

Repair of Bilateral Mandible Fractures Using Minne Ties for Mandibulomaxillary Fixation

A healthy 18-year-old male with no past medical history and excellent baseline dentition presented to the emergency department after being struck with a baseball bat. He sustained a nondisplaced fracture of his left mandibular ramus extending through the socket of the unerupted molar tooth and a nondisplaced fracture of the parasymphyseal region of his right mandible extending between the right mandibular canine and first premolar tooth. Injuries were identified on a computed tomography maxillofacial scan (Figures 1a and 1b) and the subsequent three-dimension reconstruction (Figure 2). As a result, the patient had two centimeters of trismus and exquisite mandibular tenderness.

Treatment options discussed included observation, traditional maxillofacial hardware including arch bars and screws, and Minne Ties. The patient elected to proceed with Minne Ties and was consented for intraoperative repair. Nasotracheal intubation was performed and a total of six 1.0mm Minne Ties were placed. Three Minne Ties were placed with ease starting just posterior to the right second molar proceeding sequentially anterior to the first cuspid. The same pattern was followed with three ties on the left (Figures 3a, 3b). The ties were not tightened until the patient was placed into optimal occlusion and closed reduction was achieved. Total operative time was 48 minutes.

The patient was tolerating a full liquid diet by postoperative day one with minimal mandibular pain. He was discharged that day. At his one-week visit, the patient was comfortable, while using chlorhexidine rinse and liquid Tylenol as needed for gingival soreness. In the interim, one tie was loosened due to rough play; however upon inspection, the other five were tight and flush with the gingiva.



Figure 1a

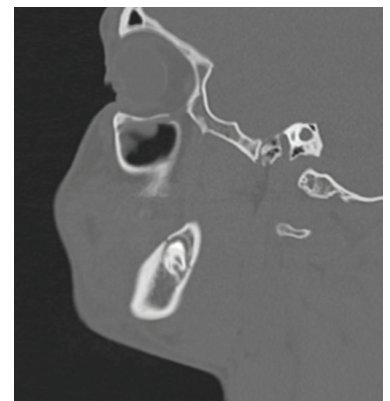


Figure 1b



Figure 3a



Figure 3b



Figure 2

Our patient remained in maxillomandibular fixation for three weeks and returned for follow-up to the outpatient otolaryngology clinic for a panoramic dental radiograph. Imaging demonstrated his bilateral fractures were appropriately reduced (Figure 4), and the patient felt he was near his baseline occlusion (Figure 5). Therefore, the patient met criteria for removal. The patient opted for no topical or local anesthesia, reporting only pressure during removal, which was done with Mayo scissors. It was noted that he no longer had trismus or tenderness while moving his mandible.

Overall, the outcome for both the patient and healthcare providers resulted in fewer anesthesia events due to outpatient removal, reduced intraoperative application time, shorter time involvement for operating room staff, more comfort, less instrumentation and less manipulation of the patient's anatomy.

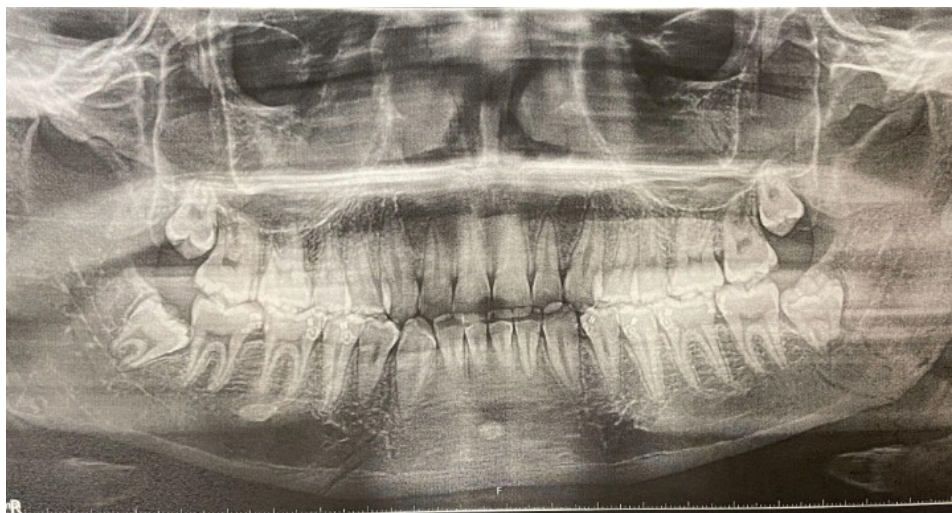
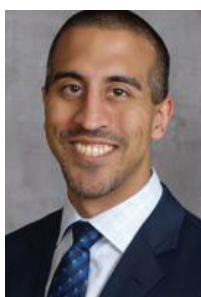


Figure 4



Figure 5



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