

# Closed Treatment of a Unilateral Mandible Fracture Using Minne Ties Agile MMF

*A 34-year-old male with no significant past medical history and excellent class I premorbid occlusion presented to the Massachusetts General Hospital Emergency Department with facial swelling and lower jaw pain, after sustaining a sports injury. The patient reported that at 7:30 AM, hours prior to presenting to the ED, he was playing ice hockey when a deflected shot changed trajectory of the hockey puck and directly hit his right mandible. The patient did not experience loss of consciousness and endorsed wearing both a helmet and mouth guard. Immediately after the injury he noted blood in his mouth and a change in his bite. The patient called his General Dentist and was instructed to present to the emergency department for evaluation of his jaw.*

After assessing the patient and performing a CT scan, the ED consulted OMFS regarding management of the patient's right parasymphysis fracture (Figure 1). Patient endorsed malocclusion due to perceived occlusal step-off, and intra-oral bleeding without an obvious source. Patient denied dyspnea, trismus, visual disturbances, changes in hearing, dizziness or confusion. Endorsed history of dental anxiety. Clinical exam without obvious clinical occlusal step-offs, no gross mobility of mandibular segments, good oral hygiene and class I occlusion (Figure 2).

Patient initially deferred closed reduction and requested open treatment of non-displaced mandible fracture to avoid maxillomandibular fixation (MMF), given his significant dental anxiety. Patient was presented Minne Ties Agile MMF as an option, in lieu of Erich arch bars or IMF screws for MMF. Risks, benefits, and alternatives were discussed, and patient subsequently consented to closed treatment of mandible fracture with Minne Ties for MMF.

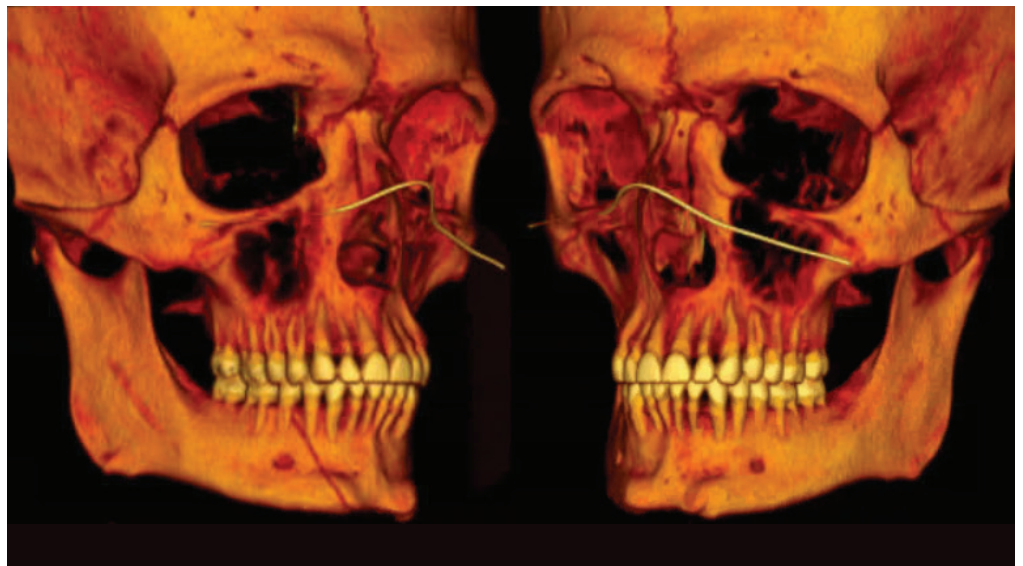


Figure 1: CT 3-D reconstruction demonstrating right parasymphysis fracture.



Figure 2: No obvious clinical occlusal step-offs, no gross mobility of mandibular segments, Good oral hygiene, class I occlusion.

Minne Ties were applied in the OMFS Clinic after administration of ~5 carpules of local anesthetic. Three Ties were applied in the embrasures between the molars on each side, from posterior to anterior and beginning on the maxillary side. Two large (1.0 mm) Ties and one medium (0.7 mm) Tie on each side were easily passed through the embrasures using the rigid, blunt tip introducer, and then through the self-locking clasp to form a loop with each Tie. (Figure 3) Once all were applied, the Minne Ties were tightened from anterior to posterior to achieve premorbid occlusion. Final tightening was performed to ensure strong and stable MMF and occlusion. The Ties were cut using an #11 blade. (Figure 4) Total procedure time was approximately 20 minutes. Adequate occlusion following Minne Ties application was demonstrated clinically and with postoperative PanoXR. (Figure 5)

After a short course of MMF, the Minne Ties were removed in clinic without administration of sedation or local anesthetic. The patient was sufficiently comfortable after xylocaine rinse. The Minne Ties were cut with iris scissors and removed uneventfully in less than 10 minutes. The patient tolerated Minne Ties well and endorsed premorbid occlusion at the time of removal. Continued premorbid occlusion was perceived at additional one month follow-up status post MMF removal. The patient reported Minne Ties being comfortable, and anxiety was not provoked during his time in closed reduction MMF.

Minne Ties Agile MMF are impressive in their ability to achieve both patient-satisfaction and provider-satisfaction as a minimally cumbersome, sufficiently strong, and efficient option for closed reduction MMF. This case highlights Minne Ties' utility in patients with significant anxiety, situations where sedation may not be possible, and decreased chairside time compared to conventional options like Erich arch bars. Given the positive outcome, this case represents the first of what will eventually become broader utilization of Minne Ties for appropriate patients in the clinic, ED and OR at Massachusetts General Hospital.

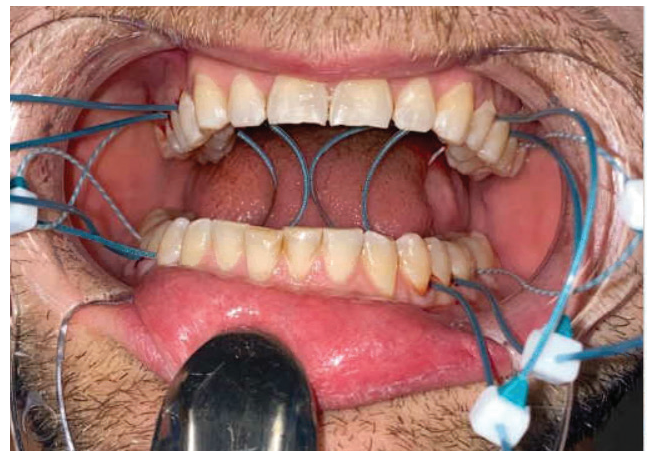


Figure 3: Mid-procedure application of Minne Ties Agile MMF.



Figure 4: Final Occlusal Reduction

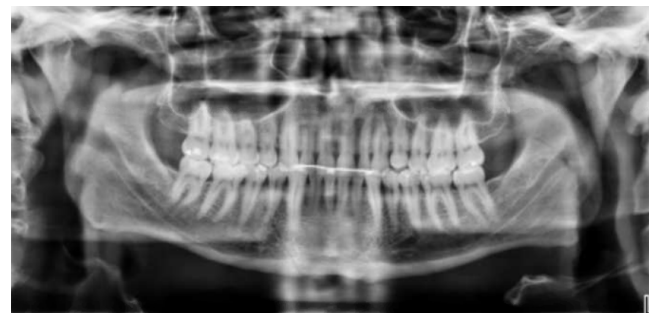


Figure 5: Post-operative PanoXR demonstrating adequate reduction



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