

doi: 10.13241/j.cnki.pmb.2017.12.029

## 髁突 - 翼外肌解剖复位与游离复位治疗髁状突骨折的疗效比较 \*

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**摘要 目的:**比较髁突 - 翼外肌解剖复位与游离复位治疗髁状突骨折的疗效,促进髁突形态恢复。**方法:**收治的 80 例单侧髁状突骨折患者随机分为两组,每组 40 例,A 组行髁突 - 翼外肌解剖复位术,B 组行髁状突游离复位术,术后 3 个月、6 个月观察髁突形态及下颌骨运动功能变化。**结果:**A 组治愈率为 90%,高于 B 组的 70.00%( $P<0.05$ );术后 3 个月 A 组髁状突吸收、张口受限、开口偏斜、咬合关系紊乱、关节弹响发生率分别为 12.50%、15.00%、15.00%、7.50%、12.50%,均低于 B 组的 32.50%、35.00%、37.50%、25.00%、35.00%( $P<0.05$ );术后 6 个月 A 组张口受限、关节弹响发生率为 5.00%、2.50%,均低于 B 组的 20.00%、20.00%( $P<0.05$ );两组术后并发症发生率比较差异无统计学意义( $P>0.05$ )。**结论:**髁突 - 翼外肌解剖复位术保留髁状突骨折患者骨折断端血运,髁突形态及下颌骨运动能力恢复良好,疗效优于髁状突游离复位术。

**关键词:**髁状突骨折;髁突 - 翼外肌解剖复位;髁状突游离复位;髁突形态;下颌骨;运动能力

**中图分类号:**R783 **文献标识码:**A **文章编号:**1673-6273(2017)12-2317-04

## Comparison of Treatment Efficacy of Condylar-wing Muscles Anatomic Reduction with Free Reduction in the Treatment of Condylar Fractures\*

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**ABSTRACT Objective:** To compare the treatment efficacy of condylar-wing muscles anatomic reduction with free reduction in the treatment of condylar fractures, so as to improve condylar shape recovery. **Methods:** In this study, 80 patients with unilateral condylar fracture were randomly divided into two groups, 40 cases in each group. Patients in group A underwent condylar-wing muscle reattachment surgery, while those in group B got condylar free reduction surgery. The mandibular condylar morphology and motor function were observed at three and six months after treatment. **Results:** The cure rate in group A was 90%, higher than in group B (70.00%), with statistical difference ( $P<0.05$ ). After three months, occurrence rate of condylar absorption, limited mouth opening, opening skewed, malocclusion and joint clicking was respectively 12.50%, 15.00%, 15.00%, 7.50% and 12.50% in Group A, and respectively 32.50%, 35.00%, 37.50%, 25.00% and 35.00% in group B. All were lower in group A than in group B and the differences were statistically significant ( $P<0.05$ ). After six months, the incidence rate of limited mouth opening and joint clicking was respectively 5.00% and 2.50% in group A, significantly lower than the rate of 20.00% and 20.00% in group B ( $P<0.05$ ). No difference was found in the incidence of postoperative complications between the two groups ( $P>0.05$ ). **Conclusion:** Condylar-wing muscle reattachment surgery could reserve blood supply for fracture site of condylar fractures, and have good recovery in morphology and mandibular condylar athletic ability. It was more effective than condylar free reduction surgery.

**Key words:** Condylar Fractures; Condylar-Wing Muscle Reattachment; Condylar Free Reduction; Condylar Morphology; Mandible; Exercise Capacity

**Chinese Library Classification(CLC):** R783 **Document code:** A

**Article ID:**1673-6273(2017)12-2317-04

\* 基金项目:新疆维吾尔自治区科技厅科技援疆项目(201491175)

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(收稿日期:2016-07-30 接受日期:2016-08-22)

## 前言

髁状突骨折是下颌骨常见骨折, 约占下颌骨骨折的 30%~50%左右<sup>[1]</sup>, 处理不当易引发颞下颌关节病、关节强直等并发症, 且对语言、咀嚼功能及面容均有较大影响<sup>[2]</sup>。国内外对于咀嚼功能的研究证实, 对髁状突骨折严重的患者实施手术治疗对于下颌关节功能的恢复显著优于保守治疗<sup>[3,4]</sup>, 且手术治疗对于髁状突形态的恢复有促进作用。髁状突骨折手术治疗的目的是尽量恢复患者颌面部形态异常及下颌骨运动功能。根据骨折位置及骨折线性质可将手术复位方式分为较髁突-翼外肌解剖复位及髁状突游离复位, 两种复位方式各有优缺点, 但临床对于两种复位方式治疗髁状突骨折的疗效仍缺乏系统性比较。本研究对 80 例髁状突骨折患者分别实施髁突-翼外肌解剖复位术与髁状突游离复位术治疗, 比较两种复位方式对患者髁突形态及下颌骨运动功能的影响, 为髁状突骨折的治疗提供参考。

## 1 资料与方法

### 1.1 一般资料

选取 2013 年 10 月~2014 年 12 月在本院实施手术治疗的髁状突骨折患者 80 例(共 80 侧关节)。纳入标准:①符合《口腔颌面外科学》中相关诊断标准<sup>[5]</sup>, 并经全景片、颞颌关节张闭口位片及 CT 检查确诊;②伴有开口受限、咬合紊乱, 伴有髁突移位或脱位;③均为单侧骨折;④新鲜骨折, 即骨折至治疗时间 $\leq$ 2 周;⑤签署知情同意书。排除标准:①伴有严重心、肝、肾及血液系统疾病者;②粉碎性骨折者;③陈旧性骨折者。将 80 例患者随机分为两组, 每组 40 例。A 组男 29 例, 女 11 例, 年龄 7~47 岁, 平均(31.23 $\pm$ 10.34)岁;骨折线位置:低位 4 例, 中位 15 例, 高位 21 例。B 组男 27 例, 女 13 例, 年龄 6~44 岁, 平均(32.14 $\pm$ 11.03)岁;骨折线位置:低位 5 例, 中位 13 例, 高位 22 例。两组一般资料比较差异无统计学意义( $P>0.05$ ), 具有可比性。

### 1.2 手术方法

两组均经鼻腔插管静脉麻醉。(1)手术入路:随后根据骨折线部位、性质选择手术入路。①耳屏前切口入路:A 组中位骨折 15 例、高位骨折 21 例, B 组中位骨折 13 例、高位骨折 22 例均选择耳屏前切口入路。采用美兰在耳屏前皮肤隐蔽处定位, 上自耳轮脚, 下至耳垂, 水平并向发际内延伸, 沿着耳轮脚至发际内做一 3 cm 的弧形切口。②颌下及颌后入路:A 组低位骨折 8 例、B 组低位骨折 8 例均选择颌下及颌后切口入路。于下颌角后缘外及下缘下 1.5 cm 处至乳突尖部定位, 依次切开皮肤、皮下、颈阔肌, 暴露手术区。(2)复位方法:①髁突-翼外肌解剖复位:A 组选择髁突-翼外肌解剖复位, 按照设计切口暴露手术区后, 将后翻瓣切开显露下颌支断端, 向下牵拉下颌支, 在乙状切迹前内侧处寻找移位的髁状突骨折断端;根据骨折断端的形态选择适宜的手术器械, 将髁突骨折断端复位、固定, 保留翼外肌附着, 在复位时注意对颞下颌关节软硬组织的保护, 防止再次损伤;随后复位关节盘, 冲洗并缝合关节囊。②髁状突游离复位:B 组选择髁状突游离复位, 沿着切口分离进入颞下区, 找出骨折后向前内侧移位的髁状突, 并将其游离取出;修整骨折断面, 缓慢将其按原位植入、固定。(3)固定方法:两组复位完成

后, 检查咬合关系正常后, 均采用侧向螺钉或微钛板固定以维持升支高度;分层严密关闭切口, 包扎。

### 1.3 观察指标

术后随访 18 个月以上, 术后 3 个月、6 个月、1 年或更久间断随访, 检查髁状突吸收等髁突形态变化情况张口受限、开口偏斜、咬合关系紊乱、关节弹响等下颌骨运动功能变化;观察术后并发症发生情况。

### 1.4 疗效标准

参考 Walker 术后评价标准<sup>[6]</sup>:①治愈:开口度 $>40$  mm 而无疼痛, 下颌活动度良好, 恢复至骨折前咬合状态, 颞下颌关节稳定, 面部对称性良好;②改善:开口度 $>35$  mm 而 $<40$  mm, 无开口偏斜, 咬合关系基本正常, 无明显错畸形, 下颌切牙中线偏斜 $<2$  mm, 面部对称性良好;③无效:有张口受限、开口偏斜、咬合关系紊乱、关节弹响等症状, 髁状突重度吸收或并发关节强直。

### 1.5 统计学方法

本组研究计量资料用( $\bar{x}\pm s$ )表示, 采用 t 检验;计数资料采用  $\chi^2$  检验,  $P<0.05$  为差异有统计学意义。

## 2 结果

### 2.1 治疗效果

两组术后均随访 18 个月以上, 经综合评估 A 组治愈率为 90%, 有效 10%;B 组治愈率为 70%, 有效 27.5%, 无效 2.5%, 两组治愈率比较差异有统计学意义( $P<0.05$ )。

### 2.2 髁突形态及下颌骨运动能力变化

术后 3 个月 A 组髁状突吸收、张口受限、开口偏斜、咬合关系紊乱、关节弹响发生率均低于 B 组, 差异比较有统计学意义( $P<0.05$ );术后 6 个月 A 组张口受限、关节弹响发生率均低于 B 组( $P<0.05$ ), 髁状突吸收、开口偏斜、咬合关系紊乱发生率比较差异无统计学意义( $P>0.05$ )(表 1)。

### 2.3 并发症发生率

两组术后无 1 例发生髁状突移位、关节强直, 并发症以感染、轻微面部神经损伤及涎瘘等为主, 但两组并发症发生率比较差异无统计学意义( $P>0.05$ )(表 2)。

## 3 讨论

髁状突骨折不仅影响患者面部外形及咀嚼功能, 处理不当还会导致下颌骨发育异常, 增加颞颌关节疾病发生危险性。临床对于伴有髁突移位或脱位的髁状突骨折患者采取手术治疗基本达成共识, 但对于手术方法尚无统一标准, 尤其是对于术中复位方法的选择仍缺乏大样本对照试验报道。

骨折复位对髁状突骨折的手术治疗效果尤为重要。根据骨折程度及位置的不同, 髁状突骨折复位方法主要分为髁状突游离复位与髁突-翼外肌解剖复位<sup>[7]</sup>。游离复位被认为是发生于颈部或关节囊内高位髁状突骨折首选复位方法。临床普遍认为, 对于发生于髁状突基部、髁突下区等低位骨折, 经颌下或颌后入路进行解剖复位即可达到良好的复位效果, 但高位骨折因骨折片受翼外肌牵拉向颞下区移位, 受局部解剖结构的限制难以施行解剖复位<sup>[8-10]</sup>。Choi 等<sup>[11]</sup>研究报道, 对于高位髁状突骨折患者, 经颌下或颌后入路进行游离复位的复位效果优于解剖复

表 1 两组髁突形态与下颌骨运动能力比较 [n(%)]

Table 1 Comparison of the condylar morphology and mandibular condylar athletic ability between two groups [n(%)]

| Index                           | Time           | Group A (n=40) | Group B(n=40) | $\chi^2$ | P     |
|---------------------------------|----------------|----------------|---------------|----------|-------|
| Condyle absorption              | 3 months later | 5(12.50)       | 13(32.50)     | 4.59     | <0.05 |
|                                 | 6 months later | 2(5.00)        | 3(7.50)       | 0.00     | >0.05 |
| Limitation of mouth opening     | 3 months later | 6(15.00)       | 14(35.00)     | 4.27     | <0.05 |
|                                 | 6 months later | 2(5.00)        | 8(20.00)      | 4.11     | <0.05 |
| Oblique opening                 | 3 months later | 6(15.00)       | 15(37.50)     | 5.23     | <0.05 |
|                                 | 6 months later | 1(2.50)        | 3(7.50)       | 0.26     | >0.05 |
| Occlusion relationship disorder | 3 months later | 3(7.50)        | 10(25.00)     | 4.50     | <0.05 |
|                                 | 6 months later | 0(0)           | 1(2.50)       | 0.00     | >0.05 |
| Clicking of joint               | 3 months later | 5(12.50)       | 14(35.00)     | 5.59     | <0.05 |
|                                 | 6 months later | 1(2.50)        | 8(20.00)      | 4.51     | <0.05 |

表 2 两组并发症发生率比较 [n(%)]

Table 2 Comparison of the recent postoperative complications between two groups[n(%)]

| Complications       | Group A (n=40) | Group B(n=40) | $\chi^2$ | P     |
|---------------------|----------------|---------------|----------|-------|
| Infected            | 2(5.00)        | 4(10.00)      | 0.18     | >0.05 |
| Facial nerve injury | 1(2.50)        | 2(5.00)       | 0.00     | >0.05 |
| Sialosyrinx         | 0(0)           | 1(2.50)       | 0.00     | >0.05 |
| Total               | 3(7.50)        | 7(17.50)      | 1.83     | >0.05 |

位。本研究中 B 组 22 例高位骨折患者中,有 2 例是发生于颈部的骨折,5 例发生于关节囊内的骨折,游离复位均取得良好效果。但为了消除手术入路对手术效果的影响,本研究对两组中位、高位骨折患者统一选择耳屏前切口入路,而低位骨折患者则选择颌下及颌后入路。经耳屏前入路能较好地暴露手术区,在一定程度上可减少局部解剖结构对解剖复位的限制。朱耀旻等<sup>[12]</sup>研究报道,对髁状突高位骨折患者经耳屏前入路解剖复位效果优于经颌下或颌后入路。本研究中,综合临床及影像学评价,A 组治愈率为 90.00%,高于 B 组的 70.00%,差异比较有统计学意义( $P<0.05$ )。值得注意的是,A 组中位、高位骨折患者经耳屏前切口入路后进行解剖复位,复位效果良好,甚至优于游离复位。我们认为,在达到良好的手术区暴露条件下,解剖复位保留翼外肌附着,使颞下颌关节能维持正常功能,有利于骨折愈合及下颌骨功能的恢复。而游离复位后再植入的髁状突无正常软组织附着,血供受到影响,骨折愈合需较长时间,不利于下颌骨运动功能恢复。

髁状突骨折手术治疗的目的是尽量恢复颌面部形态及下颌骨运动功能<sup>[13,14]</sup>。髁状突骨折至髁突软骨表面无血管或手术阻断血供是髁状突吸收的主要原因。游离复位会损害髁状突软组织附着和血供,对髁状突生长中心影响较大,术后髁状突吸收发生率较高。Vranis 等<sup>[15]</sup>研究发现,髁状突骨折后颞下颌关节滑液中的透明质酸浓度下降,使得骨折断端吸收比例增大,进而导致髁状突形态异常。透明质酸的分泌主要与下颌骨关节腔内滑膜的功能有关<sup>[16]</sup>。Nagori 等<sup>[17]</sup>研究报道,髁突-翼外肌解剖复位可在短期内实现下颌骨关节功能及结构的重建,促进下

颌骨关节滑膜修复,进而增加透明质酸的分泌,减轻髁状突吸收。本研究中在术后 3 个月,A 组髁状突吸收发生率低于 B 组( $P<0.05$ ),与文献报道的基本一致<sup>[18,19]</sup>,提示髁突-翼外肌解剖复位对髁状突形态修复的促进作用优于游离复位。髁状突骨折后翼外肌损伤,破坏了开闭运动、咬合肌肉的系统平衡<sup>[20]</sup>。髁突-翼外肌解剖复位保留翼外肌附着,使颞下颌关节能维持正常功能。本研究中术后 3 个月 A 组张口受限、开口偏斜、咬合关系紊乱、关节弹响发生率均低于 B 组,差异比较有统计学意义( $P<0.05$ );术后 6 个月 A 组张口受限、开口偏斜、咬合关系紊乱、关节弹响基本消除,而 B 组张口受限、关节弹响发生率仍较高,提示髁突-翼外肌解剖复位促进术后下颌运动功能的恢复。值得注意的是,两种复位方式均未发生髁状突移位、关节强直等严重并发症,而以感染、轻微面部神经损伤及涎瘘等为主,但两组并发症发生率比较差异无统计学意义( $P>0.05$ )。

综上所述,髁突-翼外肌解剖复位术保留髁状突骨折患者骨折断端血运,髁突形态及下颌骨运动能力恢复良好,疗效优于髁状突游离复位术。

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