

## • 心脏介入 Cardiac intervention •

# 皮下 8 字缝合止血技术在结构性心脏病介入术中的应用

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**【摘要】 目的** 探讨皮下 8 字缝合止血法对结构性心脏病介入术中即刻静脉穿刺点止血的有效性和安全性。**方法** 2010 年 5 月至 2011 年 4 月收治 80 例房间隔缺损和肺动脉瓣球囊扩张患者,行先天性心脏病介入治疗。将患者分为缝合组 39 例和压迫组 41 例。缝合组术后采用皮下 8 字缝合止血法处理股静脉穿刺点,术后制动 2~4 h,24 h 后拆线;压迫组术后人工压迫 5 min,加压包扎,沙袋压迫 6 h,术后制动 12 h。观察两组卧床时间和近期并发症。随访 3 个月,了解有无并发症发生。**结果** 两组患者的临床基线一致。缝合组使用的鞘管平均直径 ( $11.69 \pm 2.75$ ) F,压迫组 ( $12.63 \pm 1.96$ ) F,组间差异无统计学意义 ( $P = 0.081$ )。缝合组右室平均压 ( $25.44 \pm 16.49$ ) mmHg,压迫组 ( $24.51 \pm 12.54$ ) mmHg,组间差异无统计学意义 ( $P = 0.778$ )。术后两组均无出血,无下肢静脉栓塞并发症发生。平均随访 3 个月,穿刺点愈合良好,无股静脉相关并发症发生。**结论** 皮下 8 字缝合即刻止血疗效可靠,无并发症,是一项安全有效的止血技术。

**【关键词】** 心脏病;介入治疗;股静脉;止血

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**The application of subcutaneous “Figure-of-Eight” suture hemostasis technique in interventional treatment of structural congenital heart diseases** ZHOU Yong, CHEN Shao-ping, XU Rong-liang, ZHAO Xian-xian, QIN Yong-wen. Department of Cardiology, Changhai Hospital, Second Military Medical University, Shanghai 200433, China

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**【Abstract】 Objective** To study the short-term and long-term effect as well as the clinical safety of subcutaneous “Figure-of-Eight” sutures used for femoral venous hemostasis at puncturing site in interventional management of structural congenital heart diseases. **Methods** During the period from May 2010 to April 2011, eighty patients with atrial septal defects or pulmonary valve stenosis were admitted to the hospital. Interventional treatment for congenital heart diseases was carried out in all patients. The patients were divided into suture group ( $n = 39$ ) and compression group ( $n = 41$ ). Subcutaneous “Figure-of-Eight” suture technique was employed in the patients of the suture group after cardiac intervention in order to deal with the puncturing point of the femoral vein. The patients were immobilized for 2 - 4 hours after the procedure, and the sutures were removed after 24 hours. Artificial compression lasting for five minutes was used in the patients of compression group, which was followed by compression bandage with sand pocket oppression for 6 hours. The patients were immobilized for 12 hours after the procedure. The bed rest time of each patient in both groups was recorded. Close inspection of any complication was made, and all the patients were followed up for 3 months. **Results** No statistically significant difference in the clinical baseline of relevant characteristics existed between the two groups. The mean sheath diameter used in the treatment was ( $11.69 \pm 2.75$ ) F in the suture group and ( $12.63 \pm 1.96$ ) F in the compression group, the difference between

the two groups was of no statistical significance ( $P = 0.081$ ). The mean right ventricular pressures in the suture group and the compression group were ( $25.44 \pm 16.49$ ) mmHg and ( $24.51 \pm 12.54$ ) mmHg respectively, and

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the difference between the two groups was not statistically significant ( $P = 0.778$ ). After the treatment, neither early bleeding nor late bleeding at the puncture site occurred in both groups, and no venous embolism of lower extremities was seen. During the follow-up period, the puncture point healed well, and no femoral vein related complications occurred. **Conclusion** The subcutaneous “Figure-of-Eight” suture method is a safe and reliable hemostatic technique and it can be effectively used for femoral venous hemostasis after withdrawal of the venous sheath in larger diameter. (J Intervent Radiol, 2012, 21: 984-986)

**【Key words】** heart disease; interventional treatment; femoral vein; hemostasis

临时皮下 8 字缝合技术由 Bagai 等<sup>[1]</sup>首先提出并应用于结构性心脏病术中股静脉止血,初步报道有一定临床优势,但短期及长期随访数据不明。我们选择结构性心脏病介入治疗术中应用较粗鞘管的患者为研究对象,观察其短期及长期疗效和安全性。

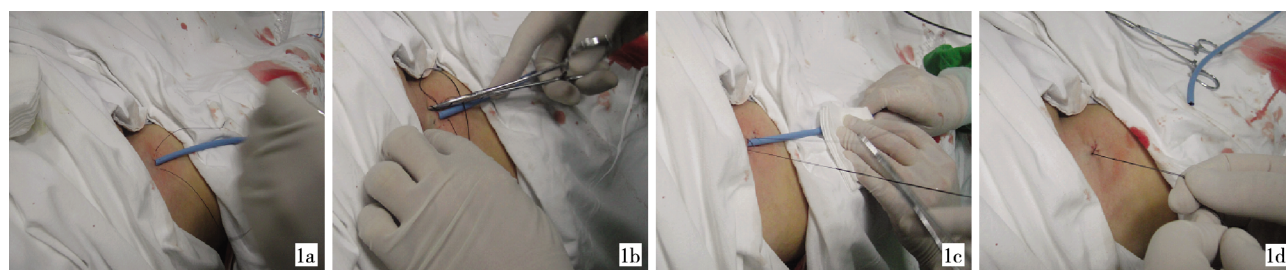
## 1 资料与方法

### 1.1 病例选择

2010 年 5 月至 2011 年 4 月选择符合内科介入适应证,在我科行先天性心脏病介入治疗的房间隔缺损和肺动脉瓣球囊扩张患者 80 例,根据术后股静脉穿刺点的处理不同,分为缝合组 39 例和压迫组 41 例。缝合组患者在介入治疗前签署知情同意书。

### 1.2 操作方法

常规完成房间隔缺损、肺动脉瓣球囊扩张经导管介入后,缝合组在拔出鞘管之前,用针线穿过鞘管下面的皮下软组织进行 8 字缝合,第 1 针在穿刺点下方约 0.5 cm 处进针,第 2 针在皮肤穿刺点上方约 0.5 cm 处进针 (图 1),进针深度为皮下 0.5 cm 左右,正好位于鞘管的正上方,不要穿透鞘管或从鞘管下方穿过,否则会导致静脉损伤。拉紧缝线,退出鞘管,打结,使皮肤形成拉紧的皱褶,起到压迫股静脉的效果,然后无菌纱布覆盖<sup>[1-2]</sup>。术毕制动 2 h 后,可以下床活动。压迫组直接拔出鞘管,压迫穿刺点 15 min 左右,加压包扎,沙袋压迫 6 h,制动 12 h。两组术后 24 h 采用微泵普通肝素抗凝( $10 \text{ u} \cdot \text{kg}^{-1} \cdot \text{h}^{-1}$ ),后改为阿司匹林抗血小板治疗( $5 \text{ mg} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$ )。肺动脉狭窄病例术后服用阿司匹林抗血小板治疗。



1a 在股静脉皮肤穿刺点下 0.5 cm 处缝第 1 针 1b 在穿刺点上方 0.5 cm 缝第 2 针,第 2 针紧贴鞘管上方穿过 1c 拉紧缝线,拔除鞘管 1d 打结,剪线,无菌纱布覆盖

图 1 股静脉 8 字缝合的操作过程

### 1.3 观察指标

住院期间观察患者伤口出血情况、有无血栓并发症及穿刺点愈合情况。术后 3 个月随访,观察有无远期并发症,如深静脉血栓的发生。

### 1.4 统计学处理

使用 SPSS19.0 统计软件进行数据处理,数据均用  $\bar{x} \pm s$  表示,计数资料采用  $\chi^2$  检验,计量资料用  $t$  检验, $P < 0.05$  为差异有统计学意义。

## 2 结果

两组临床基线一致,见表 1。缝合组使用的鞘管直径为( $11.69 \pm 2.75$ )F,压迫组为( $12.63 \pm 1.96$ )F,

组间差异无统计学意义( $P = 0.081$ )。缝合组右心室平均压为( $25.44 \pm 16.49$ )mmHg,压迫组为( $24.51 \pm 12.54$ )mmHg,组间差异无统计学意义( $P = 0.078$ )。缝合组穿刺侧肢体制动 2 h 后即可下床活动,而压迫组制动 12 h 后才下床活动。两组均未发生出血、血栓等并发症,缝合组 1 例住院期间出现股动脉假性动脉瘤,多普勒超声未见明显穿隔血流,经超声探头压迫 1 h 后,假性动脉瘤消失。

缝合组和压迫组常规 3 个月门诊随访,观察穿刺点愈合及并发症情况。股静脉穿刺点愈合良好,腹股沟部位未触及搏动性包块,听诊未闻及杂音,下肢无水肿、胸闷、气急等深静脉血栓并发症证据。

表 1 股静脉穿刺点缝合组和压迫组的临床基线

参数	缝合组	压迫组	P 值
性别(男/女)	19/20	15/26	0.192
年龄(岁)	27.23 ± 18.69	33.54 ± 19.00	0.139
体重(kg)	48.23 ± 20.02	50.34 ± 14.96	0.594
手术方式			0.520
ASD 封堵(例)	35	34	
PS 扩张(例)	4	7	
鞘管直径(F)	11.69 ± 2.75	12.63 ± 1.96	0.081
平均右室压(mmHg)	25.44 ± 16.49	24.51 ± 12.54	0.778

注:ASD = 房间隔缺损;PS = 肺动脉瓣狭窄

### 3 讨论

近年来,随着先天性心脏病介入手术病例的增加,特别是先天性房间隔缺损和成人肺动脉瓣狭窄患者,由于选择大的输送鞘管和应用乳胶尼龙网球囊导管,静脉穿刺点直径相对较大。此外,术中和术后应用肝素抗凝和抗血小板治疗。如穿刺点处理不当,容易发生出血并发症。一般处理方法是手工压迫,由于手工压迫费时、费力,如果压迫时间较短,或较早下床活动,可以发生再出血等并发症<sup>[2]</sup>。有人尝试使用封堵股动脉的装置如 Perclose 和 Angio-Seal 缝合股静脉伤口<sup>[3-7]</sup>,由于此类装置价格昂贵,且出现静脉炎和深静脉血栓等严重并发症<sup>[8]</sup>,而未被广泛采用。

2008 年 Bagai 等<sup>[1]</sup>介绍了采用短暂皮下缝合技术处理股静脉穿刺点,能达到理想的止血效果。静脉鞘管移除前后分别对股静脉进行造影显示,缝合技术通过皮下软组织的压迫使股静脉收缩,而达到持续压迫止血效果,拆线后股静脉超声显示,股静脉恢复到原来直径,未发现血栓形成。

结合我们的经验,在缝合过程中,进针不能太浅,否则达不到皮下组织压迫止血的目的;进针也不能太深,否则损伤股静脉,导致深静脉血栓形成的概率增加。拆线时间可以在手术当天或第 2 天上午,一般在未用抗凝药物者的拆线时间是术后 30 ~ 60 min,如果使用全身抗凝治疗,则在术后 4 ~ 6 h 拆线,有些患者可以延迟到 8 h,对使用 24 F 鞘管者,最好在术后第 2 天拆线。拆线后患者可以下床活动,无需加压包扎,股静脉及皮下无任何植入物残留,且不影响第 2 次手术<sup>[2]</sup>。本研究中缝合组出现 1 例假性动脉瘤,由于 8 字缝合技术是在静脉上方进针,紧贴鞘管,损伤股动脉外膜的可能性不大,其原因可能是穿刺过程中出现的动脉损伤。

目前,这种股静脉止血方法尚未常规引入临床应用,我们的对比研究显示,皮下 8 字缝合技术能有效达到股静脉即刻止血,且止血效果可靠,无并

发症发生,不增加患者的经济负担。这种止血技术,特别适用于不能耐受长期卧床患者介入术后股静脉止血,如儿童及合并心肺功能不全患者。与此同时,我们也将该技术应用于有严重心功能不全患者的深静脉置管止血,因为这些患者静脉压增高,拔除股静脉置管或鞘管时,会出现压迫止血困难,使用皮下 8 字缝合技术,可以达到即刻止血效果,无需长时间压迫。

综上所述,在先天性心脏病介入手术中使用大的静脉鞘管,皮下 8 字缝合止血技术可以安全、有效地达到对股静脉穿刺点即刻止血的效果,并减少患者的绝对卧床时间。

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