

Incomplete Carpal Tunnel Release Detected by Ultrasound

Case study submitted by Cliff Gronseth, MD, Founder of Advanced Spine & Sports Specialists/Spine West



Dr. Cliff Gronseth is a PM&R physician located in Boulder, CO. He has 25 years of experience and is an expert in musculoskeletal ultrasound. Dr. Gronseth is affiliated with St. Anthony North Hospital, Littleton Adventist Hospital and University of Colorado Hospital. He has received numerous awards, including ranking one of 'America's Top Physicians' every year, since 2003.

History

An 81 year-old retired, very active male was still experiencing ongoing right hand pain and numbness, despite carpal tunnel release surgery three months prior.

Before surgery, the patient had appropriate nonsurgical care with clinical and electrodiagnostic findings consistent with carpal tunnel syndrome. However, his symptoms did not improve after the carpal tunnel release surgery. In a follow-up visit with his surgeon, he was told that he likely sustained permanent nerve damage from long-term carpal tunnel syndrome and there was nothing more the surgeon could do other than refer him for pain management.

The patient presented to Dr. Gronseth for physiatric evaluation. The patient appeared healthy and was in no acute distress; however, was concerned about his condition. His examination showed decreased sensation in the right median nerve distribution in the right hand, mild weakness with right thumb abduction and mildly positive Tinel's sign and Phalen's test on the right. The rest of the examination was unremarkable.

Ultrasound evaluation using the SONIMAGE® HS1 (Konica Minolta Healthcare Americas, Inc., Wayne NJ) of the right wrist focused on the right median nerve. Clinical images demonstrated a "notch sign" in the long axis view at the distal carpal tunnel (Figure 1). There appeared to be residual transverse carpal ligament (TCL) compressing the median nerve, suggesting an incomplete carpal tunnel release.

The patient was referred to a different hand surgeon who repeated carpal tunnel release surgery with excellent symptomatic results. The patient resumed normal activities and was elated.

Discussion

Nerve conduction studies after carpal tunnel release surgery are not always diagnostic as they can show permanent conduction slowing across the wrist due to short segment remyelination. By utilizing ultrasound imaging, Dr. Gronseth was able to immediately diagnose the ongoing structural nerve compression, leading to repeat surgery and excellent results. Without ultrasound, the patient would likely have had long-term residual neurologic symptoms.

The patient became a strong believer and advocate of ultrasound. He had been quite disheartened by the initial hand surgeon's conclusion that he would have to learn to live with his symptoms due to permanent median nerve damage from carpal tunnel syndrome. He has subsequently referred many friends and neighbors to Dr. Gronseth's practice because of their ultrasound imaging services.

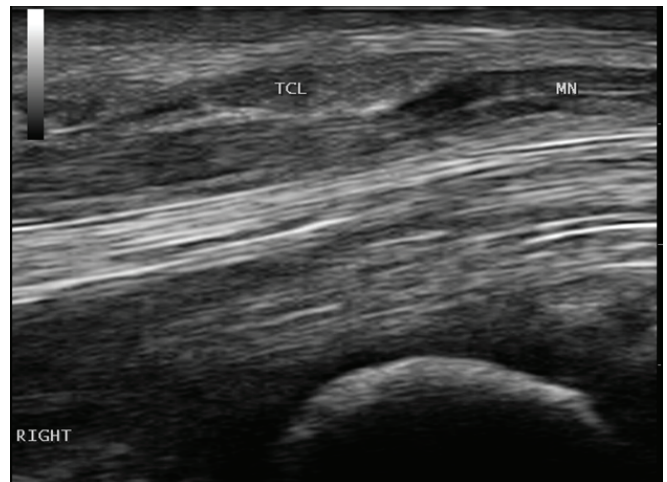


Figure 1. Ultrasound of the right median nerve demonstrated a "notch sign" in the long axis view at the distal carpal tunnel, indicating residual transverse carpal ligament (TCL) compressing the median nerve as a result of incomplete carpal tunnel release surgery.