

## Commentary

The carpal tunnel syndrome (CTS) is the most common entrapment neuropathy caused by compression of the median nerve within the carpal tunnel (CT). Specific symptoms may be classified as early (tingling, numbness, paresthesia and burning pain), late intermediate (atrophy of thenar muscles and loss of ability to grasp and pinch) and advanced symptoms (dry, cold and discolored skin with possible ulceration of the thumb, index and middle fingers due to vasomotor changes).<sup>[1]</sup>

Median nerve motor weakness and sensory loss are likely due to compression of large diameter fibers. The majority of patients complain for nocturnal pain and paresthesia probably due to the small fibers and autonomic involvement on a vascular basis.<sup>[1]</sup>

Diagnosis is based on clinical history, physical examination, and nerve conduction velocity (NCV). The gold standard test is nerve conduction studies (NCS) as Gupta and co-authors pointed out.<sup>[2]</sup> The NCS measure the sensory and motor fibers conduction velocity in the median nerve at the wrist. Gupta *et al.*<sup>[2]</sup> mentioned that the sensory component is affected earlier than the motor one and in early stages of CTS there is usually a delay in sensory NCV. Electrodiagnostic markers determine which parameters are the best predictors of spontaneous electromyographic activity.<sup>[2,3]</sup>

Both conservative and surgical interventions are used to manage CTS, though there is no universally accepted therapy. The conservative management consists of splinting, non-steroidal anti-inflammatory drugs, and local steroid injections (LSI) into CT. The best treatment response is observed after LSI, in patients who had no significant muscle atrophy or weakness and had symptoms for less than a year.<sup>[4]</sup> In CTS, irrespectively of grade, LSI can be used for a short period (1-3 months) before surgery decompression, in order to improve local ischemia and reduce synovial swelling or vascular congestion.<sup>[5]</sup> Especially in athletes with local muscular and tendinous inflammatory conditions, the injection of local glucocorticosteroids relieves symptoms and results in speedier return to athletic activity.<sup>[6]</sup> Although LSI into CT is safe and easy intervention reducing symptoms significantly, carries a low risk of nerve damage. Alternatively, another site proximal to CT<sup>[7]</sup> is used for LSI with beneficial effects. The injection is performed ulnar to the tendon of the flexor carpi radialis, 4 cm proximal to the first crease of the wrist. Repeated NCV measurements after injection

showed improvement in most of the electrophysiologic parameters. The injection distal to the wrist crease between the hypothenar and thenar prominences is used with comparable favourable clinical effects and relief of numbness.<sup>[5]</sup>

Surgery is the treatment of choice in severe CTS, since ineffective therapy within 2 to 7 weeks can result in partial paralysis of the thumb and permanent loss of sensation. The hand surgeon must ensure that the patients have all the signs and symptoms and all the indications for division of the flexor retinaculum.<sup>[1]</sup> Surgery is effective with a long-term success rate greater than 75%.<sup>[8]</sup> Permanent complications may occur due to neural variations arising ulnar of the median nerve and could result in iatrogenic injury during endoscopic or open surgery.<sup>[9]</sup> Injury to the palmar cutaneous and recurrent motor branches of the median nerve, hypertrophic scarring, tendons adhesions, infection, hematoma formation, and reflex sympathetic dystrophy may occur in less than 1%.<sup>[10]</sup> The endoscopic surgical release of the transverse ligament remains controversial due to the risk of injury of the common digital nerve and the main trunk of the median nerve. In conclusion, the study of Gupta *et al.*<sup>[2]</sup> emphasizes in the LSI as a conservative treatment for mild CTS or additional treatment after CT surgical decompression. Distal motor latency is the best parameter for follow-up after LSI in CTS. Futures studies are needed to increase the follow-up of patients among different populations.

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