

Investigating the Potential for Using the Gantzer Muscle Tendon in Reconstructive Hand Surgery

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Conflict(s) of Interest:

The authors declare there is no conflict of interest.

Introduction/Background:

The Gantzer muscle is a small muscle in the forearm that is not commonly recognized and does not appear in any major anatomic textbooks even though it has been documented in up to 68% of forearms¹. The muscle can compress the anterior interosseous nerve (AIN) causing Kiloh-Nevin syndrome². This study aims to investigate the prevalence of this muscle and the length and diameter of the tendon to determine its possible utility as a free tendon graft for reconstructive hand surgery.

Methods:

30 embalmed and fresh frozen cadaver forearm pairs (n=60) were dissected to look for the Gantzer muscle between the intermediate and deep layers of the forearm. The presence of the Gantzer muscle and its laterality, proximal and distal attachments, and relationship with the AIN were recorded. The average age of the cadaveric specimens was 70.37 years and 18 (60%) were male. Using a digital caliper, the muscle tendon length, width, and thickness will be measured by three independent observers and the average of the measurements will be recorded.

Results:

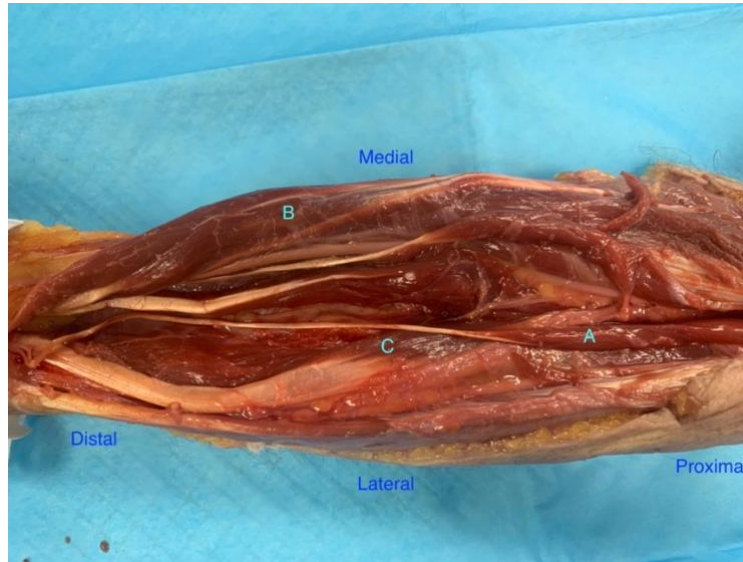
The Gantzer muscle was identified in 38 forearms (63.33%). 24 cadavers (80%) showed presence of the Gantzer muscle in at least one forearm. The Gantzer muscle was present in 10 cadavers unilaterally (33.33%) and 14 bilaterally (46.67%). It was absent bilaterally in 6 pairs (20%). The most common attachment sites were the deep surface of flexor digitorum superficialis proximally and flexor pollicis longus distally. The AIN most commonly passed deep to the Gantzer muscle belly.

Discussion:

The findings of this study thus far show that the Gantzer muscle is present in a large majority of the population and could potentially be used as a free graft tendon for hand reconstruction while creating little to no functional deficit.

Images/Tables/Charts:

Figure 1: Gantzer Muscle with Long Tendon



Gantzer muscle with long skinny tendon laying between flexor digitorum superficialis and flexor digitorum profundus.

Legend: A- Gantzer muscle belly, B- Flexor digitorum superficialis, C- Flexor digitorum profundus

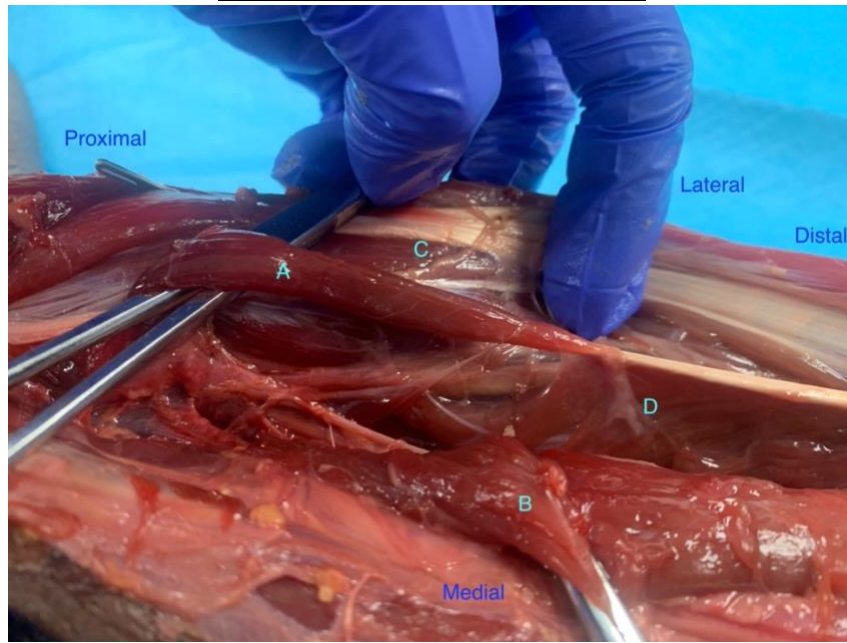
Figure 2: Ganzter Muscle Tendon Insertion into Flexor Pollicis Longus



Gantzer muscle tendon inserting into the tendon of flexor pollicis longus.

Legend: A- Gantzer muscle tendon, B- Flexor pollicis longus

Figure 3: Gantzer Muscle Belly



Gantzer muscle belly arising from flexor digitorum superficialis and inserting into the tendon of flexor pollicis longus.

Legend: A- Gantzer muscle belly, B- Flexor digitorum profundus, C- Flexor digitorum superficialis, D- Flexor pollicis longus

References:

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