An understanding of anatomy under the LI4 acupuncture point

Acupuncturists may apply a needle into different locations for a given acupuncture point.[1] This may raise doubts and uncertainty about the efficacy of acupuncture treatments, and cause complications in acupuncture research and education. For example, the LI4 point located in the first web-space of the hand is one of the most commonly used acupuncture points, but the placement of LI4 is slightly different in standard textbooks used for teaching acupuncture in China[2] and Taiwan.[3] For illustration, the two LI4 placements are named as LI4-P (proximal) and LI4-D (distal) in the following text (figure 1).

LI4 needling may potentially injure the palmar metacarpal artery (PMA) on the radial palmar aspect of the second metacarpal or the princeps pollicis artery (PPA) on the ulnar palmar aspect of the first metacarpal, which both pass between the first dorsal interosseus and the adductor pollicis muscles.[4] The resulting intermuscular bleeding may lead to scar adhesions formed at the muscles and, consequently, decreased range of motion of the thumb.[5 6]

To estimate the relationship between the two LI4 skin placements and the PMA and PPA, we conducted a preliminary MRI study that captured transverse MRI on 10 healthy young men with their dominant forearms neutrally positioned. A consistent pattern was seen, with a distance between the LI4 placement and the PMA of about 1 cm while the PPA is not close to the placement or cannot be reached; also, the distance of the artery beneath the LI4-D placement is roughly 25% greater than that of LI4-P (figure 2).

It is of clinical importance that the needles should not be inserted deeply at the LI4 to minimise the risk of penetrating injury of the arteries underneath. Based on the above, needling at LI4-D may be preferable to LI4-P for patients with hand muscle atrophy since the PMA is relatively deeper under the placement of LI4-D.

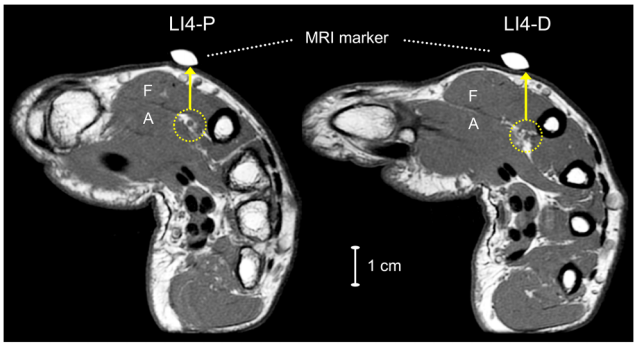

Figure 2 A representative MRI shows the distance between the LI4 skin placements and the palmar metacarpal artery (distance between yellow arrow and circle) in which MRI markers were used to identify the skin placements of LI4-P and LI4-D. A, adductor pollicis muscle; D, distal; F, first dorsal interosseous muscle; P, proximal.

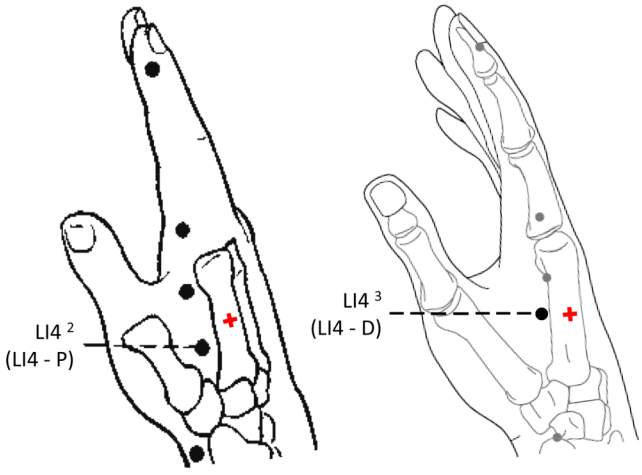

Figure 1 Acupuncture point LI4, showing different placements according to two authorities.[2 3] The red crosses indicate the midpoint of the second metacarpal bone. D, distal; P, proximal.

Yiu Ming Wong

Correspondence to Dr Yiu Ming Wong, Health Science Unit (PEC), Hong Kong Physically Handicapped and Able Bodies Association, S102, G/F, Lai Lo House, Lai Kok Estate, Shamshuipo, Kowloon, Hong Kong; pt@hkphab.org.hk

Competing interests None.

Patient consent Obtained.

Ethics approval Institutional review board, Health Science Unit, Hong Kong Physically Handicapped and Able Bodies Association.

Provenance and peer review Not commissioned; internally peer reviewed.

To cite Wong YM. *Acupunct Med* 2013;**31**:333.

Received 1 April 2013
Accepted 30 April 2013
Published Online First 23 May 2013

REFERENCES

1 Kalauokalani D, Sherman KJ, Cherkin DC. Acupuncture for chronic low back pain: diagnosis and treatment patterns among acupuncturists evaluating the same patient. *South Med J* 2001;94:486–92.
2 Beijing College of Traditional Chinese Medicine. *Essentials of Chinese Acupuncture*. 2nd edn. Beijing, China: Foreign Languages Press, 2005:97, 116, 123.
3 Lin JG, Li TM, Hsu SF, *et al*. *Newly edited color book of acupuncture and moxibustion*. Taipei, Taiwan: JYIN Publishing Company, 2009:107–8.
4 Doyle JR, Botte MJ. *Surgical anatomy of the hand and upper extremity*. New York: Lippincott Williams & Wilkins, 2002:266–9.
5 Liu ZZ, Huang GK. Contracture of the adductor pollicis and the first dorsal interosseous muscles. *Int Orthop* 1984;7:257–62.
6 Wong YM, Hobara H. Hand acupuncture and vascular injury. *J Nippon Med Sch* 2012;79:246–7.

An understanding of anatomy under the LI4 acupuncture point

Yiu Ming Wong

Acupunct Med 2013 31: 333 originally published online May 23, 2013
doi: 10.1136/acupmed-2013-010371

Notes