

doi: 10.13241/j.cnki.pmb.2015.09.023

超声定位穿静脉结扎对下肢静脉性溃疡术后愈合影响的临床研究*

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摘要 目的:观察下肢静脉性溃疡患者穿静脉功能不全情况,探讨超声定位下肢穿静脉结扎对下肢静脉性溃疡术后疗效的影响。**方法:**40 例大隐静脉曲张患者随机分成两组:A 组采用大隐静脉高位结扎、静脉腔内微波射频闭合术及超声定位穿静脉结扎治疗,B 组采用大隐静脉高位结扎和静脉腔内微波射频闭合术治疗。观察两组患者治疗后静脉性溃疡的愈合时间、复发率及瓣膜功能不全穿静脉数量部位,并比较两组患者临床预后评分。**结果:**术前两组瓣膜功能不全穿静脉数量分别是 47 条和 44 条,两组比较差异无统计学意义($P=0.5520$)。术后两组愈合时间分别是(7.5 ± 4.389)周和(11.6 ± 6.489)周,两组比较差异具有统计学意义($P=0.048$)。两组临床预后评分分别为(2.3 ± 0.6)分和(1.1 ± 1.5)分,两组比较差异具有统计学意义($P=0.042$)。**结论:**多普勒超声可有效检测定位瓣膜功能不全的下肢穿静脉,在超声定位下行大隐静脉高位结扎、静脉腔内微波射频闭合术联合穿静脉结扎治疗下肢静脉性溃疡的疗效优于穿静脉不结扎。

关键词:静脉性溃疡;穿静脉;静脉曲张;超声;腔内微波射频闭合术

中图分类号:R445.1;R632.1 **文献标识码:**A **文章编号:**1673-6273(2015)09-1691-04

Clinical Study on Effects of Ultrasound Assisted Perforating Vein Ligation on the Healing of Venous ulcer of Lower Limb*

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ABSTRACT Objective: To observe the effects of ultrasound assisted perforating vein ligation on the healing of lower limb ulcer.

Methods: 40 patients with great saphenous varicosis were selected and randomly divided into two groups. The patients in group A were treated with high ligation of great saphenous vein, endovenous microwave and perforating vein ligation, while the patients in group B were treated with high ligation of great saphenous vein and endovenous microwave radiofrequency endovenous treatment. Then the ulcer healing time, recurrence rate, the numbers and positions of the insufficiency perforating veins and the clinical outcome scores were observed and compared between the two groups. **Results:** The insufficiency perforating veins of the two groups before operation were 47 and 44, respectively, and there was no statistically significant difference between the two groups ($P=0.5520$). The healing time of group A was (7.5 ± 4.389) weeks which was shorter than (11.6 ± 6.489) weeks of group B with statistically significant difference ($P=0.048$). And the clinical outcome of group A was (2.3 ± 0.6) which was significantly higher than (1.1 ± 1.5) of group B with statistically significant difference ($P=0.042$). **Conclusions:** Doppler ultrasound can effectively locate the insufficiency perforating vein of the lower limb. With Doppler ultrasound, the combination of great saphenous vein ligation, endovenous microwave treatment and perforating vein ligation has better outcome in venous ulcer treatment than the method without perforating vein ligation.

Key words: Venous ulcer; Perforating vein; Varicose vein; Ultrasound; Microwave treatment

Chinese Library Classification: R445.1; R632.1 **Document code:** A

Article ID: 1673-6273(2015)09-1691-04

前言

静脉性溃疡是一种病情缓慢,易感染,且伴有疼痛的常见疾病,多发生在青壮年人群^[1]。下肢静脉性溃疡是慢性静脉功能不全的严重并发症,通常受深静脉回流、穿静脉回流及浅静脉

曲张等因素影响。下肢穿静脉瓣膜功能不全引起的穿静脉回流可导致下肢静脉高压,造成皮肤等软组织营养障碍,进而形成下肢静脉性溃疡^[2]。因此,如何有效地治疗穿静脉瓣膜功能不全,减少溃疡复发是临床研究的重点^[3]。

目前普遍认为彩色多普勒超声诊断穿静脉功能不全的准

* 基金项目:国家自然科学基金面上项目(81170149)

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(收稿日期:2014-11-14 接受日期:2014-11-25)

确性较高^[4]。近年来研究发现,静脉腔内微波射频闭合术可以有效治疗静脉曲张及静脉性溃疡,不仅手术创伤小,恢复快,而且有利于改善患者的临床症状,提高生活质量^[5,6]。本研究拟采用彩色多普勒超声定位瓣膜功能不全的穿静脉,对比大隐静脉高位结扎、静脉腔内微波射频闭合术联合与不联合穿静脉结扎术治疗静脉性溃疡的效果,研究穿静脉结扎治疗静脉性溃疡的效果。

1 资料与方法

1.1 临床资料

选取 2013 年 1 月至 8 月,于第四军医大学唐都医院及解放军海军总医院普通外科就诊的下肢静脉性溃疡(CEAP 5-6 级)^[7]患者 40 例作为研究组对象,其中男 26 例,女 14 例,年龄(55.24±9.58)岁,溃疡时间平均(7.61±6.73)年,其中双下肢受累患者 8 例,单下肢受累患者 32 例,患肢共 48 条,所有患肢大隐静脉曲张临床分级 5-6 级。所有溃疡均位于内踝及小腿中下部,16 例患者为愈合性溃疡,24 例患者为活动性溃疡。

1.2 纳入和排除标准

纳入标准:①凡 CEAP 分类,临床分级为 5~6 级;②年龄为 18~65 岁。排除标准:①深静脉血栓形成者;②妊娠或哺乳期患者;③有严重系统性疾病;④拒绝参加者。

1.3 研究方法

1.3.1 超声定位瓣膜功能不全穿静脉 采用 Aplio 500 彩色多普勒超声诊断仪(12L5 探头,频率 8 MHz, Toshiba Medical Systems, Osaka, Japan)进行检测。根据检查需要,患者可采取站立、坐位或仰卧位,由大隐静脉汇入股静脉开口处向下追踪至踝部,探查并定位瓣膜功能不全的穿静脉的数量和部位。瓣膜功能不全的穿静脉评价标准为:反流时间 0.5~1 s,可疑瓣膜功能不全;反流时间 1~2 s,瓣膜功能不全 I 级;反流时间 2~3 s,瓣膜功能不全 II 级;反流时间 4~6 s,瓣膜功能不全 III 级;反流时间 >6 s,瓣膜功能不全 IV 级^[8]。

1.3.2 术前下肢溃疡处理 静脉抗生素输液治疗,并对溃疡部位换药,待溃疡处肉芽组织红润,溃疡部位组织干燥且周围组织无肿胀时择期进行手术治疗。

1.3.3 手术分组 将 32 例单下肢受累患者按照随机数字法平均分为两组:a 组和 b 组,将 8 例双下肢受累患者也按照随机数字法分成两组:c 组和 d 组,然后将 a 组和 c 组合为一组:A 组;b 组和 d 组合并为另一组:B 组。两组均由 16 例单下肢受累患者和 4 例双下肢受累患者组成。分组后 A 组有 7 例愈合性溃疡和 13 例活动性溃疡患者,B 组 9 例愈合性溃疡和 11 例活动性溃疡患者。A 组行大隐静脉高位结扎,静脉腔内微波射频闭合术及穿静脉结扎术;B 组行大隐静脉高位结扎和静脉腔内微波射频闭合术。

1.3.4 手术方法 全部患者均在腹股沟处做切口行大隐静脉高位结扎,患肢曲张静脉进行腔内微波射频闭合术治疗。腔内微波射频闭合术方法如下:硬膜外麻醉下,患者仰卧位,于患肢大隐静脉内踝上方体表投影处用 8F 血管鞘进行穿刺以将其置入大隐静脉腔内并退出其中的导丝,将微波治疗器沿血管鞘置入大隐静脉腔内直至大隐静脉高位结扎处,然后逐步后退凝固闭合大隐静脉的主干,小腿处的曲张静脉团,则采用多点穿刺

进行血管内微波凝固闭合曲张的静脉。术中设定的微波功率为 70 W,微波治疗器移动速率为 3~5 mm/s,凝固间隔时间为 2~3 s,每次凝固 6 s。术中根据患者临床症状适当增加或降低微波治疗功率和治疗时间,谨防烧伤治疗区域组织^[9]。A 组患者在腔内微波射频闭合完成后,根据超声定位瓣膜功能不全穿静脉部位,在对应的皮肤作小切口,行筋膜下穿静脉切断结扎,B 组患者在腔内微波射频闭合术完成后不进行穿静脉结扎。分层缝合所有患肢切口。

1.3.5 术后处理 术后所有患者患肢用弹力绷带加压包扎两周,静脉抗生素输液 3 天预防感染,12~14 d 拆线。出院后长期应用弹力袜,门诊定期随访。

1.4 疗效判定

临床结局评分以末次随访与治疗前比较,从无症状、症状明显缓解、症状轻微缓解、无缓解、轻度加重、中度加重到重度加重 7 个等级分别记 +3 到 -3 分^[10]。术后对所有患者进行 12 月随访,并在 12 月时进行彩色多普勒超声检查穿静脉状况。

1.5 统计学分析

研究结果均以 $\bar{x} \pm s$ 表示,并采用 SPSS18.0 统计软件进行分析。组间比较采用 ANOVA 检验, $P < 0.05$ 为差异有统计学意义。

2 结果

2.1 术前超声探查结果

术前两组大隐静脉返流速度分别是(6.102±3.516) cm/s 和(6.041±3.347) cm/s,组间相比无统计学差异($P=0.6592$),溃疡下肢开放穿静脉数量分别为 47 和 44 条,组间相比无统计学差异($P=0.5520$)。共检出开放穿静脉 91 条,其中大腿上段穿静脉扩张例数 4 条,其余均见于小腿段,以小腿中下段的 Cockett 穿静脉扩张最为常见,两组穿静脉平均内径分别为(3.781±1.142) mm 和(3.722±1.098) mm,组间无统计学差异($P=0.8163$)。

2.2 手术结果

48 条患肢均无皮肤烧灼伤、感染及血肿等并发症。所有手术切口均一期愈合。

2.3 两组患者术后随访结果

两组平均随访时间为(51±6)周,失访 3 例,其中 A 组 2 例,B 组 1 例。A 组随访时间内无复发,1 例未愈合;B 组复发 3 例,复发率为 15.0%,复发时间为 24~60 周,2 例未愈合。A 组溃疡平均愈合时间为(7.5±4.4)周,B 组溃疡平均愈合时间为(11.6±6.5)周,两组之间有统计学差异($P=0.048$)。术后一年彩超复查,A 组未愈合患者小腿段新发 2 条开放穿静脉,B 组未愈合两名患者小腿段开放穿静脉共 7 条,无新开放穿静脉,复发的 3 名患者小腿段开放穿静脉共 9 条,平均(3.0±1.0)条,其中新开放穿静脉 4 条。

2.4 两组患者临床结局评分结果

A 组临床结局评分为(2.3±0.6)分(1~3 分),B 组临床结局评分为(1.1±1.5)分(-1~3 分),其中,A 组 3 分 9 例,2 分 5 例,1 分 3 例,0 分 1 例,临床症状缓解率为 94.4%,B 组 3 分 6 例,2 分 4 例,1 分 3 例,0 分 3 例,-1 分 1 例,-2 分 2 例临床症状缓解率为 68.4%,两组之间有统计学差异($P=0.042$)。

3 讨论

下肢静脉性溃疡是血管内分泌外科或普通外科的常见疾病,持续性静脉高压是其发病的主要原因^[1]。因此,降低持续静脉高压是治疗并预防溃疡复发的关键^[12]。临床普遍采用传统手术、内镜下交通支结扎、激光治疗、静脉硬化治疗^[13]以及静脉腔内微波射频闭合术^[14]等方法治疗持续性静脉高压^[15]。下肢腓肠肌泵功能衰退静脉功能不全引起的返流是下肢静脉高压的最常见原因,下肢静脉性溃疡可以同时累及多支静脉病变^[16]。目前,临床常用彩色多普勒超声检查下肢静脉功能以及异常穿通支的定位。

在本研究中,我们将临床分级 CEAP5-6 级患者作为研究对象,记录穿静脉形态学以及功能不全的情况,并对瓣膜功能不全穿静脉进行定位。结果显示,静脉功能不全和穿静脉主要集中在分布在内踝-腘窝(膝关节以下),这与黄剑等^[17]报道功能异常的穿静脉主要集中在下端(占 61.3%),并且下肢静脉溃疡周围最多见基本上是一致的。

此外我们还发现穿静脉结扎的患者治疗效果要优于术中不结扎穿静脉的患者。联合穿静脉结扎的患者溃疡愈合时间短,治愈率高,随访时间内无复发,临床结局评分明显高于穿静脉不结扎组的患者,这说明联合穿静脉结扎的治疗方式可以更有效的改善患者的生存质量。周大勇等^[18]研究发现手术结扎或离断穿静脉,如开放的 Linton 手术和腔镜筋膜下穿静脉离断术等,可以促进溃疡愈合、降低溃疡复发率,这与本实验的研究结果是一致的。

我们还发现,经过微波治疗的患者恢复较快。血管腔内微波治疗下肢静脉曲张是一项微创治疗原发性下肢浅静脉曲张和静脉性溃疡的新技术,与传统手术比较,具有创伤小、术后恢复快等优点^[19]。但是,我们的病例中也发现穿静脉结扎的个别下肢静脉溃疡患者溃疡未愈合,彩超发现其下肢有新的穿静脉出现瓣膜功能不全,这些新出现的瓣膜功能不全穿静脉可能就是溃疡难以愈合的重要原因。未联合穿静脉结扎的复发患者和未愈合患者的下肢也检测出开放的穿静脉。结果提示,穿静脉功能不全在下肢静脉性溃疡具有重要作用。这也与其它相关研究结果一致^[20,21]。

本研究在术前应用彩色多普勒超声对所有患者患肢穿静脉进行探查并定位。彩色多普勒超声是利用多普勒原理,采用电子技术,可以实时显示血管内某一点一定容积血流状况的检测技术。它可以无创性的检测出肢体血管血液的返流状况。联合穿静脉结扎的病例术中在超声的辅助下均找到并结扎了扩张的穿静脉。彩色多普勒超声对瓣膜功能不全穿静脉的精确定位有效的保证了本研究手术的成功率。利用彩色多普勒超声辅助穿静脉结扎有助于促进下肢静脉性溃疡愈合,减少溃疡复发。治疗前利用超声多普勒检出瓣膜功能不全的穿静脉数及其分布对于提高下肢静脉性溃疡的治疗效果具有重要意义。

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