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Isolated Compression of Deep Palmar Branch of Ulnar Nerve by a Midpalmar Ganglion: A Rare Case Report

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 $K_{\mbox{\sc v}}$.: Compressive neuropathy; Deep branch of ulnar nerve; Ganglion; Magnetic Resonance Imaging (MRI)

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UN lesions in the wrist and hand can cause a variety of di erent clinical ndings, depending on precise location. Findings might range from a pure sensory de cit to pure motor syndromes with weakness that may or may not involve the hypothenar muscles. is depends on whether the lesion involves the main trunk, the sensory branch only, or the deep palmar branch at di erent sites from just at the hypothenar muscles to the lateral palm. UN compression at the wrist can be caused by a variety of intrinsic and extrinsic factors [1]. Isolated compression of only the deep branch of UN by a ganglion is very rare [1,2]. We describe the clinical, neurophysiological and MRI ndings in a patient with a clinical diagnosis of deep palmar branch lesion of UN. e purpose of this case report is to describe the MR imaging characteristics, presenting symptoms and electrophysiological ndings with emphasis on the MR imaging anatomy of UN at wrist and palm.

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A 24-year-old gentleman presented to neurology outpatient department with a gradually worsening weakness and paraesthesia in the fourth and h digits of the right hand. On examination, light-touch sensation and two-point discrimination were intact throughout the hand, including UN distribution. e Froment's sign was positive.

e hypothenar musculature was intact. A clinical diagnosis of deep cyst of the palm arising from volar and ulnar aspect of base of 4

D.

Compression of the deep motor branch of the UN was rst described by Bowers and Hurst in 1979 [3]. In 1952, Seddon presented a case in which a ganglion arising from the pisohamate joint caused compression of the deep branch of UN distal to the hypothenar muscle innervations [2].

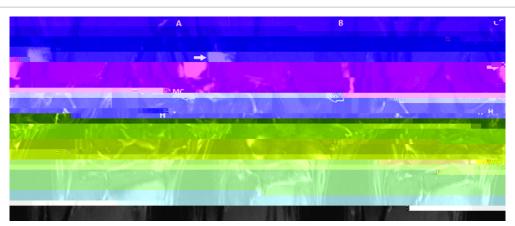
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carpometacarpal joint compressing the deep palmar branch of UN distal to the hypothenar muscle innervation was made.



MC=Metacarpal; H=Hamate

Figure 1 A-C: Coronal T2 STIR (short tau inversion recovery) MR images demonstrate a multilobulated cystic structure (white arrows) at the level of proximal half of metacarpals originating from the volar and ulnar aspect of the fourth carpometacarpal joint (open arrows).

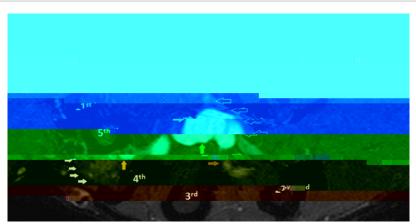


Figure 2: Axial T2 STIR (short tau inversion recovery). MR image depicts a multilobulated cystic structure (yellow arrows) at the volar aspect of the diaphysis of the fourth metacarpal and fourth intermetacarpal space and deep to the fexor tendons impinging upon the deep palmar branch of ulnar nerve (open arrows) distal to hypothenar innervation. Mild hyperintensity and swelling of the nerve (brown arrows) just distal to compression. Note the mild atrophy and denervation hyperintensity of fourth dorsal interosseous muscle (white arrows).



Figure 3 A-D: A: Sagittal T1-weighted MR image divides the sites of ulnar nerve compression in Guyon's canal into 3 zones. Distal ulnar nerve bifurcates (brown circle) an average distance of 10 to 12 mm distal to the proximal margin of the pisiform (P) bone. In zone 1, nerve (open arrows) compression proximal to bifurcation leads to mixed motor and sensory symptoms. In zone II symptoms are purely motor and restricted to muscles innervated by the deep ulnar motor branch (black arrows) and in zone III symptoms are purely sensory due to involvement of superficial sensory branch (white arrows).

B-D: Axial T1-weighted MR images show ulnar nerve (open arrow) in proximal Guyon's canal, radial to pisiform (P) and ulnar to ulnar artery in B; Nerve divides into the superficial sensory (white arrow) and deep motor (black arrow) branches at the level of hamate (H) or distal part of canal in C; further distally, distal to hypothenar innervation the deep palmar branch (black arrow) and of superficial sensory branches (white arrows) of ulnar nerve in D.

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