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· 临床研究 ·

埋伏多生牙微创精准拔除 85 例临床研究

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【摘要】 目的 探讨埋伏多生牙微创精准拔除的手术设计与方法, 为临床提供参考。**方法** 对 85 例患者共 87 颗埋伏多生牙进行手术拔除, 术前行 CBCT 检查, 根据埋伏多生牙距离颊舌(或唇腭)侧皮质骨的距离, 就近原则选择手术入路; 以 CBCT 的测量尺测量埋伏多生牙的牙冠颊舌向及近远中向的最大直径, 根据牙冠颊舌向的半径, 以其上方的牙槽嵴顶或邻牙釉牙骨质界为参照, 确定拟去骨的上界、下界; 自上下界连线的中点向近远中做水平垂线, 水平垂线的长度为埋伏多生牙冠近远中向直径的 1/2, 即半径, 确定拟去骨的水平向起止点; 阻滞麻醉+局部浸润麻醉下电刀做梯形或弧形切口, 切口保留龈乳头, 用骨尺标记去骨的上界点、下界点及近远中点, 从上界点与下界点连线的中点区开始向上下及近远中向去骨, 去骨的范围略大于牙冠的半径, 显露埋伏多生牙牙冠, 以 45° 仰角气动式外科专用切割手机或超声骨刀将埋伏牙的牙冠牙体一分为二, 分块取出牙冠及牙体组织, 清理冲洗术区, 缝合伤口, 术后予以抗炎、消肿治疗, 嘱术后 24 h 局部冰敷, 流质饮食; 备止痛药; 术后 7 d 复诊, 检查伤口愈合并询问记录患者止痛药的服用情况。**结果** 所有患者术后 7 d 伤口愈合良好, 均予以拆线。颌面部无肿胀, 开口度基本恢复正常, 未发生感染及麻木等并发症, 其中 58 例患者未服用止痛药。**结论** 以 CBCT 对骨内埋伏多生牙定位, 就近原则选择手术入路, 术中使用骨尺精准定点去骨, 分块拔除埋伏多生牙, 可以达到微创精准的效果。

【关键词】 埋伏多生牙; 锥形束计算机断层扫描; 骨尺; 定位; 超声骨刀; 气动式外科专用切割手机; 微创; 拔牙; 精准医学

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Clinical study of the minimally invasive extraction of impacted supernumerary teeth in 85 cases SONG Zhi-feng, FEI Fei. Department of Integrated Dentistry, Shanghai Stomatological Hospital, Shanghai 200031, China
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【Abstract】 Objective To explore the surgical design and surgical methods for the minimally invasive extraction of embedded supernumerary teeth and to provide a reference for clinical practice. **Methods** A total of 87 embedded supernumerary teeth were removed from 85 patients. CBCT examination was performed before the operation. The nearest surgical approach was selected based on the distance between the embedded supernumerary teeth and the bony plate of the buccal tongue (lip and palate). The CBCT measuring ruler measured the maximum diameter of the impacted dental crown. According to the radius of the buccal and tongue directions of the crown, the upper and lower boundaries (buccolingual direction) of the bone to be deboned were determined with reference to the top of the alveolar crest or adjacent enamel cementum. A horizontal vertical line was made from the point to the meridian, and the length of the horizontal line was 1/2 the diameter of the impacted multiple crown. Thus, the radius determined the horizontal starting and ending points of the bone to be boneless. A trapezoidal or arcuate incision was made with an electric knife under block anesthesia and local infiltration anesthesia. The incision retained the gingival papilla. The upper and lower as well as the near and far midpoints of the bone were marked with a bone ruler. Starting from the midpoint area, the upper and lower points were connected. The mesial bone was removed in the mesial direction, and the range of the removed bone was

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slightly larger than the radius of the crown, showing the crown of the embedded supernumerary teeth. A surgical impact air handpiece with a 45-degree elevation angle or a piezosurgery device was used to divide the crown of the embedded supernumerary teeth into two parts. The crown and dental tissues were removed in pieces, the surgical area was cleaned and rinsed, and the wound was closed. Anti-inflammatory and swelling treatments were administered after the operation, and painkillers were prepared. The patients were revisited 7 days after the operation to check for wound healing. We asked and recorded the amount of painkillers taken by the patients. **Results** All patients had good wound healing 7 days after the operation, and the wounds were sutured. There was no swelling on the maxillofacial surface, and the degree of opening was basically normal. No other complications such as infection or numbness occurred. Fifty-eight patients did not take painkillers. **Conclusion** CBCT can be used to locate the embedded supernumerary teeth in bone. The surgical approach can be chosen based on the principle of proximity. During the surgery, the bone ruler is used to accurately locate the bone and remove the embedded supernumerary teeth in pieces, which can achieve a minimally invasive effect.

【Key words】 embedded supernumerary teeth; cone beam computed tomography; bone ruler; positioning; piezosurgery device; surgical impact air handpiece; minimally invasive technique; teeth extraction; precision medicine

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超出正常牙齿数目的牙即为多生牙,多生牙可以单个或多个,可以累及单侧颌骨或双侧;最常见的多生牙部位依次是上颌中线区、上颌第四磨牙区、上颌前磨牙区、下颌前磨牙区,多生牙在上颌的发生频率是下颌的10倍^[1]。多生牙可引起牙列不齐,压迫邻牙,埋伏多生牙还可以发生囊肿,导致美学或功能问题,临床上常予以拔除^[2-3]。拔除牙冠显露于口腔的多生牙较为容易,埋伏于颌骨内的多生牙拔除较为困难,易于伤及邻牙牙根、鼻腭神经、下牙槽神经、上颌窦等重要结构,临床常用锥形束计算机断层扫描(cone beam computed tomography, CBCT)进行定位^[4-5];然而,对埋伏多生牙以CBCT影像学定位后,如何转化应用于临床手术操作中的定位,实现微创精准拔除是一个重要问题,较少有文献报道。笔者近年对埋伏多生牙的拔除,术前应用CBCT定位,根据就近原则确定手术入路,并以CBCT的测量尺测量埋伏多生牙牙冠的颊舌向及近远中最大直径,确定拟去骨的上界、下界至其上方的牙槽嵴顶或邻牙釉牙骨质界的直线距离,术中翻瓣后以骨尺进行指示精确定点,应用45°仰角气动式外科专用切割手机及超声骨刀进行埋伏多生牙微创拔除,取得良好效果,报道如下。

1 资料和方法

1.1 病例资料

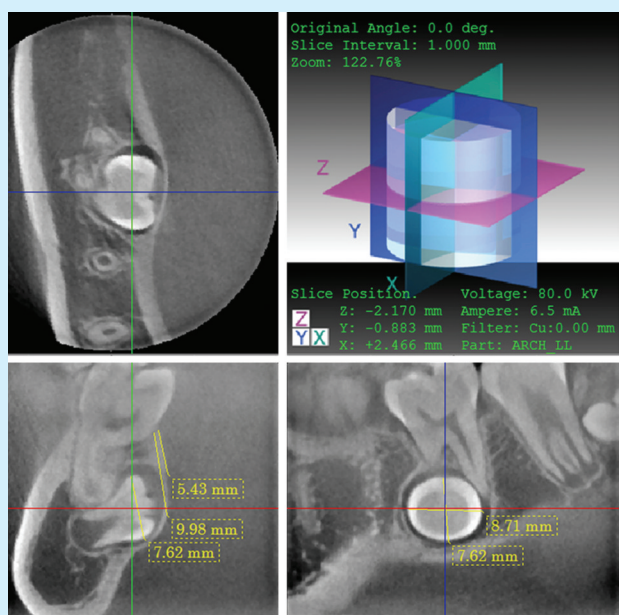
从2017年3月至2019年10月对在笔者医院综

合科门诊就诊85例患者共87颗埋伏多生牙进行拔除术,年龄12~38岁,中位数年龄为22.5岁;其中男性54例,女性31例;埋伏多生牙位于上颌79颗,下颌8颗,其中上颌前牙区65颗;拔除的原因为正畸治疗需要或埋伏多生牙导致局部邻牙不适。纳入标准:完全骨内埋伏多生牙患者并进行手术拔除者;排除标准:已萌出的多生牙的手术患者。

1.2 方法

所有患者均无拔牙手术禁忌证,签署知情同意书,术前行CBCT检查,累及邻牙病变者先行病变邻牙的根管治疗,择期手术。术前根据埋伏多生牙距离颊舌(或唇腭)侧皮质骨板的距离,就近原则选择手术入路;以CBCT的测量尺测量埋伏多生牙牙冠颊舌向及近远中向的最大直径,根据牙冠颊舌向的半径,以其上方的牙槽嵴顶或邻牙釉牙骨质界为参照,确定拟去骨的上界、下界,并测量记录至其上方的牙槽嵴顶或邻牙釉牙骨质界的直线距离;自上下界连线的中点向近远中做水平垂线,水平垂线的长度为埋伏多生牙冠近远中向直径的1/2,即半径,确定拟去骨的水平向起止点(图1)。

常规消毒铺巾,4%盐酸阿替卡因(含1/100 000肾上腺素)阻滞麻醉+局部浸润麻醉下电刀做梯形切口,切口保留龈乳头,在龈乳头下方翻瓣显露术区(图2a),用骨尺以牙槽嵴顶或邻牙釉牙骨质界为参照,标记去骨的上界点、下界点及近远中点,



The maximum diameter of the buccal to tongue of the crown of the embedded supernumerary teeth measured by the CBCT measuring ruler was 7.62 mm. The maximum crown mesial to distal diameter was 8.71 mm. The upper boundary of the bone to be deboned was determined to be 5.43 mm at the lingual alveolar crest, and the lower boundary was 9.98 mm at the lingual alveolar crest. The bone removal height between the upper and lower bounds was $9.98 - 5.43 = 4.55$ mm, which was slightly larger than the crown buccal to tongue radius of 3.81 mm. A horizontal vertical line was made at the midpoint of the upper and lower boundary points, and the bones were removed to the mesial and distal distances of 2.2 mm. Thus, the width of the removed bone in the mesial and distal directions was 4.4 mm, which was slightly larger than the mesial and radial radius of the crown of 4.35 mm

Figure 1 Design of the right lower embedded multiple tooth extraction surgical approach and precise bone removal position based on CBCT

图1 根据CBCT设计右下埋伏多生牙拔除手术入路及精准去骨位置

从上界点与下界点连线的中点区开始向上下及近远中向去骨,去骨的范围略大于牙冠的半径,显露埋伏多生牙牙冠(图2b、2c),将埋伏多生牙的牙冠自中央沿牙体长轴方向以装有金刚砂车针的45°仰角高速手机分割牙冠,深度为牙冠高度的4/5,分割线的长度为牙冠的直径的4/5,保持车针的分割在牙冠组织内进行,不超出牙冠组织外,确保不伤及周围组织,如邻牙牙根,神经等重要结构(图2d),之后,以牙挺刃插入分割线内,轻轻旋转牙挺,将牙冠牙体一分为二(图2e);分块取出牙冠及牙体组织,清理冲洗术区,缝合伤口(图2f~2h)。对于临近鼻腭神经、下牙槽神经、上颌窦等重要结构,去骨及分牙则使用超声骨刀,将埋伏多生牙分块取出。术后常规使用单一抗生素(头孢类或大环内酯类)抗炎治疗5 d;地塞米松片1.5 mg Bid,消肿治疗3 d。止痛药布洛芬3颗备用(0.3 g, prn);嘱术后24 h局部冰敷;流质饮食;术后7 d复诊,检查伤口,询问抗生素及止痛药的服用情况。

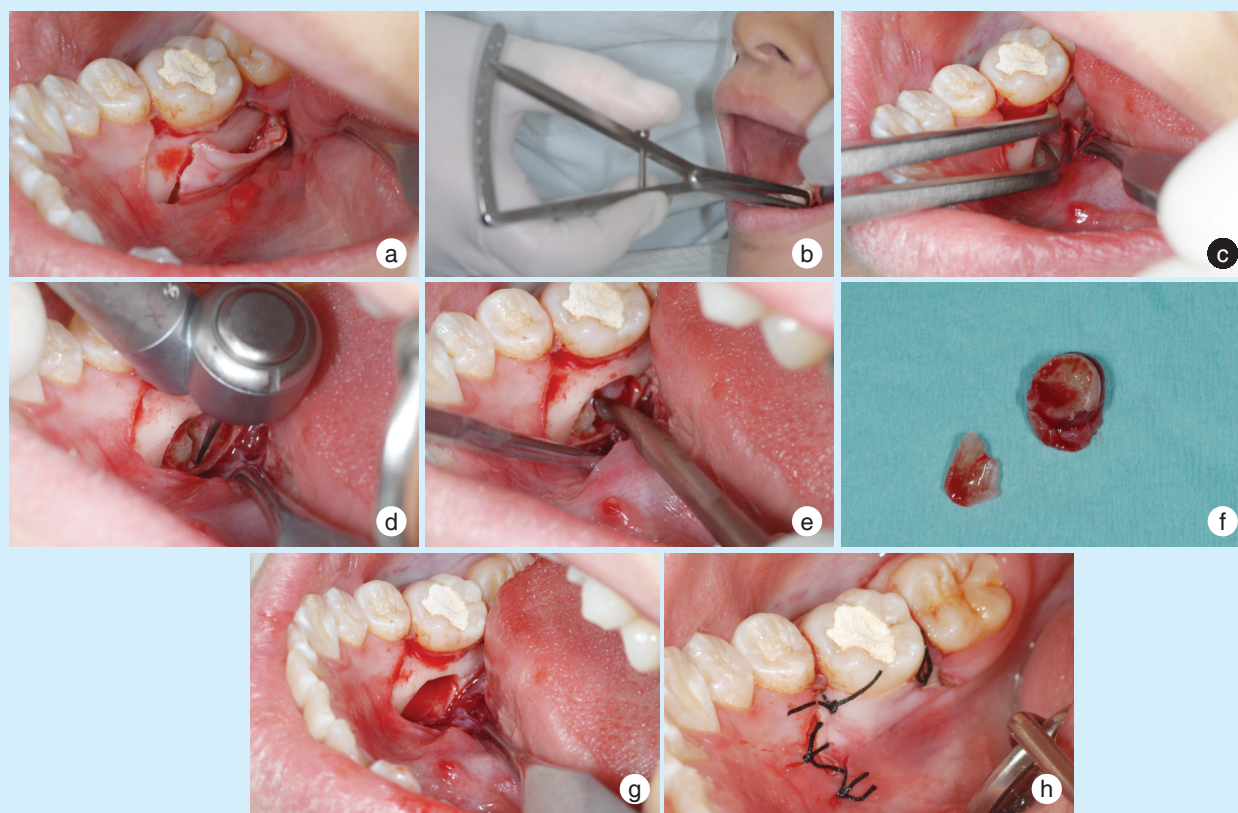
2 结果

85例患者共87颗埋伏多生牙均顺利拔除;手术平均时间(25 ± 4.35) min;所有患者均遵医嘱口服抗生素抗炎治疗5 d,地塞米松片消肿治疗3 d。术后7 d复诊,伤口愈合良好,颌面无肿胀,开口度基本正常,未发生感染及麻木等其他并发症,均予以拆线。止痛药物的使用,其中58例患者未服用

止痛药;16例患者术后当天服用1颗布洛芬胶囊;11例患者术后当日及第二天各服用1颗布洛芬胶囊;术后3 d均无明显疼痛感,无患者需要继续服用止痛药。

3 讨论

恒牙列中多生牙齿的患病率0.5%~3.8%不等,而在乳牙列中则为0.3%~0.6%。男性中的多生牙齿的出现频率高于女性,比率为2:1;多生牙可以单侧,双侧或单侧或双侧出现在上颌,下颌或两者中。在上颌中出现多生牙齿的频率是下颌骨的8.2~10倍,并且常见于前颌骨。涉及1~2颗多生牙的病例最多见于上颌前牙,其次是下颌前磨牙区^[6]。对于不引起临床症状,通过影像学检查发现对身体无影响的埋伏多生牙,可不手术拔除。对于引起邻牙牙根吸收、牙槽骨吸收、囊肿发生、邻牙萌出失败、导致牙列拥挤、咬合关系紊乱、相邻牙齿移位、牙间隙增大、邻牙龋坏等临床及影像学表现,则应考虑手术拔除^[7]。研究表明,对于临床无症状的埋伏多生牙,随着年龄的增大,可能有移位的风险或发展为病理状态的可能性增大,这种牙拔除的手术入路会变得困难,颌骨骨折风险加大,术中和术后并发症风险加大^[8-9];Nagata等^[10]报道1例29岁的男性患有硬膜外脓肿,可能是由残余右上颌乳尖牙和右上颌埋伏牙感染引起的,患者经过长时间的抗生素治疗和拔除这两颗疑似



a: the lingual surgical approach was selected based on the location of the embedded tooth shown by CBCT; b&c: the bone ruler was used to mark the upper and lower points of the bone with the alveolar crest as the reference; d: along the long axis, a high-speed turbine at an elevation of 45 degrees was used to divide the crown of ambush multiple teeth; e: the edge of the tooth was inserted into the dividing line and divided the tooth into two; f-h: the crown and tooth tissues were removed (f), the irrigation area was cleaned (g), and the wound was sutured (h)

Figure 2 Minimally invasive and precise extraction of the embedded multiple teeth in the right mandible

图2 右下颌骨内埋伏多生牙的微创精准拔除

病原牙后,患者得以完全康复,因此同样建议早期拔除。

埋伏多生牙的拔除,较多文献报道以CBCT定位,然而,影像学的检查,如何精准应用到临床手术中,鲜有报道,Nam等^[11]利用CBCT精准定位埋伏牙位置,在CBCT的指引下,制作手术导板,进行微创治疗,减小拔牙创,缩短拔牙时间。然而,制备手术导板过程繁琐,增加了患者的费用,并且,导板本身存在误差,也影响手术视野。本研究利用CBCT的测量尺测量埋伏多生牙牙冠颊舌向及近远中向的最大直径,根据牙冠颊舌向的半径,以其上方的牙槽嵴顶或邻牙釉牙骨质界为参照,确定拟去骨的上界、下界;上下界点连线的中点处做水平垂线,分别向近中和远中去骨,水平向去骨长度略大于埋伏牙牙冠的近远中向半径;翻瓣后,将

在CBCT上测量设计得到的数据以骨尺根据牙槽嵴顶的参照在显露的拟去骨的表面定点标记,根据标记点去骨,显露牙冠后,将牙冠牙体自中央沿牙体长轴方向以装有金刚砂车针的45°仰角高速手机分割,分割深度为牙冠高度的4/5,分割保持车针在牙冠组织内进行,不超出牙冠组织外,以确保不伤及周围组织,随后以微创挺插入切割线内,将牙冠牙体一分为二,分块取出牙体组织。个别情况下,遇到根分叉较大或术中切割方向偏移,则先取出较小的分离牙体组织,对较大的牙体组织继续分割。在上颌后牙区或下颌近下牙槽神经管区,则选用超声骨刀进行切割,分块取出,超声骨刀具有微创精准,保护软组织,利于骨愈合的特点^[12-14]。拔除埋伏多生牙后,需要刮除牙囊组织,以免残余的牙囊组织产生病变,如此,通常单个埋

伏多生的磨牙,去骨范围控制在5 mm以内。本研究对85例患者共87颗埋伏多生牙进行微创精准的拔除,术后7 d随访的结果显示效果良好,患者术后反应较小,超过半数患者并不需要口服止痛药物,达到微创精准的目的,值得临床推广。

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