The use of maxillomandibular fixation screws with essig wiring in the treatment of symphyseal fracture of deep bite patients

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Abstract Today, the use of the arch bars in the treatment of mandibular fractures is common [1]. But it has complications such as damaged teeth, periodontal tissue [2], risk of blood transmitted disease [3] and premature contact with maxillary incisor teeth in anterior deep bite occlusion. Many techniques are used for resolving these problems.

In this paper, we describe the technique of using Maxillo-Mandibular Fixation Screws (MMFS) with essig wiring of anterior mandibular teeth in the management of symphyseal fracture of deep bite patients.

Keywords Deep bite patients · Mandible · Maxillomandibular fixation screws

The use of the arch bars in the treatment of mandibular fractures is common [1]; but it has complications such as damage to teeth, periodontal tissue [2], undesirable orthodontic movement and is difficult to maintain oral hygiene for patients [1]. Surgeons are also at the risk of blood transmitted disease through skin punctures by multiple wires [3]. The use of arch bars as treatment for patients with deep bite prevents normal occlusion because of premature contact with maxillary incisor. This would cause defective reduction of fracture segments, creating a step in the occlusion. Over the ages many techniques have been tried for resolving these problems; lingual wire splint is one of them [4]. In lingual wire splint technique, steel orthodontic wire (0.08 mm in diameter) was splinted to the lingual surface of mandibular teeth as arch bar [4]. The round orthodontic wires used in this technique would allow for slippage and rotating of the fragments lingually. Techniques such as acrylic lingual splint and cast cap splints were also used but are more difficult to use [5].

We describe the technique of using Maxillo-Mandibular Fixation Screws (MMFS) with essig wiring of anterior mandibular teeth in the management of

Fig. 1 Deep bite interfering with arch bar fixation

Fig. 3 Postoperative mandibular teeth alignment after removal of MMFS

symphyseal fracture for patients with deep bite. MMFS can create skeletal fixation and eliminate the complications associated with arch bar. This technique is very useful in the treatment of mandibular fractures [1–5].

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Fig. 2 Maxillomandibular fixation using screws

The advantages of this technique

1. Essig wiring can maintain the anterior mandibular teeth in the normal occlusion without premature interference with the anterior maxillary teeth.
2. This technique prevents over eruption of anterior teeth because the MMFS creates skeletal fixation.
3. The technique is safe, time-saving and easy to use.

Technique

1. Two MMFS are inserted in the pyriform of the maxilla, above the root of the

teeth. The two other MMFS are inserted in the mandible, below the roots of the teeth and medial to the mental foramen. Place screws in the existent edentulous spaces.

2. Mandibular incisors are aligned and the existent malocclusion is eliminated. Then, two MMFS, which were placed at the sides of fracture line, are ligated together with 24-gauge stainless steel wire for prevention of the flaring of the fracture segments.
3. The essig wiring is placed on the mandibular incisor.
4. If rigid internal fixation is essential, open technique can be done at this stage.

5. The MMFS, that are located in the maxilla and mandible, are ligated together with 24-gauge stainless steel wire.

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