D.J. ADJUSTABLE SURGICAL GUIDE FOR MINI-SCREW PLACEMENT

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Several methods have been proposed to accurately transfer implant locations such as brass wire or a bent stainless steel wire has been inserted into the Interproximal space of the selected implant site to guide the pilot drill, but these do not completely avoid the risk of root contact. This article describes a design of surgical guide that permits accurate mini-screw placement in the septal bone area ensuring no root contact or damage.

Key words- Surgical guide, mini implant

INTRODUCTION

Orthodontic treatments which do not rely on patient compliance appeal to both orthodontist and patients, as it ensures predictability of mechanics & its outcome. Orthodontic mini implants provide stable skeletal anchorage when a large amount of tooth movement (labial segment retraction or mesial movement of several buccal teeth) is required[1-4]. Precise 3-D positioning of these implants between the roots of the teeth is a challenge because of the risk of tooth damage due to limited space.[5-6]

This article describes an innovative design of surgical guide that permits accurate mini-screw placement in the septal bone area and ensuring no root damage.

Steps in construction of Adjustable surgical guide

- Mark the planned location (7 mm below gingival margin) of the mini-screw on working cast with a marker. (Fig.-1)
- Take about 5 inches long 017X025 stainless steel wire.
- 'U' loop is made corresponding to the buccal groove of molar and cusp of second premolar
- Center of 'U' loop must coincide with the mark made on the cast earlier.
- Round tube is welded at an 450 angluation on the centre of 'U' loop (Fig.-2)
- The wire assembly is then embedded in acrylic block (Fig.-3)
- The surgical guide is now finished, polished and ready for use.

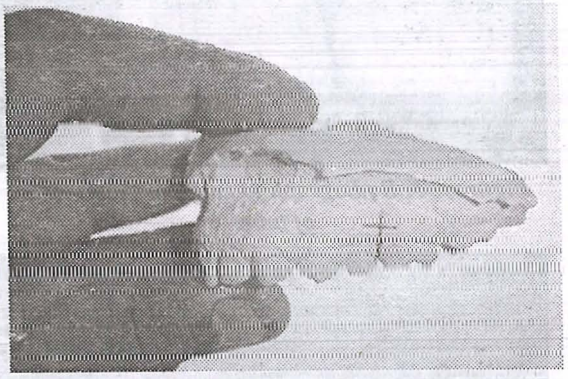


Figure – 1: Mark the planned location of the mini-screw.

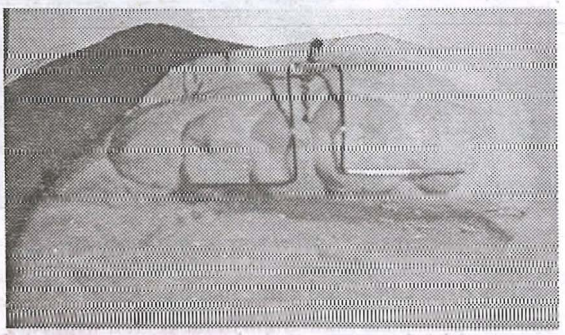


Figure – 2: Round tube is welded at 450 to wire frame

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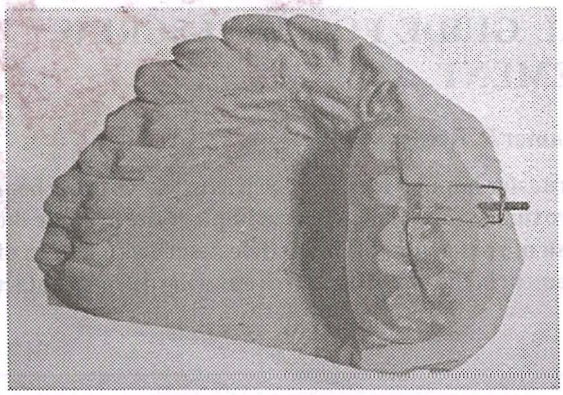


Figure- 3: Surgical Guide.

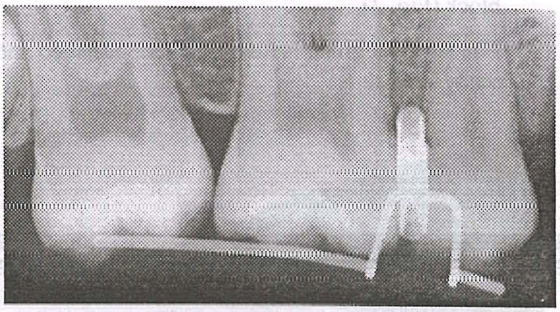


Figure 4: Radiograph to confirm the position of tube.



Figure – 5: Mini screw in place.

Place the adjustable guide in the patient's mouth and take periapical radiograph of the region with parallel cone technique. The buccal tube image in the radiograph should coincide exactly in the interradicular area, If not it can be adjusted by the wire structure provided and radiograph are repeated to confirm the position of the tube. (Fig- 4)

SURGICAL PROCEDURE

With the surgical guide in place pilot drill is passed through stainless steel tube, using normal saline irrigation to avoid excessive heat.

The pilot drill should be 0.2 - 0.3 mm thinner than the screw and inserted to a depth of 2 -3 mm.

After the removal of surgical guide with the help of screw driver the selected appropriate size of mini screw is placed. (Fig; 5)

CONCLUSION

Adjustable surgical guide is easy to fabricate and ensures easy placement of screw without any contact or damage to the root surface.

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