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Anatomical variations in pathway of the median nerve: Gross cadaver study

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Introduction: Surgical treatment of carpal tunnel puts the median nerve at risk and because the median nerve may vary in its course throughout the hand, an unobservant surgeon may inadvertently cut through this million dollar nerve, as lawsuits from damage of this nerve have led to. Worse than the lawsuits is the damage to the patient's quality of life.

Aim: The aim of this research is to identify the variations in the pathway of the median nerve as it courses through the hand and classify it. The purpose is to prevent inadvertent severing of the median nerve.

Methods: This is an anatomical study. Two orthopaedic surgery residents dissected the upper extremities of 51 hands from 29 donated bodies of the institution's anatomy lab. The pathways of the median nerve and ulnar nerve were identified and coursed throughout the upper extremities of the dissected hands towards the muscles they innervated.

Results: Opponens pollicis and abductor pollicis brevis received median nerve innervation 100% of the time. Adductor pollicis received twigs from the ulnar nerve 88% of the time. The flexor pollicis brevis received median nerve innervation 73% of the time, ulnar nerve innervation 2% of the time and dual innervation 25% of the time from the deep branch of the ulnar nerve and the recurrent motor branch of the median nerve.

Discussion & Conclusion: Variations in the pathway of the median nerve were uncovered, making it imperative for the surgeon to understand them before performing carpal tunnel release. We also identify a novel structure, termed the ansa thenaris, which may innervate the intrinsic muscle of the thumb in some patients. Because the ulnar nerve and median nerve may both contribute to thumb function when the ansa thenaris is involved, patients with this innervation pattern may benefit from conservative treatment before carpal tunnel release.

Biography

Chukwuemeka Mbagwu is a general surgery preliminary intern who is committed to orthopaedic surgery. He is a graduate of Howard University College of Medicine and is currently training at Mt Sinai Hospital in Manhattan, NY. His research has been presented at the National Medical Association and the Eastern Orthopaedic Association.

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