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间断切口与长切口获取大隐静脉在冠状动脉旁路移植术中作用的对比研究

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摘要 目的:比较冠状动脉旁路移植术(CABG)中采用间断切口与长切口获取大隐静脉作为静脉桥材料的优缺点。**方法:**选择 2011 年 12 月至 2012 年 12 月宁夏医科大学总医院心脏大血管外科 111 例行 CABG 的冠状动脉粥样硬化性心脏病患者为研究对象。根据术中获取大隐静脉方法的不同,随机将其分为两组,长切口组 64 例,在 CABG 中采用长切口法获取大隐静脉,间断切口组 47 例,在 CABG 中采用间断切口法获取大隐静脉。比较两组大隐静脉获取时间、下肢切口缝合时间、下肢手术时间、大隐静脉桥长度、下肢切口长度和下肢切口并发症发生率的差异。**结果:**间断切口组大隐静脉桥长度及下肢手术时间 (45.4± 6.7) cm, (65.8± 10.3) min 与长切口组(47.5± 6.7) cm, (65.8± 10.3) min 比较无统计学差异(P＞0.05)。间断切口组获取大隐静脉的时间 (48.9± 8.3) min 显著长于长切口组(37.3± 5.8) min,下肢切口长度与缝合时间 (17.0± 3.5) cm, (16.9± 3.4) min 明显短于长切口组的(43.5± 6.4) min, (31.7± 5.9) min,差异均有统计学意义(P＜0.05)。两组大隐静脉壁的损伤情况比较无统计学差异(P＞0.05),但间断切口组术后下肢切口延迟愈合、感染、渗出、下肢血肿等并发症的发生率低于长切口组(P＜0.05)。**结论:**在冠状动脉旁路移植术中,间断切口获取大隐静脉能够显著缩短下肢手术切口长度,有助于减少术后下肢切口感染、延迟愈合、渗出、下肢血肿等并发症的发生。

关键词:冠状动脉旁路移植术;大隐静脉;间断切口;长切口

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Comparative Study on the effect of Intermittent Incision and Long Incision for Great Saphenous Vein Harvesting in the Coronary Artery Bypass Graft Surgery

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ABSTRACT Objective: To compare the advantages and disadvantages of intermittent incision and long incision to harvest great saphenous vein (GSV) as vein bridge material in the coronary artery bypass graft (CABG) surgery. **Methods:** From December 2011 to December 2012, 111 cases of coronary atherosclerotic heart disease patients underwent CABG were divided into two groups according to the intermittent incision and long incision for achieving GSV. The GSV harvesting time, lower limbs suture time, lower limbs operation time, incision length, GSV length, quality of GSV and incision complications Were compared. **Results:** No statistical difference of GSV length, lower limb surgery time between incision group (45.4± 6.7)cm,(65.8± 10.3)min and long incision group (47.5± 6.7)cm,(65.8± 10.3)min was found,(P>0.05). The GSV harvesting time of intermittent incision group (48.9± 8.3)min was significantly longer than that in the long incision group (48.9± 8.3)min, However, the incision length and suture time of intermittent incision group (17.0± 3.5)cm, (16.9± 3.4)min were both significantly shorter than those in the long incision group (43.5± 6.4)min, (31.7± 5.9)min, (P<0.05). There was no statistical difference in the number of injured GSV between the two groups,(P＞0.05). The complication rate of the long incision group was higher than that in the intermittent incision group (P＜0.05). **Conclusion:** In the CABG, Intermittent incision harvesting GSV could shorten the lower limb incision length, reduce postoperative Complication rate, such as lower limb incision infection, delayed healing, seepage, or ower limb hematoma.

Key words: Coronary artery by pass grafting; Great saphenous vein; Intermittent Incision; Long Incision

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前言

大隐静脉(great saphenous vein,GSV)是冠状动脉旁路移植术(coronary artery bypass grafting, CABG)中最经典的血管桥材料,具有位置表浅、取材方便、管腔较粗易于吻合及长度可根据需要选取等优点[1-3]。目前获取 GSV 的方式主要有长切口法、间断切口法和内镜法三种。长切口法获取 GSV 暴露充分,操作简单,相对减少了对静脉桥的牵拉造成的损伤,但切口长、创面广泛,术后腿部切口感染、延迟愈合等并发症发生率较高,尤其是肥胖或合并糖尿病的患者,影响患者术后早期功能锻炼及生活质量[4]。内镜静脉采集系统价格昂贵,操作对术者技术要求较高,需要学习曲线,限制了其在临床的广泛应用[5,6]。我科对 47 例行 CABG 的冠心病患者采用间断切口法获取 GSV，未采用复杂器械,明显缩短了手术切口,达到美容目的,并减少了术后腿部切口并发症的发生,减轻了患者经济负担,取得了较好的临床效果。本研究旨在比较冠状动脉旁路移植术(CABG)中采用间断切口与长切口获取大隐静脉作为静脉桥材料的优缺点。

1 材料与方法

1.1 临床资料和分组

选择 2011 年 12 月至 2012 年 12 月宁夏医科大学总医院心脏大血管外科行 CABG 术的患者 111 例为研究对象。术前均行冠状动脉造影明确诊断为冠心病,有 CABG 指征[1,2]。入选患者均无大隐静脉曲张、下肢皮肤破溃等。随机将患者分为长切口组和间断切口组获取大隐静脉。两组患者的术前资料比较无统计学差异(P＞0.05),见表 1。

表 1 两组患者的术前资料比较

Table 1 Comparison of the preoperative data between two groups

Preoperative data	Long incision group	Intermittent incision group	P value
Cases	64	47	
Gender(cases)			0.122
Male	54	34	
Female	10	13	
Age(years)	59.9± 7.4	60.2± 9.0	0.774
BMI	25.1± 2.9	24.9± 3.0	0.780
Diabetes(cases)	34	31	0.175

1.2 手术方法

根据术前冠状动脉造影结果、术中探查心脏大小和冠状动脉的实际情况决定静脉桥支数及所需长度。

长切口组: 自内踝前上方约 1 cm 处纵行切开皮肤 3-4 cm,找到 GSV 主干，沿走行方向切开皮肤至所需长度。仔细分离 GSV,分离过程中结扎并切断侧枝,侧枝残端距 GSV 主干至少 5 mm。

间断切口组：自内踝前上方约 1 cm 处纵行切开皮肤 3-4 cm,找到 GSV,组织牵开器牵开切口,游离切口内 GSV,眼睑拉钩牵拉切口近端，组织剪于皮下脂肪组织中沿 GSV 走行向近端钝性分离至距前一切口 5-7 cm 形成皮肤隧道，剪刀头于皮下挑起隧道近端皮肤,纵行切开剪刀头处皮肤 2-4 cm,切口两端拉钩牵拉协助暴露,仔细分离两切口间皮肤隧道内 GSV,结扎并切断侧枝。如此反复至所需长度,逐步取出 GSV。术中尽可能保证膝关节处皮肤完整。

两种方法取出 GSV 后，均在其远端插入钝头针并结扎固定,注入肝素盐水,使其轻度扩张并检查有无漏血,静脉壁损伤用 7-0 Prolene 线缝合,浸泡于肝素盐水中备用。用 2-0、3-0 薇乔可吸收线(强生)连续缝合皮下组织,4-0 薇乔可吸收线(强生)皮内缝合皮肤切口,弹力绷带加压包扎。

1.3 检测指标

记录两组患者 GSV 桥长度、下肢切口总长度、获取 GSV 时间、下肢切口缝合时间。两组患者术后均带气管插管转入心脏外科监护室监护治疗,维持内环境稳定。对于合并糖尿病患者,严格控制血糖在 <180 mg/dL[7]。常规应用抗生素至术后 2 天。弹力绷带加压包扎 24-48 h,抬高下肢,密切观察下肢血运及切口愈合情况，常规换药。出现切口延迟愈合或切口感染，12-24 h 换药一次，同时延长抗生素应用时间或根据药敏结果选用敏感抗生素。

1.4 统计学分析

所有数据统一录入 SPSS 17.0 统计软件进行数据分析，计量资料以均数± 标准差($\bar{x}$± s)表示,检验正态性及方差齐性,满足条件采用两样本 t 检验,否则采用秩和检验;计数资料采用卡方检验,以 P<0.05 为差异有统计学意义。

2 结果

两组大隐静脉桥长度、下肢手术时间、GSV 壁损伤百分率比较均无统计学差异(P＞0.05)。间断切口组获取 GSV 时间显著长于全程切开组,但下肢切口长度与缝合时间明显缩短(P＜0.05)。间断切口组术后下肢出现切口感染、渗出、下肢血肿、延迟愈合等并发症的发生率显著低于长切口组(P<0.05),见表 2。

3 讨论

GSV 是 CABG 中最经典的血管桥材料,具有位置表浅、获取方便、管腔较粗易于吻合和长度可根据需要截取等优点。长切口法获取 GSV 是应用时间最长的手术方式，优点是暴露充分,操作简单,相对减少了对静脉桥的牵拉造成的损伤,但腿部伤口容易出现皮下血肿、切口延迟愈合、渗出、疼痛和大隐神经

表 2 两组患者术中及术后资料的比较

Table 2 Comparison of the intraoperative and postoperative data between two groups

Intraoperative and postoperative data	Long incision group	Intermittent incision group	P
GSV harvesting time(min)	37.3± 5.8	48.9± 8.3	0.000
Lower limbs suture time(min)	31.7± 5.9	16.9± 3.4	0.000
Lower limbs operation time(min)	69.1± 10.7	65.8± 10.3	0.117
GSV length(cm)	47.5± 6.7	45.4± 6.7	0.110
Incision length(cm)	43.5± 6.4	17.0± 3.5	0.000
Injured GSV(cases)	1	3	0.406
Incidence of injured GSV	1.56%	6.38%	
Incision complications(cases)	12	2	0.047
Incidence of incision complications	18.75%	4.25%	
Infection	2	1	
Delayed healing	5	0	
Seepage	4	0	
Hematoma	0	1	

损伤等并发症,尤其是合并糖尿病、肥胖、全身营养不良的患者。膝关节处皮肤活动度大,长切口经过膝关节时,术后较易发生伤口感染和疼痛,影响关节早期活动,影响患者术后早期恢复和生活质量。内镜辅助下获取大隐静脉的技术日趋成熟,避免了大范围的创面,减少术后并发症的发生率[8]。但有研究认为电镜下操作及电刀的热损伤可能导致 GSV 损伤, 影响静脉桥血管远期通畅率[9]。应用 CO_2 的内镜可增加 CO_2 的潴留,导致高碳酸血症、酸中毒及气栓发生[10]。此外,内窥镜静脉采集系统价格昂贵,操作对术者技术要求较高,需要学习曲线,也限制了其在临床的广泛应用[5,6]。

本组资料显示,间断切口组下肢切口长度及缝合时间明显短于长切口组。由于皮肤隧道内 GSV 及其分支不易显露、操作不便,获取 GSV 的时间较长,但是两者下肢手术时间无明显差别,因此并不影响 CABG 整体手术时间。间断切口组术后腿部并发症的发生率明显低于长切口组。间断切口获取 GSV 相邻切口之间有正常皮肤阻隔,减少皮下组织暴露,利于切口愈合。即使某个切口发生感染、裂开、渗液等问题, 也局限于某个切口,不易像长切口那样累及整个下肢切口。间断切口获取 GSV 能够保持膝关节处皮肤完整,可减少膝关节活动对切口愈合的影响,有利于患者早期功能锻炼,提高生活质量。

间断切口法获取 GSV, 手术者必须熟悉 GSV 的解剖走行,可避免多余切口,并缩短手术时间,必要时可借助超声定位[11]。两切口之间的 GSV 显露较困难,使用常规器械相对操作不便, 容易损伤静脉。本组有 3 例患者出现静脉壁损伤, 用 7-0 Prolene 线缝合后未影响 CABG 术,据文献报道,不影响桥血管远期通畅率[12]。但这一现象均发生在早期,操作技术熟练后未再出现静脉壁损伤,加用头灯及喉镜可增强术区照明,协助显露[13]。也有研究报道,在静脉干两侧 5-6 mm 处锐性游离组织,远端不处理,术后加压包扎,不加重术后皮下淤血[14]。大隐静脉分支较多,尤其是膝关节处,应尽量找到分支并结扎,侧枝残端距 GSV 主干至少 5 mm。大隐静脉分支显示不清时,可于 GSV 近端夹闭静脉,自远端注入肝素盐水,协助暴露分支。有文献报道,静脉剥离器可确认静脉走行方向和静脉侧支,并且能够协助剥离附着在血管上的筋膜[15],术中应动作轻柔,避免对 GSV 的过度牵拉、钳夹等造成血管内膜损伤而影响静脉桥使用寿命。小腿处隐神经与 GSV 距离较近,术中小心分离,避免损伤,否则术后出现皮肤麻木,并且皮肤失神经后愈合更困难。此外,冠状动脉旁路移植术需全身肝素化, 皮肤隧道内创面无法缝合,故术后创面应当彻底止血,尤其是皮肤隧道内创面,缝合之前挤除隧道内积血,术后弹力绷带加压包扎 24-48h,以减少创面渗血,避免下肢血肿形成。

总之, 采用间断切口法获取 GSV 的远期通畅率与长切口法无明显差别[16],无需采用复杂器械,对手术技术要求不高,不增加患者手术费用,且显著降低术后患者下肢切口并发症的发生率,有利于患者术后早期恢复,是一种较为实用的大隐静脉获取方法,值得临床深入研究。

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