Trifurcation of the recurrent motor branch discovered during carpal tunnel release

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DESCRIPTION

Carpal tunnel syndrome is the most commonly diagnosed compression neuropathy of the upper limb. Anatomical variations in the carpal tunnel predisposes the clinician to diagnostic uncertainties and intraoperative complications that can result in significant patient morbidity. There is currently no definitive evidence correlating preoperative examination with anatomical variants of the nerve. Clinical examination’s lack of sensitivity or specificity for detected nerve anomalies heightens are surgeon’s requirement to intraoperatively appreciate potential variations.

This is the case of a middle-aged healthy patient who presented with several months of paresthesia in the median nerve distribution, exacerbated at night time and positive provocative tests. There were no motor issues and clinical examination did not suggest an anatomical variation. Neuropathy screening returned normal-severity and a moderate-severity diagnosis was confirmed on nerve conduction studies.

A standard limited incision carpal tunnel release was performed. Figures 1 and 2 show preoperative markings of Kaplan’s line and the palmar crease.

On identification of the recurrent motor branch, it was noted to trifurcate at the origin of the median nerve at and distal to the transverse carpal ligament (Lanz Classification 1A, 1B). The operation was completed and patient was symptom free in the follow-up outpatient clinic as per standard postoperative guidelines.

To date, the majority of published literature has focused on median nerve anatomical variations. To date, descriptions of a trifid recurrent motor branch are limited to cadaveric studies and no intraoperative images have been published. It is important that all surgeons performing carpal tunnel releases are aware that anatomical variations do exist. Patients should be consented for damage to the recurrent motor branch and surgeons should be aware of the classifications systems to guide anatomical anomalies.

Learning points

► Preoperative history, examination and investigations does not provide detail on potential anatomical variations.
► Surgeons should extend the knowledge of carpal tunnel release to include anatomical variations/classifications regarding the recurrent motor branch.
► Patients should be preoperatively consented in relation to potential risks related to aberrant anatomy as iatrogenic injury can result in significant postoperative morbidity.

Figure 1  A standard incision for a carpal tunnel release to the right wrist. The forceps identify the trifurcating recurrent motor branch arising from the median nerve.

Figure 2  An alternative angle to the motor branch; there is a clear depiction of it arising from the median nerve and its tortuous course.

REFERENCES
