

Anomalous Median Nerve Branching with Carpal Tunnel Syndrome

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Knowledge of anatomy and its possible variations is vital for the successful management of peripheral nerve disorders. These anomalies can possibly lead to increased risk of compression and/or of inadvertent injury to the nerve. Lanz, in 1977,¹ presented a landmark paper on various possible variations in median nerve anatomy at the carpal tunnel in 246 hands. He organized the variations in to four groups. Group III, representing the high or proximal bifurcation of the median nerve, was found in five hands. Similar reports of anomalies were subsequently made by Eiken et al,¹ Kessler et al,¹ and Wilkenman et al.¹ Effectively the incidence

of Group III anomaly is estimated to be between 1 and 3.3%.^{2,3} The anomaly could be an isolated finding or be associated with a median artery¹ and/or with an accessory muscle or a tendinous slip. Group III median nerve anomaly with an isolated compartment for the radial division of the nerve, within the carpal tunnel, was reported by Mitchell et al in 2009.² The probability of inadvertently injuring the high branches of Group III median nerve was reported by Jeon et al, in year 2002.⁴

The palmar cutaneous branch is the only branch of the median nerve in the middle and distal forearm and the

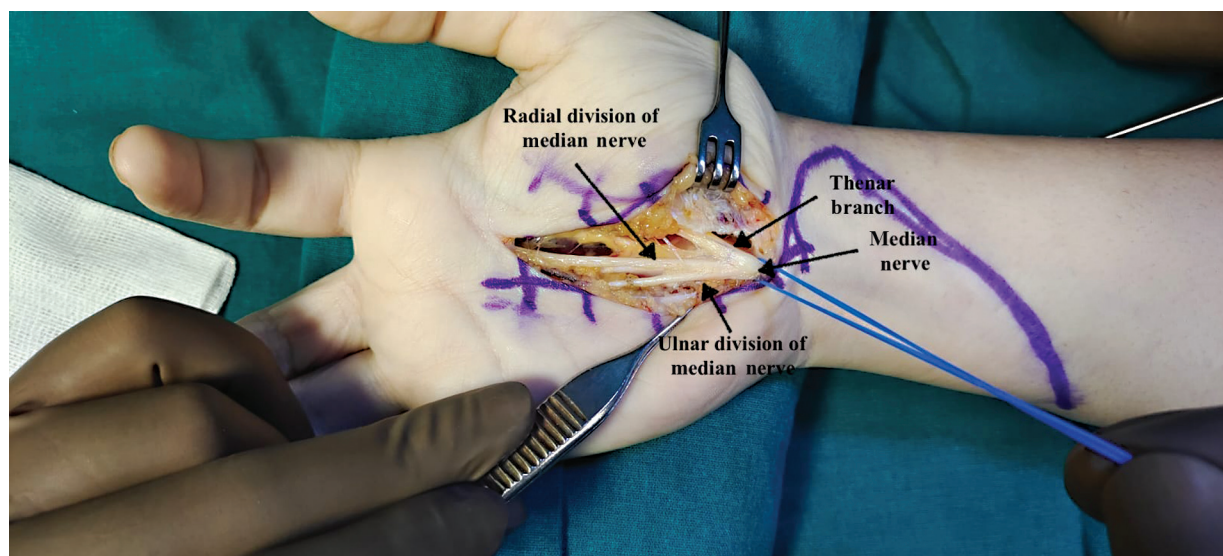


Fig. 1 Intraoperative picture of the high/proximal division of the median nerve at the junction of forearm and wrist.

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remaining palmar branches arise near to the distal edge of the transverse carpal ligament (TCL) in the palm. We hereby present a typical case of carpal tunnel syndrome (CTS) wherein we encountered a Group III anomalous median nerve.

A 34-year-old right-handed female chef presented with CTS signs and symptoms, bilaterally. Right hand was more symptomatic than the left. The surgical steps followed were that of a routine minimum access procedure. Within the tunnel, the expected single median nerve trunk was replaced by multiple neural structures (– Fig. 1). This anatomy corresponded to the course of the common digital branches of the median nerve and the recurrent motor branch arising from the radial aspect of the main nerve trunk. Thus, the findings were confirmed to be of a high division of the median nerve, at the level just proximal to the proximal edge of the TCL. The ulnar division of the median nerve appeared thinner than the radial division. On follow-up, patient had no sensory or motor complaints in the operated hand.

The rationale for reporting the case is to emphasize the importance of critical assessment of the anatomy. The preoperative electromyography/nerve conduction study is unable to identify such anomaly. An ultrasonography examination to delineate the nerve anatomy is not a part of our routine preoperative workup. Perhaps this may have diagnosed the anomaly encountered, preoperatively.

We postulate the presence of multiple neural structures in a narrow carpal tunnel perhaps predisposed to early symptoms of CTS for the young lady. So far only a single cadaveric study among the Indian population has reported such an

anomaly.⁵ This is probably the first documentation of this anomaly in a live Indian patient. The reporting reiterates the need to always be vigilant and careful while decompressing the median nerve.

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Conflict of Interest

None declared.

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