Intermaxillary Fixation with Buccolingual Stabilization

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Abstract Conventionally intermaxillary fixation before fixation of fracture is done from the buccal or labial side. We present a technique of stabilization from both buccal and lingual side which gives three dimensional stability.

Keywords Intermaxillary fixation · Buccolingual stabilization

Introduction

Conventionally wire ligatures are applied in the maxilla and mandible; these are connected either directly by twisting the upper and lower wire ends together or with intermaxillary tie wires, to achieve intermaxillary fixation before fixing the fractures. Interdental eyelet wiring [1, 2], Ernstwire (1927, 1932) [3], Direct interdental wiring (Gilmer 1887) [4], Kazanjian button [5], continuous or multiple loop wiring [6] and prefabricated arch bar, Jelenko, Winter, Erich and Niro [7, 8] are some of the commonly employed wiring technique for intermaxillary fixation. However with all these techniques the fixation with tie wire or otherwise is done towards buccal or labial region.

Technique

We introduce three techniques of wire fixation which will brace or support the teeth from the lingual and palatal side

as well. This will avoid the tipping which is associated with tightening only from the buccal side.

Single Wire Snare

Single 26G stainless steel wire 6 inches in length is taken and passed from buccal surface both mesially and distally through the interdental space in maxillary teeth. Once it comes onto the palatal surface the wire is passed mesially and distally through the lingual interdental space of the mandibular teeth. The wire is tightened on the buccal surface after it comes through the interdental space on the lingual side to the buccal side (Fig. 1).

Advantages: This technique is simple and can be swiftly executed, and lends support to the fractured fragment from both buccal and lingual surfaces. In cases with simple displaced fractures this technique can be used effectively to achieve maxillomandibular fixation. It can also be used for patients with limited mouth opening.

Disadvantage: As this technique uses a single wire, it provides only moderate stability. A full dentition with appropriate interdental space is a major requirement for this type of stabilization. In case of failure of wire stabilization on the right side, the left side wire has to be released and both sides have to be redone.

Double Wire Cross Brace

Two 26 gauge stainless steel wires of 4–5 in. were taken, and one of the wire was passed from disto-buccal side of one mandibular teeth towards the lingual side, then passed from palatal side to the mesio-buccal side of the maxillary teeth. Similarly the other wire passes from the mesial-buccal side of mandibular teeth to the lingual side and

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Fig. 1 Single wire snare **Fig. 2** Double wire cross brace **Fig. 3** Single wire cross brace

comes out from the palatal side on the disto-buccal side of the maxillary teeth. The wires are tightened, one towards the maxilla and one towards the mandible, forming the shape of the English alphabet “X”. The lingual and palatal surfaces get stabilized in the same fashion as well (Fig. 2).

Advantage: This technique is simple and quick to execute also provides support on both the buccal and lingual surfaces.

Disadvantage: This technique uses multiple wires and requires release of the other wire in case of reinsertion of the failed wire.

Single Wire Cross Brace

A single stainless steel wire of 26 gauge of 8–10 in. taken and passed from the mesio-lingual side of the lower

mandibular first molar comes out through the disto-buccal side of the upper maxillary first molar. The same wire is passed again from the buccal aspect from the mesial interdental space of the mandibular first molar finally comes out from the mesial interdental space of the maxillary first molar. The other end at the mesial interdental space of mandibular first molar now goes inwards from the distal interdental space of maxillary first molar, to come out from the distal interdental space of mandibular first molar. Finally the loose ends coming from the mesial interdental space of maxillary first molar and distal interdental space of mandibular first molar are tied in X fashion (Fig. 3). Note with the final tightening, the stability is received from both the palatal and lingual sides.

Advantage: Single wire is used to achieve the two way stability.

Disadvantages: Long wire, and the process of stabilization is tedious. Requires removal of other wire in case of reinsertion of wire that has failed.

Maxillary and Mandibular fractures need to be stabilized for healing purposes, in this article we have discussed three different methods of stabilization. New approaches like the above mentioned can replace the older techniques only

after they have been extensively studied in multicentric studies with large sample size.

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