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膝关节镜辅助微创手术治疗复杂性胫骨平台骨折的疗效分析

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摘要 目的：探讨膝关节镜辅助微创手术治疗复杂性胫骨平台骨折的疗效。**方法**：搜集 2013 年 2 月 -2015 年 1 月期间我院收治的确诊为复杂性胫骨平台骨折患者 104 例，按照随机数字表法分为微创组和对照组，每组各 52 例。对照组采用传统切开复位钢板内固定术治疗，微创组采用膝关节镜辅助微创手术治疗；观察两组患者临床各项指标、膝关节功能 HSS 评分以及术后并发症发生率。**结果**：术后微创组下床活动时间、完全负重下地时间和骨折愈合时间显著低于对照组(P＜0.05)；三个月后的关节活动度、一年后的膝关节功能优良率显著高于对照组(P＜0.05)；术后微创组并发症发生率为 9.62%(5/52)，显著低于对照组的 23.08%(12/52)，差异具有统计学意义(P＜0.05)。**结论**：膝关节镜辅助微创手术治疗复杂性胫骨平台骨折，临床疗效显著，术后膝关节功能恢复好，并发症发生率低，值得临床推广应用。

关键词：膝关节镜；微创手术；胫骨平台骨折；疗效

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Treatment Efficacy of Complicacy Tibial Plateau Fractures Under the Arthroscopic Assisted Minimally Invasive Surgery

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ABSTRACT Objective: To explore the treatment efficacy of complicacy tibial plateau fractures under the arthroscopic assisted minimally invasive surgery. **Methods:** 104 cases of patients with complex tibial plateau fracture who were treated in our hospital from February 2013 to January 2015 were Selected, and divided into minimally invasive group and control group according to the random number table method, each group of 52 cases. The control group was treated with conventional open reduction and internal fixation with plate fixation, the minimally invasive treatment group was treated with arthroscopic assisted minimally invasive surgery; The clinical indicators, knee function HSS score and the incidence rate of postoperative complications were observed in the two groups. **Results:** After the operation, the exercise time leaving bed, total weight bearing time, fracture healing time of the minimally invasive treatment group were significantly lower than those in the control group (P<0.05); Three months after the joint activity, the excellent and good rate of the knee function after 1 year of the minimally invasive treatment group was significantly higher than the control group (P<0.05); The incidence of postoperative complications of minimally invasive group was 9.62%(5/52), significantly lower than that of the control group 23.08%(12/52), the difference was statistically significant (P<0.05). **Conclusion:** The clinical efficacy of minimally invasive surgery by mirror auxiliary for treatment of tibial plateau fractures has significantly clinical curative effect, less complications and good recovery of knee joint function, it is worthy of clinical application.

Key words: Knee arthroscopy; Minimally invasive surgery; Tibial plateau fractures; Effect

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前言

胫骨平台骨折是常见的关节内骨折，其临床表现复杂，多伴有膝关节肿胀疼痛、活动障碍等现象，同时还会造成血管神经、软组织、交叉韧带甚至半月板损伤，给患者行走、日常生活带来极大不便[1]。由于该型骨折临床治疗难度大，传统切开复位钢板内固定治疗无法达到修补关节腔内合并损伤缺陷而最大限度地恢复关节功能的目的，所以目前临床上多选用膝关节镜辅助微创手术[2]。膝关节镜辅助微创手术，不但能够对关节附近的血凝快和骨碎片进行彻底清除，降低手术感染，而且可以正确选择钢板及拉力螺钉的安置位置，保障进入的方向，并及时修复胫骨平整；膝关节镜辅助下微创手术，最重要的是能减少伤口愈合时间，缓解病人的苦楚。

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1 资料与方法

1.1 临床资料

搜集 2013 年 2 月 -2015 年 1 月期间我院收治的确诊为复杂性胫骨平台骨折患者 104 例。纳入标准：(1)均经临床影像学检查确诊；(2)患者均经 X 线或 CT 证实；(3)均为初次发生膝关节骨折；(4)具有外科手术的体征；(5)所有患者的资料完整，能够正常交流、具有阅读以及正常沟通能力；(6)知情同意并经医

学伦理协会通过。排除标准:(1)患者有外科手术禁忌症,椎管内麻醉禁忌症;(2)患者有心肝肾等重要脏腑功能障碍,以及其他影响外科手疗效的疾病;(3)妊娠或哺乳期女性患者;(4)不能和医务人员正常交流沟通者。按照随机数字表法分为微创组与对照组,每组各 52 例。其中微创组男 27 例,女 25 例,年龄 11-57 岁,平均(33.64± 11.56)岁,以骨折的 X 线表现按照 Schatzker 分型[3]:I 型 16 例,II 型 21 例,III 型 15 例;对照组男 28 例,女 24 例,年龄 13-53 岁,平均(32.42± 12.67)岁,Schatzker 分型: I 型 16 例,II 型 20 例,III 型 16 例。两组临床基本资料对比无统计学差异(P>0.05),具有可比性。

1.2 手术方法

微创组使用膝关节镜辅助微创手术治疗,具体方法如下:手术采用连续硬膜外或腰硬联合麻醉,取膝前内外侧膝关节镜标准入路,生理盐水冲洗、清除关节内积血、血凝块及游离体。整个关节腔按照关节镜的顺序依次检查,观察有无游离碎骨块,前后交叉韧带和半月板是否有损伤,胫骨平台关节面损伤的程度、面积以及位置,平台后外侧探查要重要注意,确认是否为后外侧胫骨平台骨折。后外侧胫骨平台骨折观察清楚后,采用气压止血带进行止血,寻找塌陷的胫骨平台,再根据胫骨骨折的程度取骨折同侧的小切口,同时要显露胫骨关节囊附着处以下的骨折部分[4]。在膝关节镜监视下锈击、撬拨骨折移位处,使塌陷移位的骨折块复位,恢复关节面的平整性、一致性,术中后骨折复位用 C 臂 X 线机透视确定,用克氏针临床固定植骨,至于固定材料的选择要根据骨折情况,临床上多是胫骨上端解剖或高尔夫钢板,或松质骨螺钉等,再次用 C 臂 X 线机透视,确定关节面恢复平整,骨折复位满意后,根据患者情况在关节腔内放置引流。对照组采用传统的有限切开复位钢板内固定术治疗,采用胫骨近端前外侧纵形切口,其余操作同观察组患者。两组患者手术完毕后,均关闭手术切口,常规抗生素预防感染治疗,定期复查,指导患者逐步进行功能锻炼和膝关节主动屈伸锻炼,以及负重行走锻炼。

1.3 观察指标

所有患者术后均进行 10-18 个月随访,观察指标包括:(1)术后下床活动时间、完全负重下地时间以及骨折愈合时间,三个月后检测两组患者关节活动度。(2)术后一年进行美国特种外科医院(Hospital for Special Surgery,HSS)膝关节评分[5],评价两组患者治疗后膝关节功能。HSS 评分包括疼痛、功能、活动度、肌力、屈曲畸形、稳定性等方面,得分≥ 85 分为优;70-84 分为良;60-69 分为中;<60 分则为差,总分 100 分,分值越高,表示膝关节功能越佳。(3)随访观察 18 个月,记录两组患者术后并发症发生率:观察两组患者术后伤口软组织感染、膝关节僵直、骨折畸形愈合以及创伤性关节炎等情况。

1.4 统计学方法

SPSS 13.0 对所涉及数据录入分析,计量资料用 t 检验,以均数± 标准差($\bar{x}$± s)表示;计数资料用 X^2 检验,以百分率表示,P<0.05 为差异有统计学意义。

2 结果

2.1 两组术后临床指标比较

微创组手术后的下床活动时间、完全负重下地时间和骨折愈合时间均显著低于对照组,存在显著差异(P<0.05);三个月后对关节活动度进行随访,微创组的关节活动度显著高于对照组,存在显著差异(P<0.05),详见表 1。

表 1 两组术后临床指标比较($\bar{x}$± s)

Table 1 Comparison of clinical index in two groups after operation ($\bar{x}$± s)

Groups	n	Exercise time leaving bed (d)	Weight bearing time (d)	Fracture healing time (d)	Joint range of motion (°)
Minimally invasive group	52	3.21± 1.32	81.53± 11.44	101.42± 21.63	115.83± 23.44
Control group	52	5.54± 1.71	96.21± 13.62	135.71± 28.13	91.64± 27.44
X^2		7.125	9.136	11.256	13.156
P		0.038	0.017	0.011	0.007

2.2 两组患者膝关节功能比较

术后 1 年随访观察,微创组膝关节功能优良率为 94.23%(49/52),显著高于对照组的 76.92%(40/52),存在显著差异(P<0.05),详见表 2。

表 2 两组患者膝关节功能比较 [n(%)]

Table 2 Comparison of knee joint function in two groups [n(%)]

Groups	n	Excellent	Good	Medium	Dad	Excellent and good rate
Minimally invasive group	52	33(63.46)	16(30.77)	3(5.77)	0(0)	49(94.23)
Control group	52	22(42.31)	18(34.62)	11(21.15)	1(1.92)	40(76.92)

Note: compared with control group, x^2=10.718, P<0.05.

2.3 两组术后并发症发生率对比

进行 18 个月随访,微创组术后出现伤口软组织感染 2 例、骨折畸形愈合 1 例、创伤性关节炎 2 例,并发症发生率为 9.62%(5/52);对照组术后出现伤口软组织感染 4 例、膝关节僵直 2 例、骨折畸形愈合 3 例、创伤性关节炎 2 例,并发症发生率为 23.08%(12/52)。微创组术后并发症发生率显著低于对照组,

差异具有统计学意义(X^2=8.167, P＜0.05)。

3 讨论

股骨下端与胫骨相接触的平面为胫骨平台[6]。胫骨平台作为膝的重要负荷结构,如果发生骨折,将产生骨关节炎改变,将导致内,外平台受力不均。由于胫骨平台中央有胫骨粗隆,上附着交叉韧带,内、外侧分别有副韧带,所以胫骨平台骨折时常会损伤到韧带及半月板[7]。临床上根据X射线和CT,按照Schatzker将胫骨平台骨折分为6型[3]:Ⅰ型、Ⅱ型和Ⅲ型均为发生在外侧平台的骨折,Ⅰ型为单纯楔形或劈裂骨折,Ⅱ型是劈裂压缩性骨折,Ⅲ型是单纯压缩性骨折。Ⅳ型为骨折发生在内侧平台,可为劈裂性或劈裂压缩性骨折;Ⅴ型是双髁骨折,即内侧与外侧平台均劈裂的骨折;Ⅵ型为同时有关节面骨折和干骺端骨折,胫骨髁部与骨干分离,通常患者伴有严重的关节破坏、粉碎、压缩及髁移位。目前临床上普遍认为胫骨平台骨折的关节面塌陷 >2 mm,侧向移位 >5 mm;合并有膝关节韧带损伤及有膝内翻或膝外翻 >5° 的时候,应该采取手术治疗,而手术治疗中膝关节镜下辅助复位及固定技术位首选[8-10]。膝关节镜适用于膝关节损伤、骨折、非感染性关节炎等疾病,它通过检查、诊断以及治疗关节内病变部位,当前,认为对膝关节病变较好的治疗手段是膝关节镜手术[11]。传统的膝关节手术刀口创伤面积大,关节处有较大手术瘢痕,手术过程出血多,突发情况不易预防,术后恢复时间长,恢复状态不稳定;相比之下,膝关节镜手术具有创伤小、手术瘢痕小,手术过程出血少、术后恢复时间短,恢复快,疗效确切,并发症少等优点[12,13]。关节镜下辅助微创手术对软组织的损伤小,给予了较好关节面显露并且能够诊断及治疗并发的半月板损伤[14-16]。

本文通过对膝关节镜辅助微创手术治疗和传统切开复位钢板内固定术治疗效果进行对比,观察比较2组患者术后恢复情况。结果表明,进行膝关节镜辅助微创手术治疗的患者术后下床活动时间、完全负重下地时间和骨折愈合时间均明显低于传统切开复位钢板内固定术治疗患者(P＜0.05),而三个月后的关节活动度、一年后的膝关节功能优良率则明显高于对照组(P＜0.05),说明膝关节镜辅助微创手术能使患者尽快的恢复正常生理活动能力,临床疗效高。这可能与膝关节镜辅助微创能更好的观察到关节腔内损伤情况,针对不同情况进行更准确的铳击、撬拨,使使关节面更好的恢复平整,骨折复位满意[17,18]。18个月后随访观察术后并发症,微创组患者并发率也明显低于对照组,说明膝关节镜辅助微创手术能降低术后并发症的发生,手术恢复性好。这可能和膝关节镜辅助微创手术切口小不感染、皮肤瘢痕极小,并且能够诊断及治疗并发的半月板损伤有关。与Wang Y等学者的研究类似[19,20]。

综上所述,膝关节镜辅助微创手术治疗复杂性胫骨平台骨折,临床疗效显著,术后膝关节功能恢复好,并发症发生率低,值得临床推广应用。

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