

A new and easy technique for maxillomandibular fixation

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ABSTRACT

Maxillomandibular fixation (MMF) is important in the treatment of maxillofacial fractures and is usually applied by wiring together the fixed upper and lower arch bars. Here, we report a new type of MMF technique, Rohtak Dental College (RDC) technique using 26-gauge stainless steel wires. It is a simple, quick, economical and minimally invasive technique. Its mechanical principle provides an advantage in preventing postoperative periodontal problems. Typical indications for its use are minimally displaced fractures, orthognathic surgeries and in tumor resection surgeries.

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INTRODUCTION

One of the most basic concepts in the treatment of facial fractures is that the dental occlusion can be used as a guide to fracture reduction and as a therapeutic tool. Thus, maxillomandibular fixation (MMF) is important in the treatment of maxillofacial fractures and in orthognathic surgery, and is usually applied by wiring together the fixed upper and lower arch bars. Many kinds of MMF methods, including an Ivy loop wiring, a wired arch bar, an acrylated arch bar, the Gottingen quick arch bar, a bonded arch bar, Dimac wire, thermoforming plates and a bone screw system, have been reported.^[1-4] However, these techniques require more time, involve a high cost, are complicated, need more laboratory support, extended operating time and require surgical intervention. We report a new type of MMF technique [Rohtak Dental College (RDC) technique] using 26-gauge stainless steel wires.

Technique

In this technique, a wire is passed around the neck of the upper first molar tooth, both ends of wire going from buccal to palatal, one along the mesial surface and other end along the distal surface of tooth [Figure 1]. Then both ends of wire are passed back around the lower first molar from lingual to buccal aspect in a similar manner [Figure 2]. Similar procedure is repeated on the

premolar teeth and on the contralateral side (molar and premolar regions). After achieving the occlusion, the ends of wire are twisted together on the buccal surface of the lower premolar and molar teeth on both sides [Figure 3]. At the end of treatment, wires can be easily removed with minimum trauma to patient.

DISCUSSION

Currently, the most common technique of fixating the jaw after a facial fracture is called MMF which can be achieved by various methods available in the literature.^[1-4] While



Figure 1: Step 1 of the technique



Figure 2: Step 2 of the technique

thinking of an ideal design for an MMF technique, the factors that should be considered include easy and quick application; low cost; need to securely hold the lower jaw tight to the upper jaw; avoidance of forces on front teeth as they are easily moved out of alignment; being minimally invasive; being safe for the patient during application and healing; and also presence of an emergency quick release system.

From our clinical experience of 1 year, we feel the present design incorporates most of these ideal requirements. It is a simple, economical and minimally invasive technique. It firmly holds the two jaws together and forces are avoided on the anterior teeth. No specialized instrument or laboratory work is necessary. The total cost of this design is about \$0.22. The greatest advantage of this technique is that it only just requires 10–15 minutes for MMF and has the quick release if needed in case of any emergency. Another advantage is that force vector in upper molar tooth is neutralized by force vector in lower molar tooth, as they are equal and opposite to each other. This mechanical principle helps in lesser postoperative periodontal problems.

It can be used either as an intraoperative aid to keep the mandible in the desired reduced position while the plates are being fixed, or as the only therapeutic regimen to immobilize the mandible for some time

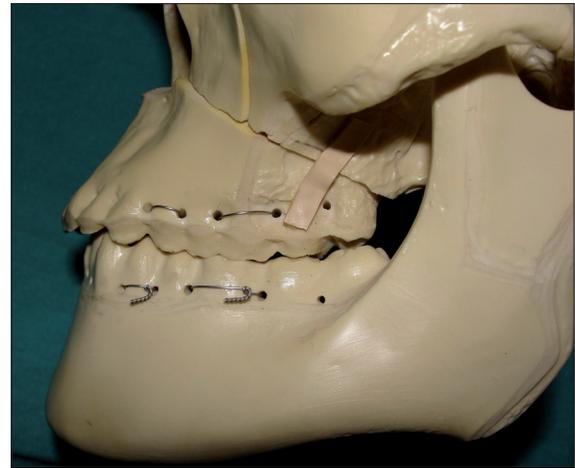


Figure 3: Final step of the technique and achievement of occlusion

to ensure bone healing. Typical indications for its use are minimally displaced fractures in which manual reduction could be performed, orthognathic surgeries and in tumor resection surgeries. However, it has some limitations for partially edentulous patients since premolars and molars are necessary for their application, patients with open interdental contacts and severely displaced fractures.

As no specialized instrument or laboratory work is required for this technique, we believe that this technique could also be helpful in providing rapid MMF to stabilize maxillofacial fractures during mass casualties such as war injuries or natural calamities.

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