

· 经验交流 ·

拇指背动脉岛状皮瓣的临床应用及血供障碍处理

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【摘要】 目的:介绍拇指背动脉岛状皮瓣修复拇指软组织缺损的临床经验,并探讨血供障碍的原因及处理方法。**方法:**自 2005 年 7 月至 2008 年 12 月,外科治疗 21 例 21 指拇指软组织缺损,男 16 例,女 5 例;年龄 16~55 岁,平均 39 岁。应用拇指背桡侧动脉岛状皮瓣修复拇指远节桡侧软组织缺损(4 例),拇指背尺侧动脉岛状皮瓣修复拇指尺侧、指腹及甲床缺损(17 例),皮瓣旋转点指间关节近侧 0.5 cm,皮瓣面积 2 cm×1.5 cm~4 cm×2.5 cm。**结果:**术中术后 6 例发生血供障碍,经对应处理皮瓣无坏死。随访 3 个月~2 年,皮瓣质地优良,色素沉着轻度,外形满意,拇指掌指关节及指间关节活动范围正常。修复指腹者感觉不同程度恢复,两点辨别觉:4~10 mm。**结论:**拇指背动脉岛状皮瓣修复拇指软组织缺损方法简单,效果满意。蒂部长度、宽窄及受压均能影响皮瓣的血供,蒂部处理是治疗成功的关键。

【关键词】 拇指; 外科皮瓣; 软组织损伤; 移植

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Clinical application of island skin flap of pollical dorsal digital arteries in repairing defect of soft tissue JIANG Liang-fu, ZHOU Fei-ya, LI Zhi-jie, YANG Jing-quan, CHU Ting-gang, CHI Zheng-lin, GAO Wei-yang. Department of Hand Surgery, the Second Affiliated Hospital of Wenzhou Medical College, Wenzhou 325027, Zhejiang, China

ABSTRACT Objective:To introduce clinical experience of repairing defect of pollical soft tissue with island skin flap of pollical dorsal digital arteries, and explore the reasons of disturbance of blood supply and its therapeutic method. **Methods:** From July 2005 to December 2008, 21 thumbs in 21 patients with defect of soft tissue were treated with surgery. There were 16 males and 5 females, ranging in age from 16 to 55 years with an average of 39 years. Defects of extremity-radialis soft tissues of thumb in 4 cases were repair with island skin flap of dorsal-radial pollical arterial; and defects of ulnaris, finger pulp, hyponychium of thumb in 17 cases were repair with island skin flap of dorsal-ulnar pollical arterial. The pivoting point of flap was 0.5 cm proximal to interphalangeal joint. The size of flap was from 2 cm×1.5 cm to 4 cm×2.5 cm. **Results:** Blood articulo was found in 6 cases during operation and after operation and the flaps survived after corresponding treatment. The patients were follow-up from 3 months to 2 years. The texture and shap of flap was good, only had slightly pigmentation. Range of motion was normal in metacarpophalangeal joints and interphalangeal joint. All the flaps of prosthetic finger pulp had sensory recovery with two point discrimination for 4-10 mm. **Conclusion:** It is easy and effective in repairing defect of pollical soft tissue with island skin flap of pollical dorsal digital arteries. The treatment of pedicle is key to success, the length, width and compression of pedicle can effect on blood supply of flap.

KEYWORDS Thumb; Surgical flaps; Soft tissue injuries; Transplantation

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拇指末节软组织缺损在临床上较多见,往往伴有肌腱和指骨外露。由于拇指功能占整个手部功能的 40%,治疗原则是尽可能保留拇指长度^[1]。修复方法较多,各有指征和缺点,近年来利用拇指背动脉岛状皮瓣修复拇指软组织缺损伴肌腱和指骨外露已成为主要方法^[2],但皮瓣血供障碍甚至部分坏死并不少见^[3-4],本文结合临床实际,探讨血供障碍的原因及处理方法。

1 临床资料

自 2005 年 7 月至 2008 年 12 月,共 21 例 21 指

应用拇指背动脉岛状皮瓣,男 16 例,女 5 例;年龄 16~55 岁,平均 39 岁。其中拇指指端缺损 4 例,指腹缺损 6 例,末节桡侧缺损 4 例,末节尺侧缺损 5 例,全甲床缺损 2 例。所有病例均为外伤所致,伴有骨外露。从受伤至修复时间 1 h~5 d。17 例采用拇指尺背侧逆行动脉岛状筋膜皮瓣修复,其中 6 例皮瓣近端带桡神经浅支与指神经吻合。4 例桡侧缺损采用拇指桡背侧逆行动脉岛状筋膜皮瓣修复。皮瓣面积为 2 cm×1.5 cm~4 cm×2.5 cm。

2 治疗方法

2.1 皮瓣设计 创面偏向桡侧的选择拇指桡背侧动脉岛状皮瓣,其余的创面选用尺背侧动脉岛状皮



图 1 患者,男,18 岁,右拇指腹机器压伤 1a.缺损面积 3 cm×2.5 cm,伴指骨外露 1b.术前甲床远端部分缺损 1c.指腹缺损皮瓣修复术后,皮瓣血供好 1d.术后 1 年皮瓣色泽形态好 1e.术后 1 年供区植皮外观满意图 1f.术后 1 年拇指指间关节功能正常

Fig.1 A 18-year-old male patient with defect of right first finger pulv caused by mechanical injury 1a.The area of defect was about 3 cm×2.5 cm and exposed phalange 1b.The preoperative photograph of defect of distal nail bed 1c.The postoperative photograph of defect of finger pulv showed blood supply was good 1d.The flap was good in shape and colour at 1 year after operation 1e.The appearance of donor site was good at 1 year after operation 1f.The function of interphalangeal joint of thumb was normal at 1 year after operation

瓣。①轴线:桡侧,鼻烟窝近端桡骨茎突至拇指指间关节背桡侧的连线;尺侧:鼻烟窝近端桡骨茎突至第 1 掌指关节背尺侧的连线。②旋转点:位于近节指骨轴线上,不超过拇指指间关节近侧 0.5 cm。③面:皮瓣切取范围位于第 1 掌骨桡背侧或尺背侧,近端不超过腕横纹。

2.2 手术步骤 采用臂丛麻醉,先于皮瓣远端与创缘近端间切开皮肤,显露拇指背侧动脉走向。再切开皮瓣边缘,由拇伸肌腱膜及拇收肌肌膜浅面由近向远逆行掀起皮瓣,在蒂部形成一宽约 1 cm 筋膜蒂将拇指背侧动脉及 1~2 条指背静脉包含在内。皮瓣翻转覆盖创面,无张力下疏松缝合。如果是指腹缺损,在切取皮瓣时将近端的桡神经浅支带入皮瓣,皮瓣翻转后与创面的指固有神经吻合以重建指腹感觉。桡侧皮瓣供区宽度小于 2 cm 者直接缝合,其余供区取前臂内侧全厚皮片游离植皮。

3 结果

术后 21 例皮瓣完全成活,术中血供障碍 4 例,其中 1 例皮瓣蒂部过短,张力过大导致血供障碍,切断指动脉行旋转点前移;2 例隧道过紧,其中 1 例蒂部缝线部分拆除拆开,另 1 例蒂部拆开取表皮植皮;1 例因静脉危象,皮瓣远端与拇指掌侧静脉吻合。术后 2 例血供不足,表皮水疱,予高压氧治疗皮瓣无坏死。随访 3 个月~2 年,皮瓣质地优良,色素沉着轻度,外形满意,拇指掌指关节及指间关节活动范

围正常。修复指腹者感觉不同程度恢复,两点辨别觉 4~10 mm,吻合和未吻合指神经无明显差异。典型病例见图 1。

4 讨论

4.1 皮瓣特点 拇指指背动脉岛状皮瓣修复拇指软组织缺损的优点在于供受区功能、质地、色泽相似,就近取材,不牺牲主要血管,对供区功能影响小,带蒂转移不需吻合血管,风险小,一次性完成手术。对于拇指桡侧的缺损我们选桡背侧动脉岛状皮瓣,其余的缺损选尺背侧动脉岛状皮瓣,能满足拇指远端任何部位的软组织缺损。

拇指掌侧固有动脉与拇指指背动脉之间形成筋膜血管网是拇指指背动脉岛状皮瓣血供来源的解剖学基础^[5-6]。两者之间最远的交通支位于指间关节近侧约 0.5 cm,所以皮瓣旋转点最远位于该处。同时皮瓣蒂部也包含了皮神经,所以部分血供也来源于皮神经,带上皮神经能增加皮瓣的血供。拇指背动脉岛状皮瓣的切取位于第 1 掌骨背,因此皮瓣中可含桡神经浅支,将该神经与受区指神经缝合有利于皮瓣感觉功能的恢复。但我们的临床观察发现指腹缺损病例吻合神经与否对感觉恢复影响不大,这可能与病例数量较少有关,另外感觉功能恢复还受到年龄和皮瓣大小等因素影响。

4.2 血供障碍分析及对策 ①蒂部过短:是影响血供最常见的原因,因为蒂部返折,皮瓣设计时蒂部比

旋转点至创面距离增加 1 cm 左右。旋转点最远可至拇指指间关节近侧 0.5 cm,若仍紧张,可切断指固有动脉,将交通支包含在指动脉远端,蒂部向远端延长,但须确认拇指远端掌侧指固有动脉之间交通支完整。

②蒂部隧道过紧:由于筋膜蒂过宽所致,可以在蒂部隧道做明道,皮瓣设计成水滴状或网球拍状,嵌入皮肤可缓解张力;若蒂部过紧可在蒂部表面植皮。

③蒂部静脉受损或蒂部过窄:拇指背动脉无伴行静脉,该皮瓣的静脉回流赖以指背静脉及动脉周围的微小静脉丛(微静脉网系统)的“迷宫途径”。蒂部静脉受损或蒂部过窄都会损伤迷宫途径而导致静脉回流障碍。张世民等^[7]报道结扎蒂部远侧浅静脉干有助于减轻静脉血倒灌入皮瓣,改善静脉回流。但我们认为皮瓣及蒂部应包含 1~2 条指背浅静脉,以保障静脉回流。在临床中将皮神经血管皮瓣中的浅静脉与受区的静脉相吻合可以达到改善回流的目的^[8]。拇指受区尤其是掌侧静脉细小菲薄,吻合难度较大,但仍有相当高的成功率^[9],在本组中我们成功地将 1 例静脉危象皮瓣远端静脉与拇指掌侧静脉吻合,缓解静脉危象取得成功。因此将皮瓣远端静脉与受区静脉吻合不失为一种挽救方式,但无须常规吻合。

④动脉交通支损伤:指背动脉与指掌侧固有动脉交通支损伤,导致动脉血供不足,皮瓣形成水疱甚至坏死;处理方法:早期高压氧治疗,可使血氧含量增高,增加组织氧的运输,增加皮瓣成活面积^[10-11]。本组 2 例皮瓣缺血,水疱形成,经 3 次高压氧治疗皮瓣血供改善,无坏死发生。

拇指背动脉岛状皮瓣修复拇指软组织缺损方法简单,效果满意。蒂部长度、宽窄及受压均影响皮瓣的血供,因此蒂部处理是关键。静脉回流障碍可通过皮瓣远端静脉与受区静脉吻合改善,动脉供血不足则可采用高压氧治疗。

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