

· 老年人周围血管疾病诊治专栏 ·

## 泡沫硬化剂聚多卡醇联合大隐静脉高位结扎剥脱术治疗 D-二聚体升高静脉曲张患者的疗效

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**【摘要】目的** 观察局部注射泡沫硬化剂聚多卡醇联合大隐静脉高位结扎剥脱术对 D-二聚体升高的大隐静脉曲张患者的疗效, 并随访并发症发生情况。**方法** 回顾性分析 2020 年 3 月至 2021 年 2 月潍坊市人民医院血管外科收治的 838 例大隐静脉曲张患者的临床资料, 从中筛选 66 例术前 D-二聚体指标升高的患者纳入试验组, 筛选 66 例术前 D-二聚体指标正常的患者纳入对照组, 2 组患者均接受大隐静脉高位结扎并剥脱术+曲张静脉聚多卡醇注射治疗。术后观察 2 组患者大隐静脉曲张的治疗效果及普通静脉炎、表浅血栓性静脉炎、深静脉血栓等并发症的发生情况。采用 SPSS 19.0 统计软件进行分析。根据数据类型, 分别采用 *t* 检验或  $\chi^2$  检验进行组间比较。**结果** 2 组患者治疗前与术后 1 个月 CEAP 评分 [试验组: (2.86 ± 1.02) 和 (0.97 ± 1.48) 分; 对照组: (2.80 ± 1.13) 和 (0.92 ± 1.49) 分] 比较, 差异均有统计学意义 ( $P < 0.05$ ); 但试验组和对照组术后 1 个月 CEAP 评分 [(0.97 ± 1.48) 和 (0.92 ± 1.49) 分] 比较, 差异无统计学意义 ( $P > 0.05$ )。试验组和对照组并发症发生率比较 (59.1% 和 53.0%), 差异无统计学意义 ( $P > 0.05$ )。**结论** 泡沫硬化剂聚多卡醇局部注射联合大隐静脉高位结扎并剥脱术治疗 D-二聚体升高的静脉曲张患者, 整体疗效确切且安全可行。

**【关键词】** 静脉曲张; 泡沫硬化剂; 聚多卡醇; 高位结扎剥脱术; D-二聚体

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## Efficacy of foam sclerosing agent, polidocanol combined with high ligation and stripping of great saphenous vein in treatment of varicose vein patients with elevated D-dimer

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**【Abstract】 Objective** To investigate the efficacy of local injection of foam sclerosing agent, polidocanol, combined with high ligation and stripping of the great saphenous vein and observe the incidence of complications in patients with great saphenous vein varicosity complicated with elevated D-dimer level. **Methods** A retrospective analysis was performed on the clinical data of 838 patients with varicose saphenous veins admitted to the Department of Vascular Surgery of Weifang People's Hospital from March 2020 to February 2021. Then from them, 66 patients with elevated preoperative D-dimer level were selected and assigned into the study group, and another 66 patients with normal D-dimer level preoperatively were subjected into the control group. All of them received high ligation and stripping of the great saphenous vein+varicose vein injection of polidocanol. The therapeutic effect and the occurrence of common phlebitis, superficial thrombophlebitis, deep vein thrombosis and other complications were observed in the two groups after operation. SPSS statistics 19.0 was used to perform the statistical analysis. Student's *t* test or Chi-square test was employed for intergroup comparison depending on different data types. **Results** The CEAP scores [CEAP classification stands for Clinical (C), Etiology (E), Anatomy (A), and Pathology (P)] were compared between before treatment and 1 month after surgery [study group: (2.86 ± 1.02) vs (0.97 ± 1.48) points; control group: (2.80 ± 1.13) vs (0.92 ± 1.49) points], the differences were statistically significant (all  $P < 0.05$ ). But there were no statistical differences in the CEAP scores between the two groups 1 month after surgery ( $P > 0.05$ ), and no significant differences in the incidence of complications between the study group and control group (59.1% vs 53.0%) ( $P > 0.05$ ).

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**Conclusion** Local injection of polidocanol combined with high ligation and stripping of the great saphenous vein is a safe and feasible treatment for varicose veins complicated with elevated D-dimer.

**【Key words】** varicose veins; foam sclerosing agent; polidocanol; high ligation and stripping; D-dimer

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大隐静脉曲张(great saphenous vein varicosity, GSVV)是血管外科常见病,早期表现为下肢下1/3内侧的足靴区浅静脉隆起、迂曲,晚期随病情进展可出现皮肤脱屑、疼痛、色素沉着、皮下组织硬结、湿疹和溃疡形成。传统的治疗方法为大隐静脉高位结扎和曲张静脉剥脱术。随着泡沫硬化剂广泛应用于临床,传统手术联合局部注射硬化剂治疗大隐静脉曲张,变得相对安全且不易复发,但其存在导致表浅血栓性静脉炎及深静脉血栓形成等不良反应<sup>[1,2]</sup>。本研究观察局部注射泡沫硬化剂聚多卡醇联合大隐静脉高位结扎剥脱术对D-二聚体升高的大隐静脉曲张患者的疗效,为聚多卡醇泡沫剂治疗大隐静脉曲张提供一定的数据支持。

## 1 对象与方法

### 1.1 研究对象

回顾性分析2020年3月至2021年2月潍坊市人民医院血管外科收治的838例大隐静脉曲张患者的临床资料,从中筛选66例术前D-二聚体指标升高的患者纳入试验组,筛选66例D-二聚体指标正常的患者纳入对照组。试验组,男41例,女25例;年龄(62.34±6.91)岁;病程(17.50±11.56)年。对照组,男47例,女19例;年龄(59.27±4.97)岁;病程(14.79±9.17)年。2组患者均给予大隐静脉高位结扎并剥脱术+曲张静脉聚多卡醇注射治疗。2组患者一般资料比较,差异无统计学意义( $P>0.05$ ),具有可比性,患者术前均签署知情同意书。

纳入标准:(1)确诊为大隐静脉曲张,患者为双侧肢体静脉曲张者,每次行单侧肢体治疗;(2)CEAP[临床(clinical, C)、病因(etiology, E)、解剖部位(anatomy, A)及病理生理学分类(pathology, P)]分级C2~C6级;(3)年龄>50岁。

排除标准:(1)有聚多卡醇硬化剂使用禁忌证;(2)急性下肢深静脉血栓或肺栓塞;(3)不配合治疗和随访;(4)存在肿瘤、近期创伤<sup>[3]</sup>等因素导致的D-二聚体升高;(5)术前手术区域内已发生表浅静脉血栓及静脉炎。

### 1.2 硬化剂制备及器械

泡沫硬化剂为1%聚多卡醇注射液(安束喜,

H20160033,德国莫比莱特制药有限公司)。泡沫硬化剂制备采用Tessari法<sup>[4]</sup>,即将1支5ml和1支10ml空注射器用三通连接(呈90°),用5ml注射器抽取1%聚多卡醇注射液1ml,10ml注射器抽取空气>8ml,快速交替推抽2个注射器各20次,将二者混合,并将通道尽可能关小,由此形成涡流,产生泡沫。本研究所用大隐静脉剥脱导管(杭州天诚药业有限公司,批号:190901,规格:3H-HVM)及配置方法详见图1。



图1 Tessari法配置泡沫硬化剂

Figure 1 Preparation of sclerosing foam by Tessari method

### 1.3 治疗方法

2组患者均完善常规术前检验及检查,且手术过程、方式及术后处理均相同。术前1d对患者进行顺行深静脉造影,明确深静脉通畅程度、评估大隐静脉具体位置、曲张程度,并排除其他因素。通过静脉造影明确有无髂静脉狭窄、大隐静脉是否通畅(有无血栓)、交通静脉是否通畅(图2)。手术方法如下。取站立位,在皮肤表面标记浅表曲张静脉。取平卧位,在腰硬联合麻醉下,常规消毒铺巾;取患侧腹股沟下方切口,游离大隐静脉并结扎分支;剥脱导管自近端向远端缓慢试探,小分支给予结扎并剪断,取出大隐静脉主干,经剥脱导管注射肿胀液压迫止血;在膝关节处扎橡皮条,使远端静脉充盈<sup>[5]</sup>。头皮针多点穿刺曲张静脉,并根据严重程度注入不同剂量的泡沫硬化剂。沿血流方向给予推挤,使泡沫硬化剂能够充分充盈曲张血管。静置5~10min后,根据硬化程度,给予局部曲张静脉剥脱治疗。

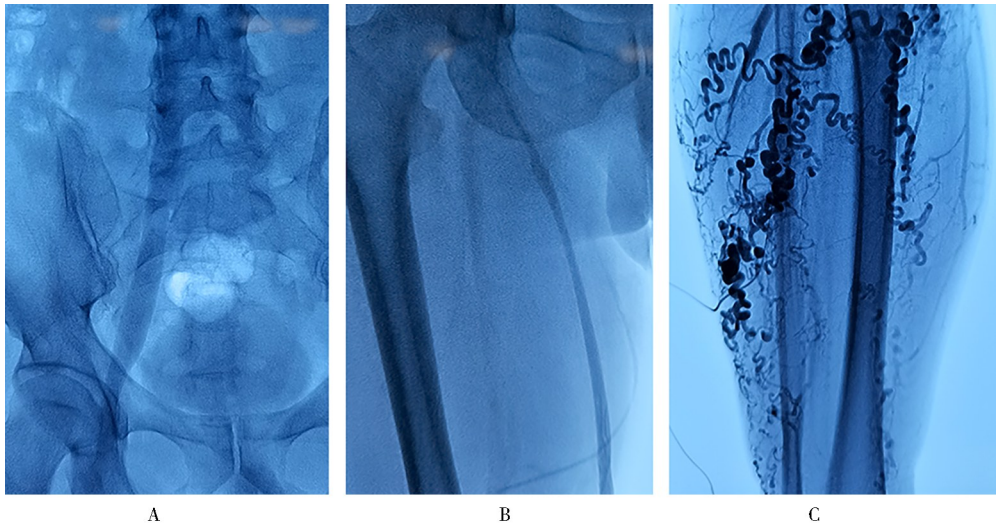


图2 下肢顺行静脉造影

Figure 2 Anterograde venography of lower extremity

A: without iliac vein stenosis; B: great saphenous vein unobstructed without thrombosis; C: development of traffic veins.

手术完毕后,立刻应用弹力绷带进行患肢加压包扎。术后24h给予局部切口消毒换药,继续弹力绷带加压包扎。根据换药时切口情况及是否发生足靴区肿胀、疼麻和患者自我感受,建议患者术后24h内下床活动,并记录下床时间。术后48h内患者可正常活动,术后72h患者无不适反应即可出院。

#### 1.4 观察指标

记录患者基本信息、手术时间、术后下地行走时间等,并记录患者是否需要补充治疗及术后1个月内的随访情况。疗效标准综合2016年中华医学会外科学分会《硬化剂治疗下肢静脉曲张中国专家指导意见》、2020年中国微循环学会周围血管病专业委员会《聚桂醇注射治疗下肢静脉曲张微循环专家共识》及2014年欧洲静脉学会《慢性静脉疾病硬化治疗欧洲指南》<sup>[6,7]</sup>推荐的临床标准制定。(1)显效:临床症状消失或改善,无肉眼可见的静脉曲张或曲张静脉呈不可压缩的条索状物;(2)有效:临床症状消失或改善,原曲张静脉肉眼可见但明显细小或部分不可压缩;(3)无效:临床症状无变化或加重,原曲张静脉增粗或CEAP分级恶化。

#### 1.5 统计学处理

采用SPSS 19.0统计软件进行数据分析。计量资料以均数±标准差( $\bar{x}\pm s$ )表示,组间比较采用 $t$ 检验。计数资料以例数(百分率)表示,组间比较采用 $\chi^2$ 检验。 $P<0.05$ 为差异有统计学意义。

## 2 结果

### 2.1 2组患者手术时间与下床时间比较

试验组手术时间为57~70( $63.5\pm 1.18$ )min,对

照组为45~66( $49.8\pm 1.33$ )min;试验组术后下床时间比较为24~36( $32.5\pm 2.01$ )h,对照组为21~33( $29.2\pm 1.68$ )h,差异均无统计学意义( $P>0.05$ )。

### 2.2 2组患者治疗前后CEAP评分比较

试验组和对照组在进行常规手术治疗和结合硬化剂局部治疗后,CEAP评分均有好转,治疗前与术后1个月CEAP评分比较,差异均有统计学意义( $P<0.05$ );但术后1个月组间CEAP评分比较,差异无统计学意义( $P>0.05$ ;表1)。

表1 2组患者治疗前后CEAP评分情况比较

Table 1 Comparison of CEAP scores between two groups before and after treatment ( $n=66, \bar{x}\pm s$ )

Group	Before treatment	One month after treatment	$t$	$P$ value
Control	$2.80\pm 1.13$	$0.92\pm 1.49$	26.834	$<0.05$
Study	$2.86\pm 1.02$	$0.97\pm 1.48$	21.841	$<0.05$

CEAP: clinical, etiology, anatomy, pathology.

### 2.3 2组患者并发症发生情况比较

2组患者术后1个月内足靴区肿胀、普通静脉炎、表浅血栓性静脉炎及深静脉血栓等硬化剂相关性并发症发生率比较,差异无统计学意义( $P>0.05$ ;表2)。出现相关并发症的患者在经对症治疗(服用抗凝或改善循环药物)后均得到有效缓解。

## 3 讨论

大隐静脉高位结扎加剥脱术结合泡沫硬化剂聚多卡醇局部注射治疗大隐静脉曲张的疗法,已经非常成熟。解读《欧洲静脉学会慢性静脉疾病硬化治

表2 2组患者并发症发生情况比较

Table 2 Comparison of complications between two groups

[n=66, n(%)]

Group	Swelling of boot area	Phlebitis	Thrombophlebitis	DVT	Total
Study	22(33.3)	13(19.7)	3(4.5)	1(1.5)	39(59.1)
Control	18(27.3)	12(18.2)	5(7.6)	0(0.0)	35(53.0)

DVT: deep venous thrombosis.

疗欧洲指南》和2016年中华医学会外科学分会《硬化剂治疗下肢静脉曲张中国专家指导意见》时会发现,局部穿刺浅表曲张静脉,给予泡沫硬化剂治疗,可行且安全<sup>[7]</sup>。但是硬化剂的局部注射存在潜在的并发症风险,如凝血指标处于高凝状态时,硬化剂的局部注射会引起相应的并发症<sup>[8,9]</sup>。

本研究治疗方法参考泡沫硬化剂制备 Tessari 法,但又有所改良。将原方法中2支5ml注射器,更换为1支5ml和1支10ml注射器,抽取聚多卡醇仍然用5ml注射器,聚多卡醇的量保持不变,连接三通并拧紧。将抽空气的注射器改为10ml,抽空气量>8ml,较原方法所抽空气量增加后,使气液更好的交融,增加了泡沫硬化剂的实际接触面积。

综上所述,D-二聚体升高的大隐静脉曲张患者采用泡沫硬化剂聚多卡醇局部注射联合大隐静脉高位结扎并剥脱术治疗,效果与D-二聚体正常的患者效果相当,硬化剂相关性并发症发生率虽较高<sup>[10]</sup>,但对症治疗后均得到有效缓解,且其大大缓解了患者术前的临床症状,可以认为利大于弊,安全可行。

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