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Letter to Editor

Ultrasonography as A diagnostic Tool for Clinically Manifested Carpal Tunnel Syndrome with Normal Nerve Conduction Study. Letter to Editor. Response to Salah et al.

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Letter

Dear Editor:

We read with great interest the recent article by **Salah *et al.***, “Ultrasonography as a diagnostic tool for clinically manifested carpal tunnel syndrome with normal nerve conduction study” [1].

Nerve conduction studies [NCS] have traditionally been considered the gold standard for diagnosing carpal tunnel syndrome [CTS]. However, the correlation between NCS findings and CTS symptomatology is often poor. Clinical symptoms can precede electrophysiological changes by months or even years. In recent decades, ultrasonography [US] has gained increasing popularity as a diagnostic tool, as it is more affordable, less time-consuming, and more comfortable for patients. Moreover, numerous studies have demonstrated that US has comparable sensitivity and even greater specificity than NCS.

Several previous studies have also shown the value of US in diagnosing CTS, even in cases with normal NCS results [2], suggesting that US and NCS may be complementary rather than mutually exclusive [3].

Many clinicians who manage CTS consider that while NCS primarily assesses median nerve function, US offers a structural view of nerve compression within the carpal tunnel. In some cases, US can even reveal the underlying cause of the compression, aiding in treatment planning [3].

It has also been argued that NCS are not strictly necessary for initiating appropriate and timely treatment [including surgical intervention] but are often used to provide documentation in case of future medicolegal issues. Therefore, CTS diagnosis should be based primarily on clinical signs and symptoms, supported by abnormal NCS findings when available, but not dependent on them [4].

Setting aside the ongoing debate about the superiority of US, NCS, or their combined use in diagnosing CTS, we would like to emphasize the fundamental role of clinical evaluation. CTS is, above all, a clinical diagnosis. Early treatment of CTS symptoms is crucial to reduce patient suffering, improve sleep, and enhance quality of life.

We concur with other authors who assert that when a thorough clinical history and physical examination point clearly to CTS, neither a positive US nor abnormal NCS is necessary to initiate treatment [4, 5].

We would like to highlight two studies that support this view.

In 2002, **Kitsis *et al.*** [4] published a study comparing surgical and non-surgical treatments in CTS patients with normal NCS. A total of 125 patients were included: 29 underwent surgical decompression, while 96 received conservative treatment [corticosteroid injections, splints, anti-inflammatory medication, and activity modification]. One year after treatment, 90% of the surgical group reported good or excellent outcomes, compared to only 24% in the non-surgical group—a statistically significant difference [$p < 0.0001$]. These results support the notion that CTS diagnosis should be clinical, rather than based solely on NCS.

There is limited literature comparing treatment outcomes between patients with clinically diagnosed CTS and normal NCS versus those with abnormal NCS. To our knowledge, the first study to address this comparison was conducted by our team and published in 2022 [5].

We included 44 wrists in the normal NCS group and 83 wrists in the abnormal NCS group. All patients received corticosteroid injections administered by the same clinician using a standardized technique. Follow-up was conducted at 3, 6, and 12 months, with pain measured via the visual analogue scale [VAS] as the primary outcome. Our results showed no statistically significant differences between the two groups, except at the 12-month follow-up, where the normal NCS group demonstrated better outcomes in the 20% response category [$p = 0.006$]. These findings suggest that corticosteroid injections are equally effective in patients with clinically diagnosed CTS, regardless of NCS results.

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