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直切口与横 S 形切口治疗髌骨骨折对术后瘢痕形成及关节功能的影响比较 *

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摘要 目的: 观察和比较直切口与横 S 形切口治疗髌骨骨折对术后瘢痕形成及关节功能的影响。**方法:** 回顾性分析 2014 年 3 月~2016 年 9 月 85 例髌骨骨折患者的临床资料, 包括采取手术直切口 40 例与采取手术横 S 形切口 45 例, 比较两组的切口长度、手术时间、术后并发症以及随访时的瘢痕形成比例和 Bostman 关节功能评分。**结果:** 两组的手术时间、术后切口感染及切口皮肤坏死发生率比较差异均无统计学意义($P>0.05$), 但横 S 形切口组的切口长度为 127.79 ± 5.55 , 明显长于直切口组的 72.64 ± 6.75 ($P<0.05$); 横 S 形切口组的术后局部麻木发生率为 24.4%, 明显高于直切口组的 7.5% ($P<0.05$); 术后随访 12 周时, 横 S 形切口组的 Bostman 评分为 20.63 ± 5.73 , 明显低于直切口组的 26.83 ± 4.76 ($P<0.05$); 随访 24 周时, 两组的 Bostman 评分比较差异无统计学意义($P>0.05$)。横 S 形切口组的瘢痕形成发生率为 33.3%, 明显高于直切口组的 17.5% ($P<0.05$)。**结论:** 直切口用于治疗髌骨骨折的创伤明显小于横 S 形切口, 术后瘢痕形成更少, 关节功能恢复更快, 但横 S 形切口的显露更好, 在临床实际中应根据髌骨骨折患者的具体情况合理抉择手术切口方式。

关键词: 髌骨骨折; 直切口; 横 S 形切口; 瘢痕形成; 关节功能

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Comparison of the Effects of Straight and Transverse S Incision on the Postoperative Scar Formation and Joint Function of patients with Patellar Fracture*

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ABSTRACT Objective: To compare the effects of straight and transverse S incision on the postoperative scar formation and joint function of patients with patellar fracture. **Methods:** The clinical data of 85 cases of patients with patellar fracture from March 2014 to September 2016 were retrospectively analyzed, 40 cases were treated with surgical straight incision and 45 cases were treated with S transverse incision. The incision length, operation time, incidence of postoperative complications, the ratio of scar formation and Bostman joint function score were compared between the two groups. **Results:** There was no significant difference in the operation time, incision infection and incision skin necrosis between two groups ($P>0.05$). However, the incision length of transverse S incision group (127.79 ± 5.55) was significantly longer than that of the straight incision group (72.64 ± 6.75 , $P<0.05$), and the incidence of postoperative numbness in transverse S incision group (24.4%) was significantly higher than that in the straight incision group (7.5%, $P<0.05$). After follow-up for 12 weeks, the Bostman score of transverse S incision group (20.63 ± 5.73) was significantly lower than that of the straight incision group (26.83 ± 4.76 , $P<0.05$), and after follow-up for 24 weeks, the Bostman scores between the two groups showed no significant difference ($P>0.05$). The incidence of scar formation in transverse S incision group (33.3%) was significantly higher than that of the straight incision group (17.5%, $P<0.05$). **Conclusions:** The trauma of straight incision was significantly smaller than that of the transverse S shaped incision, so the scar formation was less and the joint function recovered faster. However, the transverse S shape incision was better, and in clinical practice should according to the specific situation of the patients with patellar fracture to choose the surgical incision.

Key words: Patellar fracture; Straight incision; Transverse S incision; Postoperative scar formation; Joint function

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前言

髌骨骨折在临床上的发生率较高,大约占人体全部骨折的1%左右^[1,2]。按国外 Bostrom 的观点,骨折分离程度限于3~4mm 以及关节面不平程度限于2~3 mm 可采取保守治疗,但对超过这个限度的情况则需要接受手术治疗^[3,4]。随着生活水平的提高,越来越多的青年女性患者对术后关节功能有要求,同时对减少切口瘢痕有较高期望。髌骨骨折手术治疗不应以单纯日后行关节置换选择直切口,应考虑功能恢复来选择合适的切口形式以最大限度的降低创伤性膝关节炎的发生。

切口的选择需要满足显露充分、方便操作的要求。手术切口的形式多样,以横 S 形切口相对流行,但其切口较长,切口愈合后的瘢痕较长。过去研究多认为前正中直切口(简称直切口)影响关节功能,因而对其介绍不多^[5],但直切口便于延长,且切口较小,愈合后瘢痕较短,若患者以后需关节置换也比较方便,近年其独特优势逐渐被放大^[6,7],故在临床上的应用也越来越多。但目前对其与横 S 形切口的优缺点尚缺乏全面的评价^[8,9]。本研究以回顾性分析的方式比较直切口与横 S 形切口治疗髌骨骨折对术后瘢痕形成及关节功能的影响,报道如下。

1 对象与方法

1.1 研究对象

选择 2014 年 3 月~2016 年 9 月 85 例单纯髌骨骨折患者,均具有手术指征且为新鲜骨折,排除骨折前即存在严重骨性关节炎、关节畸形等患者,包括男 49 例,女 36 例,年龄 18~78 岁,平均 43.6±8.5 岁,骨折部位:左侧骨折 43 例,右侧 42 例;骨折类型:横断骨折 30 例,粉碎性骨折 55 例;手术切口:直切口 40 例,横 S 形切口 45 例。

1.2 方法

采用连续硬膜外麻醉或腰麻,取仰卧位,直切口患者由髌骨上缘 1 cm 始纵向作切口至髌骨下缘 1 cm 处,横 S 形切口患者由髌骨外上缘 1 cm 处始作切口至髌骨中段弧形转至内侧达到髌骨内缘再弧形转下到达髌骨内下缘 1 cm 处。逐层切开,游离皮瓣使髌骨显露,清除血块、冲洗关节腔,注意保护骨折碎片与周围软组织的关系,以防影响骨折血供并便于骨折复位。复位,将髌前筋膜用丝线临时缝合,在 C 臂机透视下确保复位满意,然后酌情选择 AO 张力带钢丝、钢丝环扎+纵 U 形钢丝固定、镍钛记忆合金聚簇器固定等方法进行固定。被动活动膝关节检验是否固定稳妥,然后将扩张部裂口缝合,逐层关闭后加压包扎。

1.3 观察指标

术中记录切口长度、手术时间,观察术后并发症;术后随访观察瘢痕形成情况,并在术后 12 周、24 周时评估膝关节功能恢复情况,采用改良 Bostman 标准^[10],评估内容包括膝关节活动范围、上下楼梯、疼痛、萎缩、打软、渗出、助行、工作等,分为优(28~30 分)、良(20~27 分)、差(0~20 分)3 个等级。

1.4 统计学方法

采用 SPSS18.0 统计软件分析处理数据,计数资料以率表示,行 χ^2 检验;计量资料以 $\bar{x} \pm s$ 表示,行 t 检验,以 $P < 0.05$ 表示差异有统计学意义。

2 结果

2.1 两组切口长度、手术时间及术后并发症发生情况的比较

两组的手术时间、术后切口感染及切口皮肤坏死发生率比较差异无统计学意义($P > 0.05$),但横 S 形切口组的切口长度明显加长($P < 0.05$),术后局部麻木发生率明显提高($P < 0.05$),见表 1。

表 1 两组切口长度、手术时间及术后并发症的比较

Table 1 The comparison of incision length, operation time and postoperative complications between two groups

Groups	Cases	Incision length(cm)	Operation time (min)	Complications[n(%)]		
				Incision infection	Mono-anesthesia	Incision skin necrosis
Straight incision group	40	72.64±6.75	41.51±7.51	1(2.5)	3(7.5)	0(0.0)
Transverse S incision group	45	127.79±5.55	42.33±6.33	2(4.4)	11(24.4)	1(2.2)
P		0.000	0.309	0.941	0.000	0.694

2.2 两组术后随访瘢痕形成及关节功能恢复情况比较

术后随访 12 周时,横 S 形切口组的 Bostman 评分明显低于直切口组($P < 0.05$);随访 24 周时两组的 Bostman 评分无明

显差异($P > 0.05$)。横 S 形切口组的瘢痕形成发生率较直切口组明显提高($P < 0.05$),见表 2。

表 2 两组术后瘢痕形成及关节功能恢复情况比较

Table 2 The comparison of scar formation and recovery of joint function between two groups post-operation

Groups	Cases	Scar formation[n(%)]	Bostmanscore	
			12 weeks of post-operation	24 weeks of post-operation
Straight incision group	40	7(17.5)	26.83±4.76	28.60±5.64
Transverse S incision group	45	15(33.3)	20.63±5.73	27.27±5.44
P		0.000	0.000	0.258

3 讨论

临床上都是以追求用最小创伤、最小生理干扰达到最好的效果来决定手术切口的,在满足充分显露、方便操作而又不会增加组织损伤的要求下,尽可能减小切口长度,减少形成瘢痕增生,在促进患者术后恢复的同时尽量满足患者的美观需求^[11,12]。

髌骨骨折为关节内骨折,外科治疗上重点以恢复关节面平整,达到解剖复位为目的,所以首先应考虑的因素便是显露问题^[13,14],切口越大,显露越好。横 S 形切口的长度一般比直切口长,显露更充分,尤其是体现在对髌骨两侧的显露,有利于从髌骨两侧探查严重粉碎性骨折的复位情况^[15,16]。但目前借助于 C 臂机,很多情况下都不必从髌骨两侧探查复位情况,通常仅需显露髌骨上下极就能进行手术操作^[17,18]。直切口的长度缩短,但从本研究结果看并不影响手术过程。

膝前血管神经多为纵行走行,横切口容易造成结构损害,而且还可能导致膝降动脉网损伤而影响髌骨的血供。另外,隐神经髌下支分为上下两支横跨髌韧带向外走行,比较固定,分布于膝关节外侧,同时伴行膝降动脉髌下支,横切口容易造成该神经损害,从而引发局部麻木、皮肤缺血坏死等并发症^[19]。而直切口可以明显减少对膝降动脉和隐神经的髌下支的伤害,降低并发症^[20]。本研究中,横 S 形切口组的局部麻木发生率明显增加,与横 S 形切口伤害隐神经髌下支不无关系。顾翔等^[21]也赞同与膝前直切口相比,横 S 形切口更容易伤害该神经。

横 S 形切口切开的组织多,创伤大,对髌前血管的破坏明显,并且屈膝时关节活动的方向垂直于横切口方向,会使切口受到明显的牵拉^[22,23],所以术后早期膝关节功能锻炼时疼痛明显,会影响早期功能锻炼^[24]。而复位、固定、功能锻炼是骨折治疗的核心^[25]。直切口的方向与肢肌纤维走行一致,所以伸屈时张力小,利于早期功能锻炼^[26,27]。本研究中,术后随访 12 周时,直切口组的 Bostman 评分明显高于横 S 形切口组,但两组随访 24 周时的 Bostman 评分无明显差异,说明两种切口的选用并不会影响髌骨骨折的远期疗效,但直切口利于术后早期锻炼,康复更快。

切口长度与张力大小是形成瘢痕增生的两个决定性因素^[28]。横 S 形切口的长度比直切口长,而且屈膝时张力大,自然而然其出现瘢痕形成的可能性更高^[29]。此外,直切口还有另一个优点,即患者以后如果进行关节置换,则可直接利用原来的直切口,大大减少了对局部血液循环的影响和切口感染等并发症^[30]。但是值得一提的是,髌骨骨折易伴发创伤性膝关节炎,所以在手术切口取决的同时要考虑到尽可能减少创伤性膝关节炎的发生,故不应单纯为将来关节置换之便而采取直切口^[15];此外,对于开放性伤口以及无 C 臂机之利的情况,不宜采取直切口^[15,18],此时应选择显露更完全、方便关节面探查的横 S 形切口。

直切口用于治疗髌骨骨折的创伤明显小于横 S 形切口,术后瘢痕形成更少,关节功能恢复更快,但横 S 形切口的显露更好。因此,在临床实际中应根据髌骨骨折患者的具体情况合理抉择手术切口方式。

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