

## ·临床报道·

# 数字化技术结合导板在下颌骨粉碎性骨折复位内固定术中的应用

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**【摘要】目的** 探讨数字化技术、3D 打印模型结合导板在下颌骨粉碎性骨折中的应用。**方法** 选取下颌骨粉碎性骨折患者 19 例, 进行 1.0 mm 层厚三维 CT 扫描, 数据通过 DICOM 格式导出, 利用软件进行虚拟手术复位骨折, 复位后 3D 打印出下颌骨模型及咬合导板。在下颌骨模型上进行钛板预弯及制作复位导板, 术中引导骨折块复位固定。**结果** 术后 19 例患者手术切口均无感染征, 创口隐蔽美观, 骨折对位精确, 钛板与骨折段贴合; 术后 6 月随访骨折对位愈合情况好, 无明显移位。患者下颌无偏斜, 无张口、咬合疼痛, 咬颌关系良好, 未见明显张口受限。**结论** 数字化技术、3D 打印模型结合导板能让下颌骨粉碎性骨折精确复位, 简化手术过程, 是一种精准、可预测的手术辅助方式。

**【关键词】** 下颌骨粉碎性骨折 数字化技术 导板 3D 打印

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## Application of digital technology combined with guide plate in the internal fixation of mandibular comminuted fracture

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**【Abstract】Objective** The aim of this study was to investigate the clinical application experience of digital technology combined with guide plate and 3D printing model in the reduction and internal fixation of mandibular comminuted fracture. **Methods** A total of 19 patients with mandibular comminuted fracture were recruited, and they were examined by 3D CT scanning with 1.0 mm thickness. CT data were exported to a file with DICOM format. Using the DICOM Viewer, a virtual surgery was performed to reduce the fracture, and after the reduction, 3D printing of mandible model and occlusal guide plate was conducted. Pre-bending the titanium plate and preparation of the reduction guide were performed on the mandible model, which guided the reduction and fixation of the fracture during the surgery. **Results** No signs of postoperative infection in the surgical incisions were found in all 19 cases, and the incisions were hidden and beautiful. The fracture was accurately aligned, and the titanium plate well fitted the fractured segment. The follow-up at postoperative 6 months showed that the fracture healing was good without obvious displacement. Deflection of the mandible, and pain in opening mouth and biting were not detected. The bite-jaw relationship was good, and no obvious restriction of jaw opening was examined. **Conclusion** Digital technology combined with guide plate and 3D printing model contributes to an accurate reset of mandibular comminuted fracture, which is a simple, accurate and predictable auxiliary method of surgery.

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