Does That Thumb Trigger Finger Release Have You Feeling “Nerve”-ous?

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INTRODUCTION:

The radial and ulnar digital nerves (RDN and UDN) to the thumb play a vital role in relaying sensory information from the respective divisions of the thumb. Surgical procedures involving the hand require strong understanding of the anatomical pathway of these nerves. In particular, trigger finger release of the thumb requires strong understanding of the RDN pathway to reduce risk of iatrogenic injury of the hand. Thus, the goal of this study was to explore variation in the pathways of RDN and UDNs to the thumb as they cross the proximal thumb flexion crease.

METHODS:

Twenty-one soft-embalmed, cadaveric hands were dissected by three orthopaedic surgery residents. Each hand was photographed using an iPhone 14 pro 48-megapixel camera (Figure 1). ImageJ software was used to determine the total length of the crease as well as the distance from the radial edge of the flexion crease to both the RDN and UDNs of the thumb.

RESULTS:

On average, the UDN crossed at approximately 72% ± 8.2% of the distance between the radial and ulnar edges of the flexion crease, while the RDN crossed at 36.4% ± 9.4%. The UDN crossed at the ulnar third of the crease in 81.0% of patients and in the middle third in 19.0% of patients. The RDN crossed at the radial third of the crease in 43.0% of patients and in the middle third in 57.0% of patients (Figure 2).

DISCUSSION AND CONCLUSION:

Our investigation suggests the UDN predictably crosses the crease in the ulnar third of the thumb flexion crease. With less consistency, our data also demonstrates the RDN crosses most predictably in the middle third followed by the radial third. This information will support surgeons in performing safe procedures near the thumb, including trigger release of the thumb, with minimization of iatrogenic injury to a digital nerve.