Median nerve decompression at lacertus tunnel: possible complications

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To the Editor, HAND

In an interesting study by Hagert [2], the author reported the diagnosis and surgical treatment of proximal median nerve (MN) entrapment within lacertus tunnel (LT) in 44 patients. The author defined LT as the space roofed by lacertus fibrosis (LF), floored by medial humeral trochlea, bounded by pronator teres (PT) medially, and brachialis laterally. Surgical decompression of MN within LT included subcutaneous infiltration covering the area of LF and the medial/central aspect of the elbow and forearm, incision at the elbow crease of cubital fossa followed by removal of PT fascia, division of LF, and exposure of MN after medial retraction of PT [2]. However, the presence of anomalous arteries at the area of LT as shown in Fig. 1 may complicate the surgical treatment of MN compression within LT or what is called lacertus tunnel syndrome (LTS). During the dissection of cubital fossae in 75 cadavers, we found bilateral superficial brachial artery (SBA) in an old male (Fig. 1). This artery (grasped by forceps in Fig. 1) was deep to the biceptal aponeurosis or LF and very close to the median cubital vein (MCV). The SBA divided into terminal divisions; radial artery laterally

and persistent median artery (PMA) medially, just above the level of medial humeral epicondyle. Both the radial artery and PMA passed ventral to the PT, where PMA accompanied the MN distally within the carpal tunnel joining the superficial palmar arch (data not shown). As shown in Fig. 1, there is a possibility of injury of the PMA which is very close to the PT fascia and subsequently could be injured on removal of this fascia during surgical decompression of MN for LTS [2]. Accordingly, injury of PMA may be serious, as this artery may contribute significantly to blood supply of the hand as in the current case [3]. On the other hand, the pressure by PMA on the MN within the elbow and carpal tunnel may complicate the symptoms of LTS which may result from double crush lesions [1]. Moreover, as shown in Fig. 1, the PMA may be injured during infiltration anesthesia for treatment of LTS, or even this artery may be injected with drugs used for infiltration anesthesia resulting in serious complications [2]. The PMA may be also injured during surgical treatment of PT syndrome [3]. Compressive effects of the LF have been described as causing dysfunction of the musculocutaneous nerve and brachial artery [4]; and in the current case, there is a possibility of compression of the PMA by LF.

As Hagert [2] illustrated a diagram showing boundaries and contents of LT, we think that the SBA and PMA could be possible contents of LT with surgical relevance. Moreover, the MCV could be added to the roof of LT based on clinical impotence [5]

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Fig. 1 Superficial arteries at the elbow. The *framed area* shows the boundaries and contents of lacertus tunnel (*LT*). *SBA* superficial brachial artery, *PMA* persistent median artery, *RA* radial artery, *UA* ulnar artery, *LF* lacertus fibrosis, and *PT* pronator teres. The *arrow* indicates the median cubital vein. Note that the *LF* is partially removed. *BT* biceps tendon

Conflict of Interest The authors declare that they have no conflict of interest.

A Statement of Human and Animal Rights The authors declare that the procedures followed in this manuscript were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 (5)

A Statement of Informed Consent None.

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