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拇指掌侧动脉的解剖分型及其临床意义

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摘要 目的:观察拇指掌侧动脉起源、走行及其共干情况,探讨其分型特征。**方法:**72例手部血管标本,其中实体标本46例(左27例,右19例),铸型标本26例(左12例,右14例),观察拇指掌侧动脉即拇指桡掌侧固有动脉和拇指尺掌侧固有动脉的起源,走行及其共干情况并统计分析。**结果:**根据拇指掌侧动脉即拇指桡掌侧固有动脉与拇指尺掌侧固有动脉共干情况,将其分为2型,分别是I共干型(32例,44.44%),II不共干型(40例,55.56%)。根据拇指掌侧动脉的血供来源,I共干型又分为3个亚型,分别为:a.共干-掌浅弓型(3例,4.17%),b.共干-掌深弓型(26例,36.11%),c.共干-桡动脉掌浅支型(3例,4.17%);II不共干型又分为2个亚型,分别为:a.不共干-掌浅弓、掌深弓型(27例,37.50%),b.不共干-第一掌背动脉、掌浅弓型(13例,18.06%)。**结论:**根据拇指掌侧动脉即拇指桡掌侧固有动脉与拇指尺掌侧固有动脉共干情况及其动脉来源将其分为2型5个亚型。对拇指掌侧动脉进行分型可以充分了解拇指掌侧动脉的起源及走行变异,丰富解剖学资料,为临床拇指再植再造术提供解剖学基础。

关键词:拇指掌侧动脉;血管分型;解剖学;临床意义

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The Anatomic Grouping and Clinical Significance of Palmar Arteries of Thumb

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ABSTRACT Objective: To observe the origin, running and distribution of palmar arteries of thumb and to explore its types. **Methods:** 72 specimens of blood vessels of hands (the entity specimens 46 cases, 27 left, 19right; the cast of arteries of hand 26: 12 left, 14 right) were dissected, then we observed and analyzed the origin and distribution of palmar arteries of thumb. **Results:** According to whether the radial palmar collateral artery of the thumb and the ulnar palmar collateral artery of the thumb come from the same trunk, the palmar arteries of thumb can be classified into 2 types: I the same trunk type (32 cases, accounting for 44.44%), II the different trunks type (40 cases, 55.56%). According to their blood supply, I the same trunk type can be classified into 3 subtypes: a. the same trunk-superficial palmar arch type; (3 cases, 4.17%). b. the same trunk - deep palmar arch type; (26 cases, 36.11%). c. the same trunk-superficial palmar branch type (3 cases, 4.17%). II the different trunks type can be classified 2 subtypes: a. the different trunks-superficial palmar arch and deep palmar arch type (27 cases, 37.50%) b. the different trunks- the first dorsal metacarpal artery and superficial palmar arch type (13 cases, 18.06). **Conclusion:** According to whether the proper palmar radial artery of thumb and the proper palmar ulnar artery of thumb come from the same trunk, we divided palmar arteries of thumb into two main types, which can be separated into five subtypes in detail. On one hand, our study can enrich anatomy data, on the other hand, it can provide anatomic basis for reconstruction and replantation of thumb.

Key words: Palmar arteries of thumb; Blood vessel grouping; Anatomy; Clinical significance

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前言

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手是人体最灵活的器官之一,它能协调完成多种复杂的活动,而拇指的功能占手功能的40%,特有的对掌功能可协助手完成精细的抓、捏、握等精细动作,这也是人区别于动物的最显著特征^[1]。手部损伤后,不仅要去修复手的外形,更重要的是修复手的功能,因此在手完成各项功能占据重要作用的拇指的修复至关重要。拇指的重建受很多因素制约:拇指的损伤性质和平面、剩余手的情况、职业要求、吸烟史、血管慢性病史,以及医

师的理论知识和临床经验^[2],拇指损伤后修复的关键在于血管再通,国内外有不少学者对拇指的血管进行了研究^[3-5],同时也研究了示指及虎口区的血供^[3-5],但由于研究广泛,分类依据标准不同,造成拇指掌侧主要动脉分型混乱,结果相对不完整。本研究重点观察拇指掌侧动脉起源、走行、共干情况及其与周围骨关节和肌肉肌腱的毗邻关系,为解剖教学积累资料,同时也为临床手外科医生进行相关手术时提供形态学参考。

1 材料和方法

72例手部血管标本。其中新鲜手部血管标本46例(左27例,右19例),手血管铸型标本26例(左12例,右14例),标本均来自新乡医学院解剖实验室教学标本。重点观察拇指掌侧动脉的起源、走行、吻合情况及其与周围骨关节和肌肉肌腱的毗邻关系并进行统计分析。

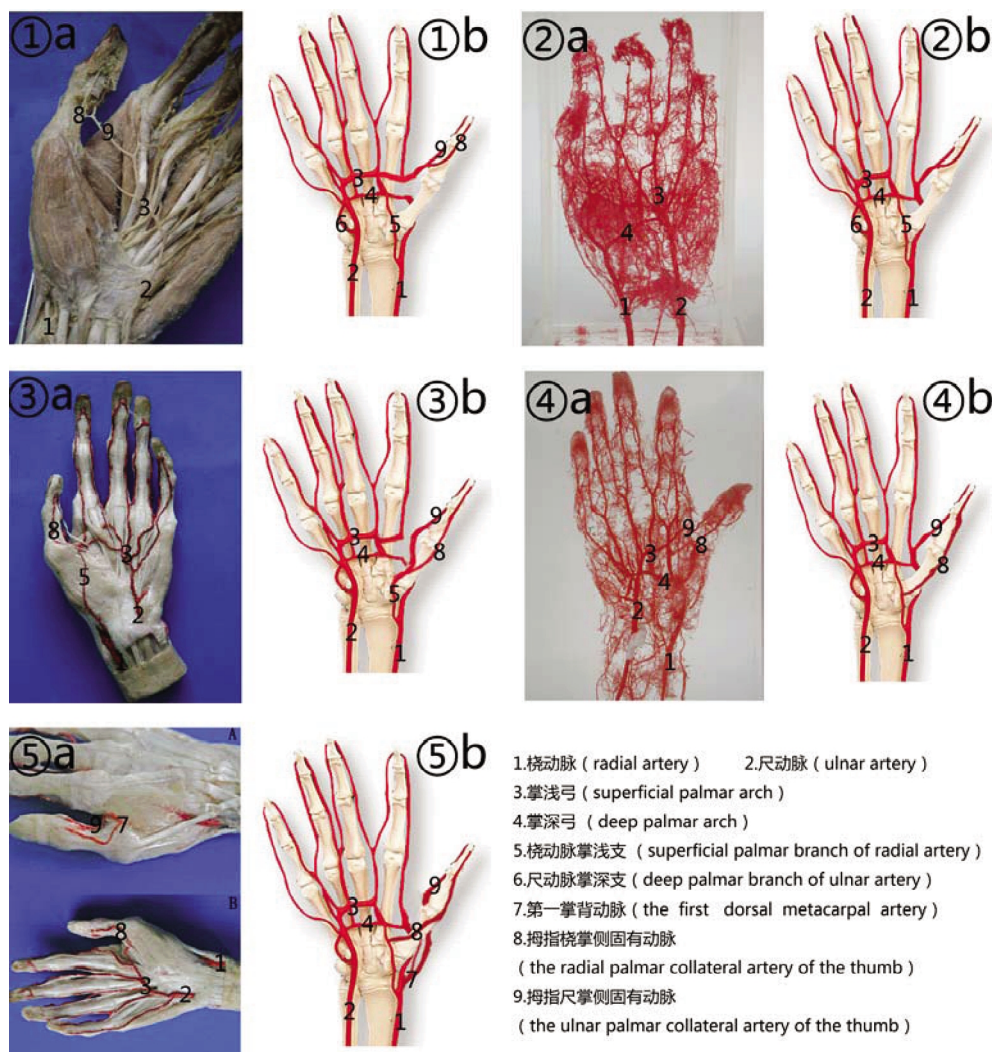
2 结果

根据拇指掌侧动脉即拇指桡侧固有动脉与拇指尺侧固有动脉共干情况将其分为2型,分别是I共干型(附图①-附图③),II不共干型(附图④-附图⑤)。根据拇指掌侧固有动脉即拇指桡侧固有动脉与拇指尺侧固有动脉的血供来源, I共干型又分为3个亚型,分别为:a.共干-掌浅弓型(附图①),b.共干-掌深弓型(附图②),c.共干-桡动脉掌浅支型(附图③); II不共干型又分为2个亚型,分别为:a.不共干-掌浅弓、掌深弓型(附图④),b.不共干-第一掌背动脉、掌浅弓型(附图⑤)。

2.1 I型共干型32例,占44.4%(附图①-附图③)

2.1.1 共干-掌浅弓型3例,占4.17%(附图①) 桡动脉在将要绕过腕部时发出掌浅支,它穿过或偶尔行于鱼际肌表面,有时与尺动脉末端吻合形成掌浅弓,或者尺动脉末端与桡动脉掌浅支无吻合,直接延续为形成尺动脉型掌浅弓^[7]。掌浅弓在近虎口区分出第一指掌侧总动脉,分为拇指桡侧固有动脉、拇指尺侧固有动脉和示指桡侧固有动脉分布于拇指两侧和示指的桡侧。

2.1.2 共干-掌深弓型26例,占29.17%(附图②) 桡动脉转向手掌,其末端和尺动脉掌深支参与形成掌深弓,掌深弓近起



图①共干-掌浅弓型 ②共干-掌深弓型 ③共干-桡动脉掌浅支型 ④不共干-掌浅弓、掌深弓型 ⑤不共干-第一掌背动脉、掌浅弓型 其中①a--⑤a为实体标本图;①b--⑤b为模式图

Fig. ① The same trunk - superficial palmar arch type ② the same trunk - deep palmar arch type ③ the same trunk - superficial palmar branch type ④ the different trunks - superficial palmar arch and deep palmar arch type ⑤ the different trunks - the first dorsal metacarpal artery and superficial palmar arch type . ①a--⑤a Specimens of the entity fig; ①b--⑤b model fig

始处发出拇主要动脉,该动脉在第一掌骨的掌面、拇收肌斜头下方,第一骨间掌侧肌外侧下行。在近节指骨底、拇长屈肌腱的深面分为两支,即拇指桡侧固有动脉、拇指尺掌侧固有动脉,分布于拇指两侧,拇主要动脉通常也发出示指桡侧固有动脉,营养示指的桡侧。

2.1.3 共干-桡动脉掌浅支型 3 例,占 4.17% (附图③) 桡动脉掌浅支走行于大鱼际表面或深面,或分为两支走行于大鱼际肌的表面和深面,在近第一掌指关节处直接延续为第一指掌侧总动脉,发出两支即拇指桡侧固有动脉和拇指尺掌侧固有动脉分布于拇指的桡侧和尺侧。

2.2 II 型不共干型 (附图④—附图⑤)

2.2.1 不共干-掌浅弓掌、深弓型 27 例,37.5% (附图④) 桡动脉掌浅支与尺动脉末端吻合形成掌浅弓,掌浅弓发出拇指桡侧固有动脉;桡动脉末端和尺动脉掌深支参与形成掌深弓,掌深弓发出拇指尺掌侧固有动脉,两条固有动脉在走行过程中,有交通支。该分型中,拇指掌侧的动脉由掌浅弓和掌深弓分别发出。

2.2.2 不共干-第一掌背动脉、掌浅弓型 13 例,18.06% (附图⑤) 桡动脉在进入第一掌骨间隙前发出一分支动脉即第一掌背动脉^[7],该动脉行于第一掌骨背侧肌浅面或深面,在虎口区近第一掌指关节背侧分出拇指尺掌侧固有动脉和拇指背侧指背动脉;桡动脉掌浅支与尺动脉末端形成掌浅弓,或者掌浅弓也由尺动脉末端单独延续构成,掌浅弓在第一掌骨头处发出一分支动脉行于大鱼际肌深面,在第一掌指关节掌侧穿出移行于拇指桡侧固有动脉营养拇指桡侧。

3 讨论

关于拇指掌侧动脉的分型,国内外也有一些学者对其研究^[13,19],分别以该动脉的血供来源及拇指优势血管为依据对其分型,同时研究了拇示指、虎口区的血供及吻合规律,仅依据血供来源对其分型没有考虑到动脉走行异常的可能性,并且由于研究范围广泛,对于拇指掌侧动脉的描述相对不细致、完善。因此,我们在前人研究的基础上加以改善,以拇指掌侧动脉即拇指桡侧固有动脉与拇指尺掌侧固有动脉起点的共干情况及其动脉来源对其分型。

拇指的血供主要来自拇指桡侧固有动脉和拇指尺掌侧固有动脉^[9]。根据拇指掌侧动脉即拇指桡侧固有动脉与拇指尺掌侧固有动脉共干情况将其分为 2 型,分别是 I 共干型,II 不共干型。根据拇指掌侧动脉的血供来源,I 共干型又分为 3 个亚型,不共干型又分为 2 个亚型。在研究中,拇指桡侧固有动脉和拇指尺掌侧固有动脉共干的 32 例,占 44.44%,其中共干-掌深弓型在研究中出现概率最高,为 29.17%,在该分型中掌深弓发出的拇主要动脉,拇主要动脉发出拇指桡、尺掌侧固有动脉和示指桡侧固有动脉供应拇指两侧和示指桡侧,这种分型在经典教科书^[7]上均有描述。拇指桡侧固有动脉和拇指尺掌侧固有动脉不共干的 40 例,占 55.56%,其中不共干-掌浅弓、掌深弓型出现概率最高为 37.5%,本型中拇指尺掌侧固有动脉、拇指桡侧固有动脉分别来源于掌浅弓和掌深弓。以上分型分析说明,拇指的血供主要来源于掌深弓和掌浅弓两套系统。

对拇指掌侧动脉的研究过程中,我们发现在不共干-第一

掌背动脉、掌浅弓型中,拇指指背动脉和拇指尺掌侧固有动脉可以共同起源于第一掌背动脉。近年来,采用拇指指背动脉岛状皮瓣修复拇指软组织缺损^[10,12-15],操作方便,成功率较高,在临床普及推广。此种分型的存在可以提示临床医生在进行这类手术时注意保护拇指尺掌侧固有动脉,避免在手术中误伤^[16]。本研究能够使手外科医生更全面细致地了解拇指的血供,为临床医生进行相关手部手术如断掌断指再植、皮瓣移植、拇指再造时,注意辨别拇指掌侧动脉的各种分型,掌握其解剖学位置及血供来源,为寻找合适的血管吻合提供思路,提高手术的成功率。

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