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· 临床研究 ·

克氏针治疗下颌骨髁突矢状骨折 13 例回顾性分析

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【摘要】目的 探讨克氏针内固定方式在下颌髁突矢状骨折治疗中的应用价值。**方法** 回顾分析 2019 年 1 月至 2020 年 1 月在广州中医药大学附属佛山市中医院口腔医疗中心就诊的下颌骨髁突矢状骨折复位后采用克氏针内固定治疗的患者, 共 13 例 19 侧。治疗过程包括常规手术切开、暴露并复位游离的下颌骨髁突后, 根据下颌骨髁突骨质断端情况利用 2~4 根克氏针固定, 伴发其他部位骨折时同期手术治疗。术后 1 周通过 CBCT 评估游离的下颌骨髁突复位精准度及稳固性, 通过临床检查评价咬合关系、开口度、开口型。**结果** 所有患者骨折断端对位良好, 克氏针无扭曲、折断和松脱; 术后咬合关系、开口度、开口型恢复良好。**结论** 克氏针治疗下颌骨髁突矢状骨折效果确切, 有临床应用价值。

【关键词】 下颌骨髁突; 颞下颌关节; 矢状骨折; 单侧髁突骨折; 双侧髁突骨折; 锥形束 CT; 坚强内固定; 克氏针; 钛板; 咬合关系; 开口度; 开口型

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Retrospective analysis of the treatment of mandibular condylar sagittal fracture with Kirschner wire in 13 cases WANG Ke, PENG Guoguang, HE Shanzhi, TAN Yulian. Stomatological Medical Center, Foshan Hospital of Traditional Chinese Medicine, Foshan 528000, China

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【Abstract】Objective To evaluate the value of Kirschner wire internal fixation in the treatment of sagittal mandibular condylar fractures. **Methods** From January 2019 to January 2020, 13 patients (19 sides) with mandibular condylar sagittal fracture treated by Kirschner wire internal fixation at the Stomatological Medical Center, Foshan Hospital of Traditional Chinese Medicine were retrospectively analyzed. After conventional surgical incision and exposure and reduction of the mandibular condyle, 2-4 Kirschner wires were used for fixation, and other maxillofacial fractures were treated simultaneously. The reduction accuracy and stability of the free mandibular condyle were evaluated by CBCT one week after the operation, and the occlusion relationship, opening degree and opening type were evaluated by clinical examination. **Results** All patients had good fracture alignment and no twisting, breaking or loosening of the Kirschner wire. The occlusion relationship, opening degree and opening shape recovered well after the operation. **Conclusion** Kirschner wire is effective in treating sagittal fractures of mandibular condyles.

【Key words】 mandibular condyle; temporomandibular joint; sagittal fracture; single condylar fracture; bilateral condyle fracture; cone beam CT; rigid internal fixation; Kirschner wire; titanium plate; occlusion relationship; opening degree; opening shape

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下颌骨髁突矢状骨折是颌面部骨折治疗的重点和难点,其移位的髁突骨块小,受翼外肌牵拉向前内移位的位置深,手术视野小,如果暴力复位容易导致翼外肌附着断裂血运丧失、复位后内固定不稳固等。目前下颌骨髁突矢状骨折主要采用保守治疗、长钛钉固定、拉力螺钉固定等方法。本研究以克氏针为主的固定方法治疗下颌骨髁突矢状骨折,取得了良好的效果,现报告如下。

1 资料和方法

1.1 患者资料

选取2019年1月至2020年1月在广州中医药大学附属佛山市中医院口腔医疗中心就诊的13例下颌骨髁突矢状骨折患者(共19侧),其中7例为单侧下颌骨髁突矢状骨折,6例为双侧下颌骨髁突矢状骨折,伴发下颌骨他处骨折4例。男9例,女4例,年龄16~68岁,平均年龄38.4岁。致伤原因:8例高处跌落伤,5例交通事故伤。所有患者均为下颌骨髁突矢状骨折伴骨折段前内下移位,临床检查升支高度降低,咬合关系紊乱。受伤至手术时间为1~16 d,平均3.5 d。

1.2 外科复位方法

所有患者经鼻插管全身麻醉成功后以耳屏切口入路,分离皮肤、皮下组织,注意保护颞浅动静脉血管。切开腮腺包膜,分离腮腺组织,暴露面神经,注意保护面神经,暴露并切开关节囊,暴露下颌骨髁突内侧骨断面,由于髁突残端的阻挡使术者的视野和器械难以抵达移向前下内方的游离髁状突断端,复位难度增大。采用关节撑开器撑开关节间隙扩大手术操作空间,利用髁突矢状骨折定位器在前内下方探寻到游离断端后,再辅以髁突矢状骨折复位钳夹持并复位髁突游离骨折段,将髁突骨折解剖复位。所有病例采用2~4颗克氏针固定,一般选择直径0.8~1.2 mm克氏针,注意克氏针间尽量不平行固定;克氏针深度应由外到内穿透髁突双层骨皮质,但注意不能过深,刚刚穿透内侧骨皮质为宜,针尾处折弯90°。由于髁突游离端有翼外肌的牵拉,克氏针尖端注意不能穿过翼外肌的肌肉,避免了肌肉收缩对针的影响。复位后将移位或撕裂的关节盘复位、缝合固定,分层关闭创口。伴有多部位下颌骨骨折患者同期行精确复位固定。术后随访时间为6~12个月,平均为9个月。术后拍摄锥形束CT(cone beam CT, CBCT)或X光片来评估内固定情况、骨折段复位精准度

及稳固性,通过临床检查评价患者咬合关系,并检查患者的开口度、开口型。

2 结果

2.1 治疗效果

在13例下颌骨髁突矢状骨折中,仅1例患者出现暂时性面神经颞面干损伤,主要表现为额皱变浅,闭眼迟钝,经过营养神经对症治疗,2周后恢复正常。所有患者术后骨折段对位良好,无旋转移位情况发生,髁突形态正常;克氏针无松脱或移位。术后咬合关系恢复良好,开口度及开口型恢复正常。患者骨折类型、髁突内固定方式、House-Brackmann面神经功能分级(HB分级)以及影像学评价详见表1。

2.2 克氏针治疗下颌骨髁突矢状骨折典型病例

患者,男,27岁,因高处坠落跌伤致双侧下颌骨关节肿痛,张口受限入院。查体:双侧耳前关节区压痛,张口重度受限,下颌后缩,开颌,关节窝空虚。CBCT示:双侧髁突高位骨折,整个髁突骨折、移位,下颌骨升支高度变低,颞部骨折,宽度变宽(图1a)。诊断:下颌骨双侧髁突高位骨折、颞部骨折。

治疗过程:入院后完善术前相关治疗,有手术指征,经鼻插管全麻下行下颌骨双侧髁突骨折、颞部骨折切开复位内固定术,术中右侧髁突骨折使用4颗克氏针固定,左侧髁突术中探查见解剖复位后其后外侧面空间足够,故用1块钛板并辅助2颗克氏针固定,颞部骨折线两侧用2块钛板固定(图1b~1c)。

术后1周全景片示内固定位置适中,未明显突出髁突骨皮质,双侧髁突矢状骨折解剖复位(图1d)。术后常规抗炎对症治疗,颌间牵引,病情稳定出院。

术后1年拆除内固定,患者咬合关系可,张口无受限,无关节疼痛、弹响不适。全景片及CBCT片示双侧髁突骨折线已愈合,关节头-关节凹关系正常,髁突位置适中(图1e~1g)。

3 讨论

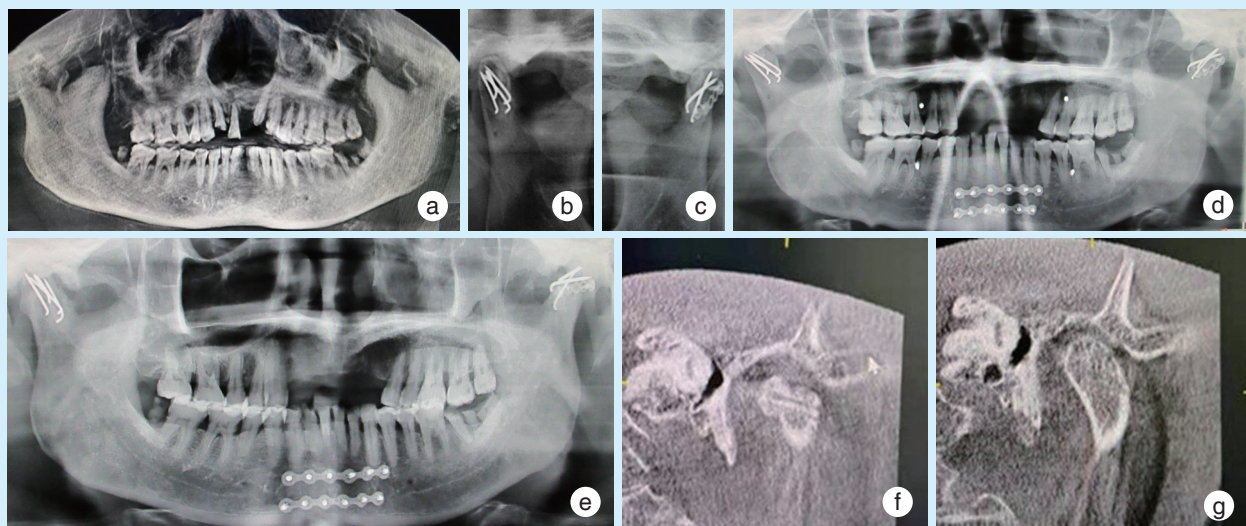
下颌骨髁突矢状骨折的治疗是颌面部骨折治疗的重点和难点,其治疗方法目前有争议^[1-2],条件允许的情况下,手术治疗较保守治疗取得更好的结果^[3]。下颌骨髁突矢状骨折目前的治疗方式有多种,包括钛板固定、长钛钉或拉力螺钉固定、克

表1 13例克氏针治疗下颌髁突矢状骨折患者资料

Table 1 Clinical data of 13 cases of sagittal fracture of mandible condyle treated with Kirschner wire

Case	Sex	Age(year)	Fracture type	Methods of condylar internal fixation	HB grading	Imaging evaluation
1	Male	29	CF2	L: KW × 3; R: KW × 3	I	Fracture reduction
2	Male	38	CF2+MSF	L: KW × 3+FP × 1; R: KW × 4	II	Fracture reduction
3	Female	45	CF1	R: KW × 3	I	Fracture reduction
4	Male	19	CF1	R: KW × 3	I	Fracture reduction
5	Male	16	CF1	L: KW × 2	I	Fracture reduction
6	Female	52	CF2+MSF	L: KW × 2; R: KW × 4	I	Fracture reduction
7	Female	46	CF1	L: KW × 4	I	Fracture reduction
8	Male	27	CF2+MSF	R: KW × 4; L: KW × 2+FP × 1	I	Fracture reduction
9	Male	23	CF1	R: KW × 3	I	Fracture reduction
10	Male	49	CF1	L: KW × 3	I	Fracture reduction
11	Male	55	CF2	L: KW × 4; R: KW × 3	I	Fracture reduction
12	Male	68	CF2	L: KW × 3; R: KW × 3	I	Fracture reduction
13	Female	32	CF1	R: KW × 3	I	Fracture reduction

CF1: single condylar fracture; CF2: bilateral condyle fracture; MSF: mandibular symphysis fracture; KW: Kirschner wire; FP: fixation plate; L: right; R: left; HB grading: House-Brackmann grading of facial nerve



a: preoperative panoramic CBCT film, bilateral high condylar fracture, the fracture block is displaced, and the height of the ascending ramus of the mandible is reduced; b: CBCT shows the right condyle fracture was fixed with four Kirschner wires; c: CBCT shows the left condyle fracture was fixed with two Kirschner wires and one titanium plate; d: panoramography at one week after operation, there was no prominent condylar cortical bone, and bilateral sagittal condylar fractures were anatomically reduced; e: panoramography at one year after operation, removal of internal fixation, the condylar fracture lines on both sides have healed; f-g: one year after operation, CBCT shows that after the removal of bilateral condylar internal fixation, the articular head-joint concave relationship is normal, and the condyle is in a moderate position; CBCT: cone beam CT

Figure 1 Typical cases of sagittal fracture of the mandibular condyle treated with Kirschner wire

图1 克氏针治疗下颌髁突矢状骨折典型病例

氏针固定等,采用单纯或组合方法固定,而治疗手段也发展至多种多样^[4-10]。选择髁突矢状骨折的治疗方法时需考虑多种因素影响:①骨折类型,虽然A型、B型均影响了咬合及张口,但游离断端的

髁突头大小及剩余骨折断端情况对该类骨折内固定的选择起了重要作用;②内固定器械条件限制,是否用拉力螺钉、长钛钉、克氏针、微型钛板等也是治疗的影响因素;③患者条件,包括是否有骨质

疏松、患者肥胖程度等。经过大量实践,本课题组目前已研发了髁突矢状骨折复位钳、间隙撑开钳、特殊拉钩等多种与治疗下颌骨髁突矢状骨折有关的特殊器械。

髁突矢状骨折首选钛板固定。若空间不足钛板无法固定,目前多数文献选择钛钉固定或钛板钛钉联合固定^[11-12];但该类方法有不足之处,体现在以下几个方面:①下颌骨髁突矢状骨折髁突游离端复位后用动力钻钻孔过程中必须严格制动,稍有错位钛钉就很难钉入,而且动力钻头长度有限,钛钉进入断面对侧,经常引起复位的髁突再次移位,因多数钛钉非自攻钉;②钛钉直径大(多数钛钉直径约2 mm),而髁突断端外侧骨皮质边缘较薄,下颌骨髁突矢状骨折可用的“有效皮质固定面积”较少,由于动力钻头比钛钉细(临床常用的钻头直径1.8 mm,钛钉直径2.0 mm),钻孔后钛钉植入过程中外侧骨断面皮质因挤压作用容易爆裂,一般只允许固定1~2颗钛钉,而单颗钛钉固定容易在翼外肌强大的拉力下发生旋转、移位;③钛钉长度有限,目前报道一般10~15 mm,一般为单皮质螺钉,临床工作中的髁突长轴长度变异较大,钛钉深度一般只达到移位游离髁突的骨松质,很难将移位髁突内侧骨皮质一起固定,在翼外肌的牵拉下固位力不足,这就决定了患者术后必须要长时间牵引制动,限制了患者的活动。有报道采用两根拉力螺钉治疗下颌髁突矢状劈裂骨折,可防止髁突内段骨折的旋转,更稳定的内固定^[13],而钛钉较可吸收钉更加适用于髁突矢状骨折固定^[14]。

与使用钛钉固定相比,采用克氏针治疗下颌骨髁突矢状骨折有独特优势,包括:①克氏针粗细、长短均可选择,不同患者髁突直径差异较大,髁突直径10~45 mm,克氏针的长度也可以根据术中测量的髁突实际直径长度随时调整,髁突断面皮质的“有效皮质固定面积”以及髁突游离端大小决定了克氏针的直径、数量,一般选择直径为0.8、1.0、1.2和1.5 mm这四种型号,其中直径为1.0、1.2 mm型号最为常用;②克氏针操作简单,内固定过程中无需换手,手术过程中测量好角度后钻孔、固定一次完成;③抗旋转作用,多颗克氏针交叉固定,具有抗旋转作用,避免骨折段旋转移位的可能性,也大大增强了内固定固位力的强度;④由于固定牢固,患者术后可以正常运动,术后无需牵引;⑤克氏针操作简便,无需特定的动力系统,常规手动钻即可,而且与钛钉相比,克氏针价格低廉,在基层

医院容易获得。旋转克氏针也有操作要点:控制进针的方法,控制深度,术者钻入过程中感受到有落空感即表示穿透内侧骨皮质,应马上停止继续钻入,固定完毕后应注意折弯避免滑入深部。

克氏针治疗下颌骨髁突矢状骨折也有缺点和不足。由于克氏针为不锈钢材质,患者术后需避免磁共振成像检查,且其无法与骨质产生骨结合。二期手术拆除克氏针时,由于进针位置位于髁突外侧面积较小、固定后又进行末端折弯,故拆板时容易探查并取出。本研究中所有内固定患者二期手术均顺利取出克氏针。需要强调,克氏针治疗下颌骨髁突矢状骨折只是一个选项,其适应症相对狭窄,条件允许情况下建议首选钛板钛钉固定。

综上所述,应用克氏针治疗下颌骨髁突矢状骨折操作简单,固定效果确切,经济实用,有一定的临床价值。

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