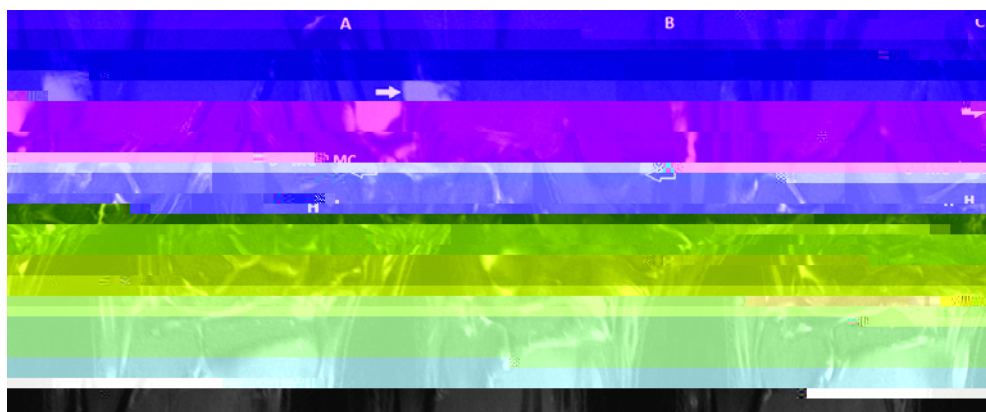


Keywords: Compressive neuropathy; Deep branch of ulnar nerve; Ganglion; Magnetic Resonance Imaging (MRI)

Introduction: UN lesions in the wrist and hand can cause a variety of different clinical findings, depending on precise location. Findings might range from a pure sensory deficit to pure motor syndromes with weakness that may or may not involve the hypothenar muscles. This depends on whether the lesion involves the main trunk, the sensory branch only, or the deep palmar branch at different 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 findings in a patient with a clinical diagnosis of deep palmar branch lesion of UN. The purpose of this case report is to describe the MR imaging characteristics, presenting symptoms and electrophysiological findings with emphasis on the MR imaging anatomy of UN at wrist and palm.

Case Report

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



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).

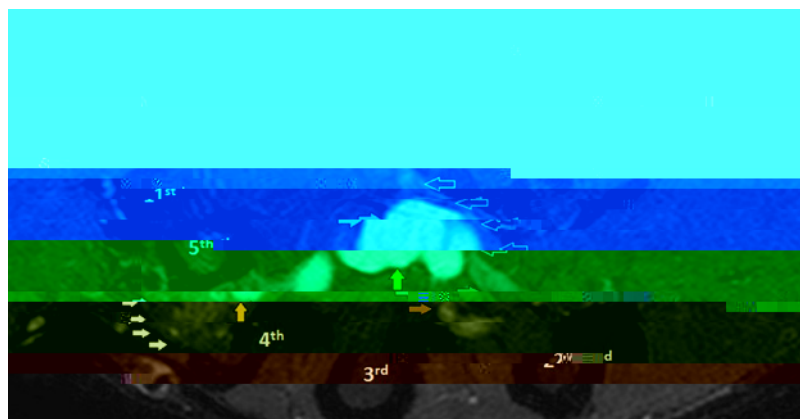


Figure 2: Axial T2 STIR (short tau inversion recovery). MR image depicts a multilobulated cystic structure (yellow arrows) at the volar aspect of the diaphysis of the 4th metacarpal. Mild hyperintensity and swelling of the nerve (brown arrows) just distal to compression. Note the mild atrophy and denervation 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 I, 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. 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 superficial and deep branches in C; Nerve is compressed by the deep ulnar motor branch (black arrows) in D.

References