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Ultra-minimally invasive or ultrasound guided carpal tunnel release, a systematic review of the literature: Will sports physicians, rheumatologists or orthopedics be the ultrasound surgeons of the future?

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Background & Aim: Ultrasound technology is increasingly being adopted by doctors to assist in the diagnosis and treatment of musculoskeletal conditions. Initially, interventions were simply image guided therapeutic injections, then procedures, using commonly available needles, such as fenestration and hydro-dissection arose. Finally, ultrasound guided surgery, using specialized surgical tools arrived. As an orthopedic surgeon performing endoscopic carpal tunnel release and performing ultrasound guided interventions the author was interested in transitioning to an ultra-minimally invasive carpal tunnel procedure.

Method: A systematic review of the literature was performed using the major medical databases and relevant research articles were retrieved and reviewed. Extensive cadaveric and clinical research exists which revealed a variety of promising techniques utilizing differing instrumentation. In this paper the literature will be discussed and the most promising techniques explained.

Findings: The most promising technique is that described by Rojo-Manaute et al. This group have performed the most comprehensive research to date, comprising firstly a cadaveric technique study, then a clinical pilot study and finally a prospective randomized controlled trial comparing ultrasound guided, Ultra-minimally invasive Carpal Tunnel Release (UCTR) to Mini-Open carpal tunnel release. The authors concluded that Ultra-Minimally Invasive CTR produced less postoperative morbidity and earlier return of function compared to Mini Open CTR. Both procedures offered similar neurologic recovery for the treatment of carpal tunnel syndrome. This was the first randomized controlled trial to compare a true UCTR to any other established surgical treatment for CTS and is the best Level 1 Evidence in support of ultrasound guided carpal tunnel release.

Conclusion & Significance: Based on the available evidence ultrasound guided carpal tunnel release has enough evidence to support its use as a treatment for carpal tunnel syndrome.

Biography

Michael Maguire is an Orthopedic Surgeon with subspecialty interest in Upper Limb Surgery and has extensive experience in ultrasound guided interventions having utilized this technology for over 10 years in clinical practice.

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