

COMPRESSION CHRONICLES: MAPPING AIN PATHWAYS , MUSCULAR SUPPLY AND COMPRESSION DYNAMICS



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INTRODUCTION

The anterior interosseous nerve (AIN), a branch of the median nerve, innervates key forearm muscles such as the flexor pollicis longus (FPL), flexor digitorum profundus (FDP), and pronator quadratus (PQ). Variations, including the presence or absence of the Gantzer muscle, can affect the AIN's course and branching patterns. This study examines the AIN's branching, its distance from the intercondylar line, and how the presence or absence of the Gantzer muscle influences its anatomical relationships.

METHODS

This study was based on the dissection of 24 limbs (of Indian cadavers) , 12 of which were derived from 6 cadavers (including both left and right hands) while the remaining 12 were independent limbs sourced from unidentified cadavers. The origin of each muscle branch of the median nerve was measured from ICL. The branching patterns of the AIN and presence or absence of Gantzer muscle were also documented.

DISCUSSION

Discussion

- ✦ **Variability in AIN Anatomy:** Significant differences in AIN origin and branching patterns were observed, highlighting the need for personalized approaches in diagnosis and treatment.
- ✦ **Gantzer's Muscle Impact:** Present in 45.8% of specimens, Gantzer's muscle may play a role in AIN compression, making it a key factor in clinical considerations.
- ✦ **Right vs Left Hand Differences:** Variations between hands of the same cadaver suggest that anatomy can differ even within an individual, complicating clinical assessments.
- ✦ **Surgical Implications:** Knowledge of AIN's branching to FPL, FDP, and PQ can refine surgical techniques, improving outcomes in nerve compression cases.
- ✦ **Future Directions:** Further research is needed to assess the clinical impact of these anatomical variations in living patients and AIN-related disorders.



RESULTS

The study found significant variability in AIN origin distance from the ICL (mean: 4.63 cm, range: 0 cm to 7.6 cm). Branching patterns and distances to surrounding muscles also varied. Gantzer's muscle was present in 11 out of 24 specimens (45.8%). Notable differences were observed between right and left hands of the same cadaver as well.



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