short-term pain score difference is probably a satisfactory outcome, since it occurs within the period of time in which one fairly fast-acting intervention can be meaningfully compared to another
* The assertion that US guidance is more beneficial even without septation is speculative, since the penetration of the tendon sheath is likely to allow an injected steroid to reach the EPB tendon
* It is not clear whether sonography should be part of the evaluation of dQD; in this study sample, there were 44/311 (14%) of patients who had definite septation

Assessment: inadequate for evidence that in patients with de Quervain’s tenosynovitis and a sonographically confirmed septum separating the abductor pollicis longus from the extensor pollicis brevis, an ultrasound guided injection is more beneficial than a manually guided injection (inadequate description of the control intervention technique)