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“The Use of Ultrasound in Double Crush Injuries”

Purpose: Ultrasound offers the capability to provide rapid and accurate diagnosis of peripheral nerve injury and sequela. However, much of the literature the ultrasound diagnosis of double crush injury remains sparse and is limited primarily to case reports. This study aims to review the current literature on the use of ultrasound for the rapid diagnosis of double crush syndrome. Specifically, it evaluates whether ultrasound improves the speed and accuracy of diagnostic confirmation and treatment planning of upper extremity peripheral nerve injury and double crush syndrome compared with clinical examination, electromyography/nerve conduction studies, MRI or CT alone.

Methods: A literature search was performed using the terms “ultrasound use for double crush injury” and “double crush diagnosis”. Studies were included if they involved double crush syndrome, entrapment neuropathy, multifocal nerve compression, ultrasound as a diagnostic tool, peripheral nerve or nerve root involvement, or combined proximal and distal nerve lesions. Studies were excluded if they did not meet the stated inclusion criteria.

Results: This review summarizes the studies that met the inclusion criteria, focusing on lesion locations, ultrasound findings, comparisons with other diagnostic modalities, treatment approach, and clinical outcomes. Ultrasound was most useful in identifying the peripheral compression component of double crush injury, particularly when structural causes were present.

Conclusions: Ultrasound is a useful rapid imaging tool for identifying peripheral nerve compression in suspected double crush injury. It can detect structural contributors such as focal nerve narrowing, nerve subluxation, ganglion cysts, scar tissue, tenosynovitis, and other compressive lesions. When combined with clinical examination and electrodiagnostic testing, ultrasound may help confirm the diagnosis more quickly and guide earlier, targeted treatment.