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微创锁定接骨板与传统切开复位内固定术治疗肱骨近端骨折的临床疗效比较

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摘要 目的:探讨微创锁定接骨板与传统切开复位内固定术治疗肱骨近端骨折的临床疗效。**方法:**选取 89 例肱骨近端骨折患者,根据手术方法不同分为两组,观察组(45 例)给予微创锁定接骨板治疗,对照组(44 例)给予传统切开复位内固定治疗,比较两组手术时间、住院时间、骨折愈合时间、术中出血量、术后 1 个月 Neer 和 Constant-Murley 评分。**结果:**观察组患者手术时间、住院时间、骨折愈合时间均明显短于对照组,术中出血量少于对照组($P<0.05$)。术后 1 个月,观察组 Constant-Murley 各项评分及总分均显著优于对照组($P<0.05$);按 Neer 评分,观察组优良率为 91.1%,明显高于对照组(68.1%, $P<0.05$)。**结论:**与传统切开复位内固定术相比,微创锁定接骨板能更好,安全性更高,可更快更有效地促进肱骨近端骨折患者肩关节功能的恢复。

关键词:微创锁定接骨板;切开复位内固定;肱骨近端骨折;临床疗效

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Comparison of the Clinical Efficacy of Minimally Invasive Locking Plate and Traditional Open Reduction with Internal Fixation in the Treatment of Proximal Humerus Fractures

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ABSTRACT Objective: To discuss the clinical efficacy of minimally invasive locking plate and the traditional open reduction with internal fixation in the treatment of proximal humerus fractures. **Methods:** 89 cases of patients with proximal humeral fractures were selected and divided into two groups according to different surgical methods. The observation group (45 cases) was given minimally invasive locking plate, while the control group (44 cases) was treated with the traditional open reduction and internal fixation. The operation time, hospitalization time, fracture healing time, intraoperative blood loss, Neer score and Constant-Murley score at 1 month after postoperation were compared between two groups. **Results:** The operation time, hospitalization, fracture healing time of observation group were significantly shorter than those of the control group, and the bleeding amount of observation group was less than that of the control group ($P<0.05$). At 1 months after operation, the Constant-Murley scores of observation group were significantly better than those of the control group ($P<0.05$). The For Neer scores, excellent rate of observation group (91.1%) were significantly higher than those of the control group (68.1%, $P<0.05$). **Conclusion:** Compared with the traditional open reduction with internal fixation, minimally invasive locking plate was better, safer, faster and more effectively for promoting the recovery of shoulder function of patient with proximal humerus fractures.

Key words: Minimally invasive locking plate; Traditional open reduction with internal fixation; Proximal humerus fractures; Clinical efficacy

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前言

随着社会节奏地不断加快,因意外高能量损伤导致的肱骨近端骨折层出不穷,老年患者骨质疏松,对肱骨近端部位对高能量创伤耐受性较差,容易发生骨折^[1,2]。受老年人机体状态较

青年人虚弱等条件限制,手术治疗不宜创伤过大,容易破坏肱骨周围血运,引发肱骨头坏死^[3,4]。传统保守治疗方式远期疗效不佳且并发症较多,主要用于无位移或轻度位移的骨折,移位较明显还需手术治疗^[5,6]。近年来,微创锁定接骨板法在肱骨近端骨折中的应用越来越广泛^[7,8],该种手术方式能满足临床治疗需求,术后能较快地恢复肩关节功能^[9]。本研究回顾性分析了 89 例在我院治疗的肱骨近端骨折患者,比较了微创锁定接骨板与传统切开复位内固定术治疗肱骨近端骨折的临床疗效和安全性,现报道如下:

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1 资料与方法

1.1 病例资料

选取渭南市中心医院骨外科收治的 89 例肱骨近端骨折患者,年限:2013 年 10 月-2016 年 10 月,纳入标准:(1)均符合肱骨近端骨折的诊断标准^[9];(2)骨折移位明显;(3)患者年龄 >65 岁;(4)患者均知情同意;排除标准:骨髓炎、骨肿瘤导致的病理性骨折患者。根据手术方式不同将患者分为两组,对照组(44 例)采取传统切开复位内固定,包括男 24 例,女 20 例,平均年龄(63.2± 7.8)岁,骨折类型参考 AO 分型,A 型 22 例,B 型 14 例,C 型 8 例,观察组(45 例)采取微创锁定接骨板治疗,包括男 23 例,女 22 例,平均年龄(62.9± 8.1)岁,骨折类型参考 AO 分型,A 型 24 例,B 型 13 例,C 型 8 例。两组病例一般临床资料比较差异均无统计学意义(P>0.05),具有可比性。

1.2 手术方式

对照组:臂丛麻醉或全麻,患者取仰卧位,常规消毒铺巾,手术入路选取三角肌和胸大肌之间,取弧形切口,长约 9 cm 左右,逐层剥离肌肉,钝性分离肌纤维,切开过程注意不要损伤头静脉。将分开的三角肌向两侧牵开,保护好肱二头肌及长头肌腱,显露骨折部位,将骨折断端复位并用克氏针暂时固定,待复位满意后选用合适的钛板用螺钉固定,X 线 C 型臂透视确认内固定物固定良好,无松动后,生理盐水冲洗伤口,负压引流,逐层缝合伤口。

观察组:臂丛麻醉或全麻,患者取仰卧位,常规消毒铺巾,

手术入路选取肩关节外侧肩峰下约一横指处,取横行切口,长约 3 cm 左右,逐层剥离肌肉,钝性分离三角肌,暴露骨膜,骨膜外显露肱骨,将骨折断端复位并用克氏针暂时固定,应用钛板连接瞄准器,从三角肌下潜行插入,X 线 C 型臂透视观察复位满意后,钛板近端用 4 枚,远端用 2 枚锁定螺钉固定。透视确认内固定物固定良好,无松动后,生理盐水冲洗伤口,负压引流,逐层缝合伤口。

1.3 诊断标准

(1)手术指标,观察并记录两组手术时间、住院时间、骨折愈合时间及术中出血量;(2)采用 Constant-Murley 评分系统对术后 1 个月患者肩关节功能进行打分,分值越高说明肩关节功能恢复越好;(3)采用 Neer 评分系统对术后 1 个月患者肩关节功能评定,分为优、良、中、差四个级别,术后总评分分数在 90 分以上为优,80~89 分为良,70~79 分为中,70 分以下为差,根据分级结果计算优良率。

1.4 统计学分析

采用 SPSS 17.0 统计软件分析,计量资料以均数± 标准差表示,组间比较采用 t 检验,计数资料以%表示,组间比较采用卡方检验,以 P<0.05 为差异有统计学意义。

2 结果

2.1 两组手术指标对比

观察组患者手术时间、住院时间、骨折愈合时间均短于对照组,术中出血量少于对照组(P<0.05),见表 1。

表 1 两组手术指标对比

Table 1 Comparison of the operative indexes between two groups

Groups	n	Operative time (min)	Bleeding volume (mL)	Hospitalization (d)	Fracture healing time (week)
Observation group	45	82.5± 24.6*	94.3± 18.5*	11.4± 2.3*	14.9± 2.6*
Control group	44	108.9± 10.2	154.3± 8.9	15.1± 2.8	20.4± 3.4

Note: Compared with control group, *P<0.05.

2.2 两组术后 1 个月肩关节功能评分对比

术后 1 个月,观察组 Constant-Murley 各项评分及总分均

显著优于对照组(P<0.05),见表 2。

表 2 两组术后 1 个月肱骨近端骨折患者肩关节功能评分对比

Table 2 Comparison of the Constant-Murley scores between two groups at 1 month after operation

Groups	n	Pain	Activity	Motion range	Power	Total
Observation group	45	14.7± 2.6*	19.3± 4.4*	38.7± 5.3*	24.4± 2.4*	97.1± 8.2*
Control group	44	12.9± 3.4	13.6± 4.7	31.5± 5.1	18.6± 2.7	76.6± 7.9

Note: Compared with the control group, *P<0.05.

2.3 两组术后 1 个月 Neer 评分对比

术后 1 个月,按 Neer 评分法,观察组优 31 例,良 10 例,优

良率 91.1%,对照组优 19 例,良 11 例,优良率 68.1%,观察组优良率更高(P<0.05),见表 3。

表 3 两组术后 1 个月 Neer 评分对比

Table 3 Comparison of the Neer scores between two groups at 1 month after operation

Groups	n	Excellent	Good	Medium	Poor	Excellent rate
Observation group	45	31	10	3	1	91.1%*
Control group	44	19	11	11	3	68.1%

Note: Compared with the control group, *P<0.05.

3 讨论

肱骨近端解剖结构相对复杂,分为肱骨头、大结节、小结节

和肱骨干四个基本部分,该部位骨皮质较薄,容易在高能量创伤下发生骨折,常见于老年患者^[11,12]。老年患者骨质疏松,一旦发生骨折,该部位骨折端将发生骨量丢失^[13,14]。此外,发生骨折后局部容易形成血肿,引起局部肿胀、牙痛,最明显的临床特征为肩关节主动、被动活动受限,影响患者的生活质量^[15-17]。

对于肱骨近端骨折,临床应根据患者的实际情况及时采取手术治疗。传统保守治疗如手法复位、曲肘 90° 吊带悬吊、石膏夹板外固定悬吊、克氏针张力带、T 型钢板、三叶草钢板固定等均不能达到满意的临床效果,远期疗效还容易出现较多并发症,如断钉、肱骨头坏死、肩关节活动受限等^[18-20],主要与这些固定措施不能较好地满足肱骨近端的生物力学强度、术中损伤大和固定不牢固或术后关节僵硬时间有关。为了保证手术的成功,还应避免在术中损伤腋动脉及其上行分支,降低肱骨头坏死率^[21,22],合理选择手术方式对治疗肱骨近端骨折的近远期疗效具有重要的临床意义。

锁定接骨板是一种带有螺纹孔的骨折固定器材,专用于肱骨近端骨折,具有很好的稳定性,即使在肱骨近端粉碎性骨折并伴有碎片移位的情况下进行固定也能取得较好的疗效^[23]。有研究表明锁定接骨板的抗剪切力的稳定性高,术后患者可以尽早进行功能恢复锻炼^[24,25]。微创锁定接骨板采用的是肩部横行小切口经三角肌入路,对软组织损伤小,可避免剥离大、小结节上的软组织,以免引起肱骨头血供障碍,有利于骨折的愈合^[26,27]。闫浩等^[28]采用微创锁定接骨板与切开复位内固定治疗肱骨近端骨折,发现采用微创锁定接骨板治疗的患者肩关节功能评分高于切开复位内固定手术治疗的患者。本研究采用微创锁定接骨板和传统切开复位内固定术两种方法治疗肱骨近端骨折,结果显示微创锁定接骨板治疗组患者手术时间、住院时间和骨折愈合时间均短于传统切开复位内固定术组,术中出血量少于传统切开复位内固定术组,说明微创锁定接骨板治疗肱骨近端骨折,对肱骨周围神经或软组织损伤较小,手术易于操作。采用 Constant-Murley 评分^[29]对术后的肩关节功能进行打分,微创锁定接骨板治疗组术后 1 个月 Constant-Murley 总分优于传统切开复位内固定术组,这与闫浩等^[28]报道的结果一致,然而该报道没有权衡手术时间、住院时间和骨折愈合时间及术中出血量的影响。商澜锴等^[30]在对比微创锁定接骨板法治疗和传统切开复位法治疗的疗效时也采用 Constant-Murley 评分对术后 3 个月和 6 个月的肩关节功能进行打分,对主观评估结果和客观评估结果存在不同的权重,研究结果显示微创锁定接骨板治疗的患者术后 3 个月和 6 个月的 Constant-Murley 评分明显高于切开复位内固定治疗的患者。但本研究进行的是两种治疗方法术后 1 个月的 Constant-Murley 各项评分对比,虽然肩关节功能评分结果一致,但本研究观察时间明显短于商澜锴等所报道,节约了研究时间并能及早发现术后问题。对肩关节功能评分结果说明微创锁定接骨板能在短期内提高肩关节活动范围,恢复上肢肌肉力量而无僵硬感。Neer 评分包括了对解剖结构重建的考虑,为了提高研究结果的可信度,本研究还采用了 Neer 评分^[31]对术后 1 个月的手术治疗情况进行评定。术后 1 个月,按 Neer 评分法,微创锁定接骨板治疗组优良率更高,说明微创锁定接骨板治疗肱骨近端骨折,能最大限度促进患者骨折愈合,提高肩关节功能。

综上所述,与传统切开复位内固定术相比,微创锁定接骨板对肱骨近端骨折的更好,安全性更高,可更快更有效地促进患者肩关节功能的恢复。

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