

A review of blind vs ultrasound-guided injections to treat De Quervain's Tenosynovitis

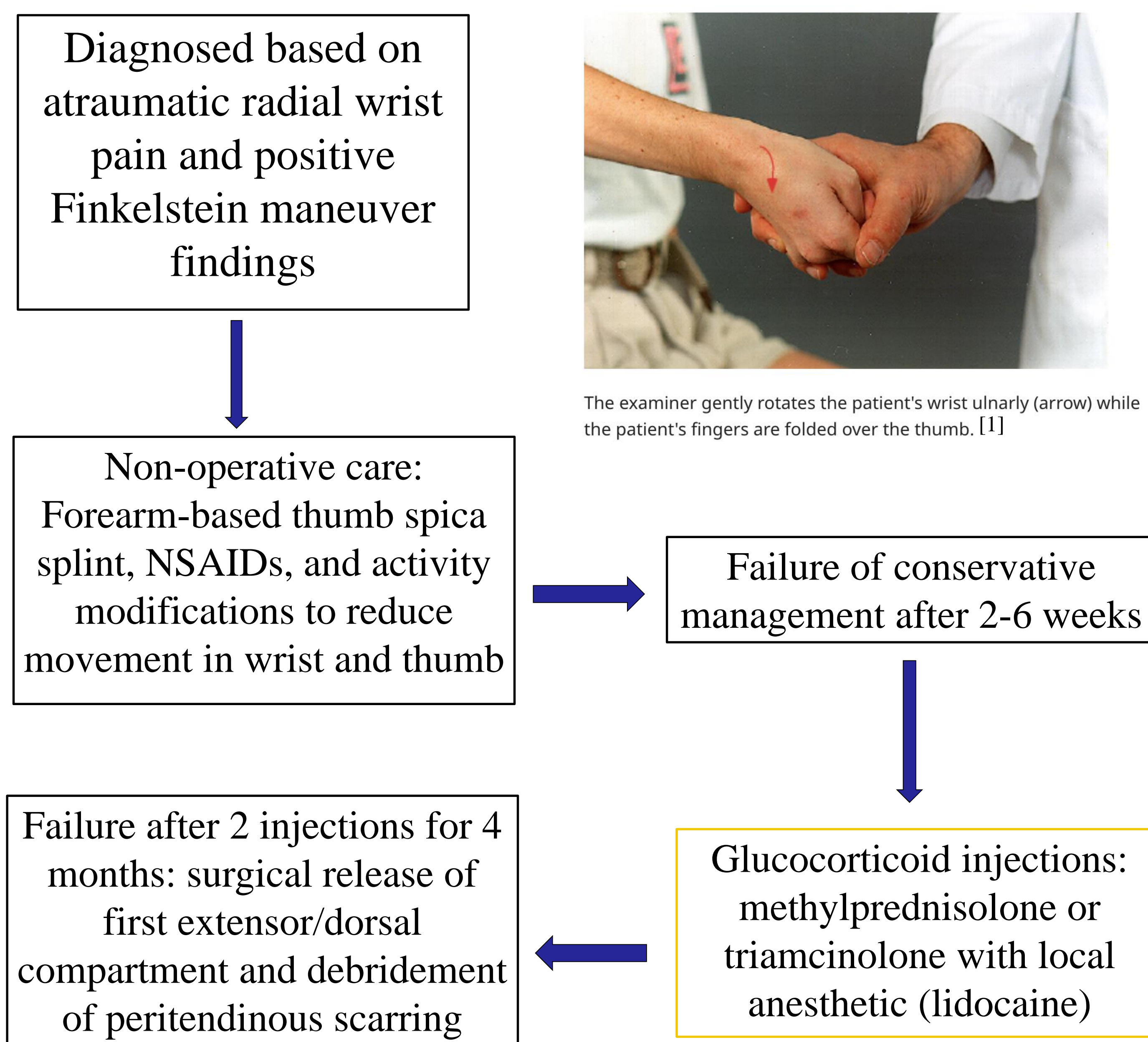
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Background

- Injections for De Quervain's Tenosynovitis (DQT) are traditionally performed within the sheath, often done blind or based on external landmarks
- A common anatomic variant, (septated or separate sub-sheaths) makes it even more challenging to properly inject within the affected sub-sheaths when blind
- Some recent studies have shown ultrasound guided injections as a potential viable alternative

Diagnostic and management flowchart



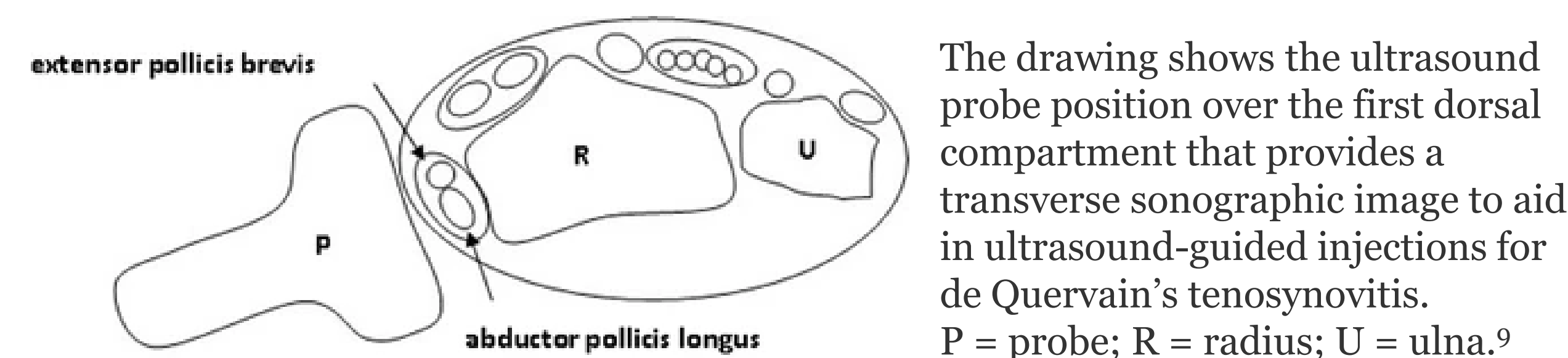
The examiner gently rotates the patient's wrist ulnarly (arrow) while the patient's fingers are folded over the thumb. [1]



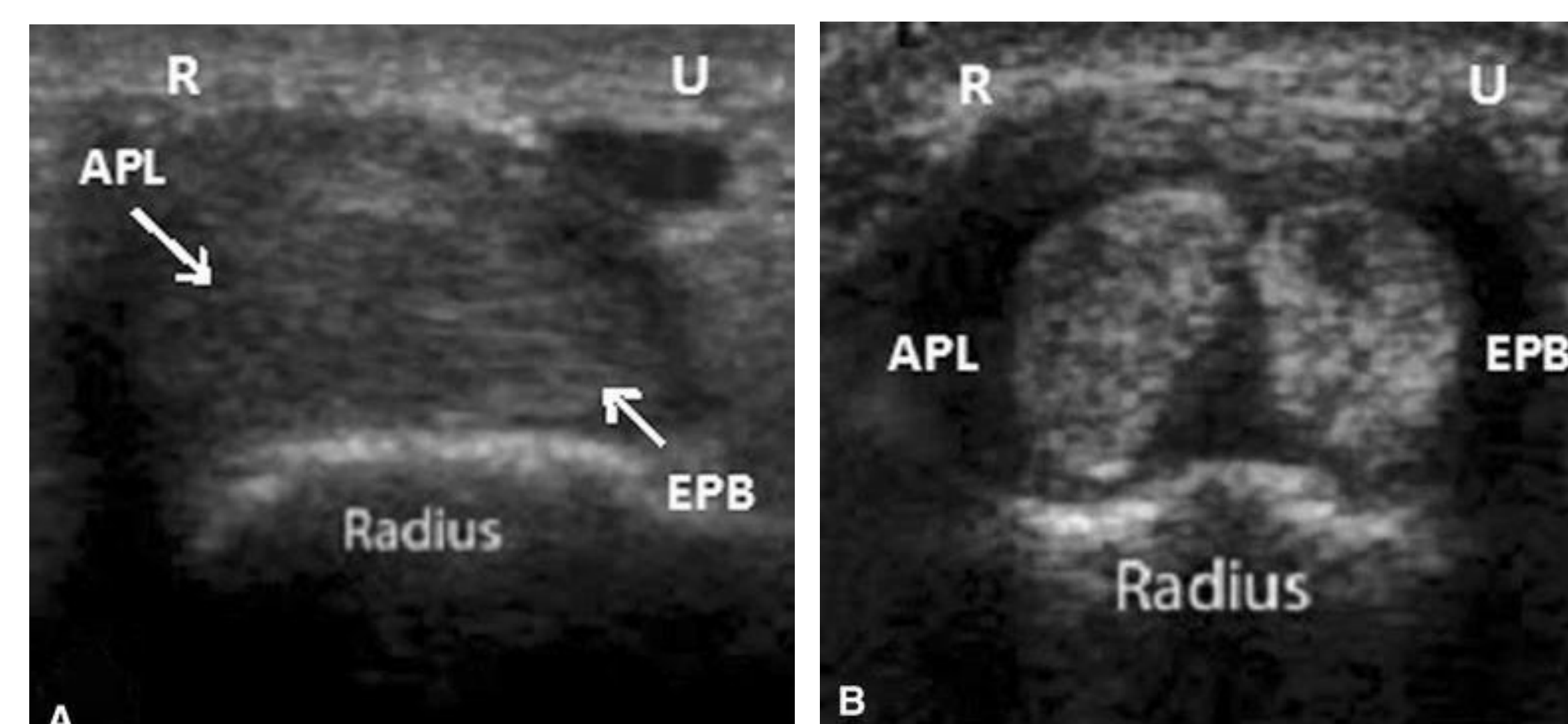
DeQuervain disease. Coronal fat-suppressed T2-weighted image shows intermediate to high signal intensity within, and enlargement of, the first-compartment tendons (arrow) compatible with tendinosis. Fluid surrounding the tendon is compatible with tenosynovitis.²

Blind vs ultrasound guided injections

- Two approaches to injections
 - Blind: use anatomical landmarks and skin markings – easier to perform but less accurate
 - Direct: ultrasound is used to locate the site and guide the needle in real time – more accurate but requires more dexterity to perform
- Two questions to ask: whether blind injections are as accurate as ultrasound guided ones, and whether this difference has any clinical significance
- Comparison of accuracies between blind and ultrasound guided injections in other body anatomy:
 - Balint et al.³: 25% vs 100% for shoulder, 40% vs 95% for knee, 20% vs 100% for ankle joints
 - Reza et al.⁴ : MCP and PIP joints were 59% vs 96%, respectively
- Clinical significance
 - Varies significantly based on study
 - A recent study⁵ comparing double-blind, randomized, blind and ultrasound guided injections in 184 patients showed a significant improvement in loss of function for ultrasound guided injections (p=0.03), but no difference in pain or stiffness
 - Kane et al.⁶ showed no statistically significant difference between blind and ultrasound guided injections
 - McDermott et al.⁷ found ultrasound guided injections to be useful for treating DQT



The drawing shows the ultrasound probe position over the first dorsal compartment that provides a transverse sonographic image to aid in ultrasound-guided injections for de Quervain's tenosynovitis. P = probe; R = radius; U = ulna.⁹



Transverse axis sonogram of the first dorsal compartment show (A) a single compartment versus (B) two subcompartments. APL = abductor pollicis longus; EPB = extensor pollicis brevis; R = radial; U = ulnar.⁹

Risk factors for DQT

- DQT risk factors can be split into anatomical, patient, and occupational factors⁸
 - Anatomical: the two main variants include sub-compartmentalization and multiple tendon slips of APL or EPB tendon
 - Patient: it is almost ten times more common in females, often during and after pregnancy; as well as in elderly women
 - Occupational: while it has historically been associated with repetitive, forceful, and ergonomically stressful work, recent studies no longer support this hypothesis

Conclusions

- While some studies have shown moderate benefits in favor of ultrasound guided injections, there is no clear evidence or guidelines suggesting whether imaging or intra/extra sheath injections are correlated with statistically significant improvements
- Recent studies for trigger finger (an analogous problem) have shown that intra-sheath injections have no statistically significant differences in patient outcomes as compared to extra-sheath injections
- Additional research, including a project currently being conducted by the UC Davis Orthopedics department, will help further study the benefits of ultrasound guided injections in DQT

References

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