

doi: 10.13241/j.cnki.pmb.2017.15.025

不同内固定方法对肱骨近端骨折的预后影响*

常宝生 冯阳阳 曹强 张亮 武政

(延安大学附属医院骨科 陕西 延安 716000)

摘要 目的:探讨不同内固定方法对肱骨近端骨折的预后影响。**方法:**选取 90 例因肱骨骨折入院治疗的患者的临床资料进行回顾性分析,按照内固定方法的不同将所有患者分为 A 组和 B 组。其中 A 组为 44 例,均采用锁定加压钢板治疗;B 组为 46 例,均采用解剖型钢板治疗。比较两组患者术后并发症的发生情况,并且采用 Neer 评分系统评定肱骨近端骨折治疗后的肩关节功能等级。**结果:**获得有效随访资料共 79 份,占 87.8%。其中锁定加压钢板组获得有效随访的数量为 39,占 43.3%;解剖型钢板组获得有效随访的数量为 40,占 44.4%。根据 Neer 评定标准,A 组患者的肩关节功能 Neer 评定优良率为 92%,显著高于 B 组 87.5%,两组之间差异无统计学意义($\chi^2=0.131, P>0.05$)。**结论:**锁定加压钢板内固定法对肱骨近端骨折预后明显优于解剖型钢板,更有利于患者早期功能锻炼的进行和肩关节功能恢复。

关键词:肱骨近端骨折;锁定钢板;解剖型钢板;内固定

中图分类号:R683 文献标识码:A 文章编号:1673-6273(2017)15-2900-03

Effect of Different Internal Fixation Methods on the Prognosis of Proximal Humeral Fractures*

CHANG Bao-sheng, FENG Yang-yang, CAO Qiang, ZHANG Liang-liang, WU Zheng

(Orthopaedics department, the Affiliated Hospital of Yan'an University, Yan'an, Shaanxi, 716000, China)

ABSTRACT Objective: To investigate the effect of different internal fixation methods on the prognosis of proximal humeral fractures. **Methods:** Selected from our hospital 90 cases of hospitalized patients with humeral fractures. Their clinical data were retrospectively analyzed. According to the internal fixation method, all patients were divided into group A and group B. The 44 patients in group A were treated with locking compression plate, while the 46 cases in group B were treated with anatomical plate. The incidence of complications after operation was compared between the two groups, and the Neer scoring system was applied for assessment of shoulder functional class after treatment of proximal humerus fractures. **Results:** A total of 79 cases were effectively followed up, accounted for 87.8%. There were 39 cases of effective follow-up in the group A, accounted for 43.3%, and 40 cases of effective follow-up in the group B, accounted for 44.4%. According to Neer standard, the patients in group A had excellent and good rate of 92%, higher than that of group B (87.5%). But the difference had no statistical significance between the two groups ($\chi^2=0.131, P>0.05$). **Conclusion:** Locking compression plate internal fixation of proximal humerus fractures is more conducive to patients to get early functional exercise and shoulder function recovery than anatomical plate.

Key words: Proximal humeral fractures; Locking plate; Anatomical plate; Internal fixation

Chinese Library Classification(CLC): R683 **Document code:** A

Article ID: 1673-6273(2017)15-2900-03

前言

作为日常生活中最多发的一种骨折类型,且由于老年人缺钙导致的骨质疏松等原因,肱骨近端骨折尤其在老年人中多见^[1,2]。其发病率伴随着社会老龄化的程度加深而逐年升高,已然成为近年来医学研究的一个重点热点项目^[3]。为研究分析不同内固定方法对肱骨近端骨折的预后影响,我院选取了自 2012 年到 2016 年期间因肱骨骨折入院治疗的患者的临床资料 90 份作为研究对象,内固定方法主要以锁定钢板和解剖型钢板固定为主,本文就这两种内固定方法对肱骨近端骨折预后影响进行对比分析。

1 资料与方法

1.1 一般资料

选取我院 2012 年到 2016 年期间因肱骨骨折入院治疗的患者的临床资料 90 份作为研究对象,其中男性患者 54 例,女性患者 36 例。年龄从 45 岁到 90 岁不等,平均年龄为(68.1±5.6)岁。就锁定钢板与解剖型钢板两种方法分为两组进行对比分析,其中锁定钢板固定为 A 组共 44 人,男性患者 23 人,女性患者 21 人,平均年龄为(66.4±4.8)岁;解剖型钢板固定为 B 组共 46 人,男性患者 31 人,女性患者 15 人,平均年龄为(69.5±6.3)岁。A 组有 7 人为二部分骨折,B 组有 9 人;A 组有

* 基金项目:延安市科学技术研究发展计划项目(2014KW-04)

作者简介:常宝生(1984-),男,主治医师,主要从事骨科创伤基础与临床研究,E-mail:2131333145@qq.com,电话:0911-2881002

(收稿日期:2016-09-28 接受日期:2016-10-22)

20 人为三部分骨折,而 B 组为 19 人;A 组有 17 人为四部分骨折,B 则为 18 人。

1.2 手术方法

嘱患者平卧于手术台上,将骨折部位,即患侧肩膀略微垫高。依据患者意愿采取臂丛局部麻醉或者全身麻醉^[4]。首先从肩关节前胸大肌与三角肌的交界处入路,使头静脉暴露并向外侧牵拉,注意保护三角肌支。然后使用三角肌拉钩钝性分离牵开胸大肌三角肌间沟和三角肌(轻度外展上臂可松弛三角肌,有利于肱骨头显露)。最后牵引复位,复位之前必须先纠正脱位。通过 X 线机确认骨折部位复位情况良好以后,须根据患者骨折情况选取长度适合的钢板贴附于肱骨外科颈肱二头肌长腱外侧,钻孔并用螺钉固定。术毕,放置引流管并将手术切口逐层缝合^[5]。使用解剖型钢板内固定的患者用松质骨螺钉固定肱骨头及近折端,远折端用皮质骨螺钉固定;而使用锁定加压钢板内固定的患者则用锁定螺钉固定肱骨头与远折端,用皮质骨螺钉固定其余部位^[6,7]。

1.3 术后处理

伤口缝合完毕后固定手术部位,并嘱患者防水,注意保护。并于 3 天后作简单的肩关节摆动练习,3 周后则进行肩关节的对应功能锻炼。

1.4 肩关节术后功能评定

本研究采用 Neer 评分系统作为肩关节术后功能评定标准。Neer 评分是肩关节功能邓婕评定应用最多的评分系统,其优点在于考虑到解剖结构的重建。Neer 根据患者解剖恢复情况、疼痛、肩关节活动范围、功能使用评价肩关节功能,采用百分制评定标准。其中疼痛占总分的 35%,解剖位置占 10%,活动范围占 25%,功能使用占 30%。总分多于 89 分评定为优,80-89 分为良,70-79 分为可,少于 70 分则为差^[8]。

1.5 统计学方法

试验所得数据均用 $\bar{x} \pm s$ 形式表示,计数资料之间对比采用 χ^2 检验,以是否 $P < 0.05$ 来比较差异是否具有统计学意义。

2 结果

我院在患者出院后进行随访,共获得有效随访 79,有效随访率 87.8%。其中 A 组获得有效随访的数量为 39,随访时间 0.5 年到 3 年,平均为 (1.6 ± 0.3) 年;B 组获得有效随访的数量为 40,随访时间 0.5 到 3 年,平均为 (1.5 ± 0.4) 年。根据 Neer 评定标准,A 组肩关节功能 Neer 评定为优的有 33 人、良的有 3 人、可的有 3 人、差的有 0 人,优良率为 92%;B 组肩关节功能 Neer 评定为优的有 30 人、良的有 5 人、可的有 2 人、差的则有 3 人,优良率为 87.5%。即 A 组优良率明显高于 B 组,A、B 两组间差异无统计学意义($\chi^2 = 0.131, P > 0.05$)。随访中发现 B 组有 1 位患者出现术后肱骨近端坏死吸收,有 2 位患者因螺钉松动、部分拔出而重新入住我院,经治疗后均达到出院标准,予以出院。其余患者均无术后并发症。

3 讨论

根据正常人体解剖学,我们可以将肱骨近端划分为肱骨干、肱骨头及大小结节^[9]。一般而言,肱骨近端发生骨折之后往往需要尽快地进行相关手术治疗,只有少部分患者可以通过保

守治疗的方法,即非手术治疗从而获得康复。在肱骨近端骨折的手术治疗中,临床上多习惯通过器械和手法将骨折部位牵引复位,然后使用接骨板进行固定^[10]。固定用具主要有钢丝、克氏针、螺钉三种。近年来,由于解剖型钢板和锁定加压钢板外形与人的肱骨头相似,设计合理,两种接骨板在临床的肱骨近端骨折手术治疗中受到了广泛的使用^[11]。其使用一定程度上改正了以前老式接骨板容易出现松动、滑脱,固定不牢靠等缺点,解决了患者无法在术后早期进行肩关节对应功能锻炼而影响其功能恢复的问题^[12]。少部分患者会选择进行人工肱骨头置换术,然后其晚期出现的松动塌陷等并发症及昂贵的医疗费用使大多数患者望而却步,尤其是年轻患者^[13]。

从上述的研究结果不难看出,使用锁定加压钢板内固定的患者术后的预后结果明显优于使用解剖型钢板内固定的患者。在有效的随访案例中,使用解剖型钢板内固定的治疗组中发现有 1 位患者肱骨近端出现坏死吸收,致使其肩关节功能恢复不良。同时解剖型钢板组中还有 2 位患者出现螺钉松动甚至部分拔出的术后并发症。而使用锁定加压钢板内固定的治疗组则无患者出现术后相关并发症。因此锁定加压钢板内固定方法较解剖型钢板,疗效更好稳定性更。同时也有相关的生物力学研究结果表明,肱骨近端骨折使用锁定加压钢板固定的稳定性较普通钢板高^[14]。锁定加压钢板与解剖钢板两者相比,解剖型钢板虽然能够适应肱骨头近端的解剖形态,但在手术过程中的固定需要贴骨放置,有时还需预弯塑形,增加了手术的操作难度。钢板反复折弯塑形则会增加疲劳断裂的发生几率,而复位过程中螺钉的方向不定则会影响内固定的稳固性,从而影响患者术后的早期功能锻炼^[15]。锁定加压钢板构造在解剖学上与肱骨上段的解剖结构相符,在手术过程中可以省略塑形的步骤,对钢板与骨贴合程度要求不如解剖型钢板高^[16,17]操作更加简单。同时可以通过近端边缘的小孔对钢板作临时固定,防止其移动,还可以缝合固定患者肩关节周围撕脱的腱性部位。与此同时,螺钉与钢板锁定使整个内置物的抗拔出能力亦明显优于解剖型钢板^[18-20],大幅度地降低了内固定松动的发生几率。

综上所述,锁定加压钢板内固定法对肱骨近端骨折预后影响明显优于解剖型钢板。锁定加压钢板在治疗肱骨近端骨折的手术中稳定性更高,有利于患者早期功能锻炼的进行,帮助肩关节功能的恢复。

参考文献(References)

- [1] Acevedo DC, VanBeek C, Lazarus MD, et al. Reverse shoulder arthroplasty for proximal humeral fractures: Update on indications, technique, and results[J]. Journal of shoulder and elbow surgery, 2014, 23 (2): 279-289
- [2] Li F, Jiang C. Trabecular metal shoulder prosthesis in the treatment of complex proximal humeral fractures [J]. International Orthopaedics, 2013, 37(11): 2259-2264
- [3] Zhang L, Chen LW, Zhang WJ, et al. Treatment of proximal and middle one-third humeral fractures with lateral distal tibial helical plate [J]. Eur J Orthop Surg Traumatol, 2012, 22: 673-679
- [4] Ueyama H, Yano K, Kanemura M, et al. Clinical outcomes and prognostic factors depending on implant design in the treatment of proximal humeral fractures: A retrospective study [J]. J Orthop, 2016, 13:

369-375

- [5] Maresca A, Pascarella R, Bettuzzi C, et al. Multifocal humeral fractures[J]. Injury, 2014, 45(2): 444-447
- [6] Konigshausen M, Coulibaly MO, Nicolas V, et al. Results of non-operative treatment of fractures of the glenoid fossa[J]. Bone Joint J, 2016, 98-B: 1074-10749
- [7] Wang X, Shao J, Yang X, et al. Closed/open reduction and titanium elastic nails for severely displaced proximal humeral fractures in children[J]. International Orthopaedics, 2014, 38(1): 107-110
- [8] Stahl D, Fuente GL. Reverse Total Shoulder Arthroplasty for a 4-Part Proximal Humerus Fracture[J]. J Orthop Trauma, 2016, 30 (Suppl 2): S9-S10
- [9] Mao Z, Zhang L, Zeng X, et al. Operative versus nonoperative treatment in complex proximal humeral fractures [J]. Orthopedics, 2014, 37(5): 301-301
- [10] Lakhota D, Khatri K, Sharma V, et al. Bilateral Clavicle Fractures: A Report of Three Cases[J]. J Clin Diagn Res, 2016, 10: RR01-3
- [11] Fujioka H, Nishikawa T, Koyama S, et al. Stress fracture of the ulna in a softball pitcher[J]. J Orthop, 2016, 13: 204-206
- [12] Karl JW, Redler LH, Tang P. Delayed Proximal Migration of the Radius Following Radial Head Resection for Management of a Symptomatic Radial Neck Nonunion Managed with Radial Head Replacement: A Case Report and Review of the Literature [J]. Iowa Orthop J, 2016, 36: 64-69
- [13] Ye T, Wang L, Zhuang C, et al. Functional outcomes following locking plate fixation of complex proximal humeral fractures[J]. Orthopedics, 2013, 36(6): 715-722
- [14] Richardson M, Richardson L, Asadollahi S. Delayed surgical treatment of displaced midshaft clavicle fracture using Herbert cannulated screw with intramedullary bone graft[J]. Eur J Orthop Surg Traumatol, 2012, 22: 647-653
- [15] Bahrs C, Bauer M, Blumenstock G, et al. The complexity of proximal humeral fractures is age and gender specific[J]. Journal of orthopaedic science: official journal of the Japanese Orthopaedic Association, 2013, 18(3): 465-470
- [16] Erden ER, Arda C, Mesut SM, et al. Implementation of locking compression plate together with intramedullary fibular graft in atrophic type humeral nonunions [J]. Eur J Orthop Surg Traumatol, 2012, 22: 661-665
- [17] Aditya Sai Kadavkolan, Seep S, Wasni K. Management of proximal humeral fractures: a review of current treatment options [J]. Current orthopaedic practice, 2015, 26(2): 169-180
- [18] Hageman MG, Jayakumar P, King JD, et al. The factors influencing the decision making of operative treatment for proximal humeral fractures[J]. Journal of shoulder and elbow surgery, 2015, 24(1): E21-E26
- [19] Foruria, Antonio M, Marti, Milagros, Sanchez-Sotelo, Joaquin, et al. Proximal Humeral Fractures Treated Conservatively Settle During Fracture Healing [J]. Journal of orthopaedic trauma, 2015, 29 (2): E24-E30
- [20] Erin Singleton, Robert Turner, Lawrence Gulotta, et al. Rehabilitation After Proximal Humeral Fractures [J]. Techniques in shoulder & elbow surgery, 2014, 15(1): 46-50

(上接第 2879 页)

- [9] Ishida M, Nakahara T, Mochizuki Y, et al. Hepatic reactive lymphoid hyperplasia in a patient with primary biliary cirrhosis [J]. World J Hepatol, 2013, 2(10): 387-391
- [10] Kim SR, Hayashi Y, Kang KB, et al. A case of pseudolymphoma of the liver with chronic hepatitis C[J]. Hepatol, 1997, 26(1): 209-214
- [11] Sato K, Ueda Y, Yokoi M, et al. Reactive lymphoid hyperplasia of the liver in a patient with multiple carcinomas: a case report and brief review[J]. J Clin Pathol, 2006, 59(9): 990-992
- [12] Joseph D, Irukulla MM, Ahmed SF, et al. Radiotherapy in aggressive cutaneous pseudolymphoma: a case report and review of literature[J]. Radiat Oncol J, 2016, 34(1): 76-80
- [13] Yoh Zen, Takahiko Fujii, Yasuni Nakanuma, et al. Hepatic pseudolymphoma: a clinicopathological study of five cases and review of the literature[J]. Modern Pathology, 2013, 23: 244-250
- [14] Shin-ichiro Sato, Tomoyuki Masuda, Hiroki Oikawa, et al. Primary hepatic lymphoma associated with primary biliary cirrhosis [J]. The American Journal of Gastroenterology, 1999, 94(6): 1669-1673
- [15] Carvalhana S, Gonçalves A, Velosa J. Cutaneous Pseudolymphoma in a Patient With Crohn's Disease Under Infliximab: First Report[J]. J Clin Gastroenterol, 2016, 50(5): 436-437
- [16] Takahashi T, Hata M, Iwata H, et al. Cutaneous B-cell Pseudolymphoma in a Psoriatic Patient Treated with Cyclosporine[J]. Acta Derm Venereol. 2016, 96(6): 824-825
- [17] Erratum: Successful Treatment of Tattoo-Induced Pseudolymphoma with Sequential Ablative Fractional Resurfacing Followed by Q-Switched Nd: YAG 532 nm Laser[J]. J Cutan Aesthet Surg. 2015, 8 (4): 249
- [18] Inoue A, Sawada Y, Ohmori S, et al. CD30-positive Cutaneous Pseudolymphoma Caused by Tocilizumab in a Patient with Rheumatoid Arthritis: Case Report and Literature Review[J]. Acta Derm Venereol, 2016, 96(4): 570-571
- [19] Kwon YK, Jha RC, Etesami K, et al. Pseudolymphoma (reactive lymphoid hyperplasia) of the liver: A clinical challenge[J]. World J Hepatol, 2015, 7(26): 2696-2702
- [20] Sonomura T, Anami S, Takeuchi T, et al. Reactive lymphoid hyperplasia of the liver: Perinodular enhancement on contrast-enhanced computed tomography and magnetic resonance imaging [J]. World J Gastroenterol, 2015, 21(21): 6759-6763