

Ideal Implant Positioning in an Anterior Maxillary Extraction Socket by Creating an Apico-palatal Guiding Slot: A Technical Note

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In anterior maxillary extraction sockets, immediate implants are usually positioned along the palatal slope of the extraction socket. However, this positioning frequently causes unintentional slipping of dental implant toward thin labial plate, leading to its fracture or perforation. To prevent this, the present authors have created a simple apico-palatal guiding slot in the extraction socket following atraumatic extraction. Guided by this slot, sequential drilling up to implant placement can be easily accomplished while maintaining ideal axial orientation of the dental implant. INT J ORAL MAXILLOFAC IMPLANTS 2008;23:121-122

Key words: anterior maxilla, extraction socket, immediate implant placement

In anterior maxillary extraction sockets, dental implants should be placed over the apex or along the palatal side of the socket for the maximum primary stability and proper alignment.^{1,2} However, it is difficult to place the implant properly because of unintentional slipping toward the labial side. This labial slipping can damage the thin labial plate, which will expose the implant threads and collapse the labial tissue.

A simple technique of creating an apico-palatal guiding slot in the extraction socket is herein described. Such a slot can be created to prevent the labial slipping, preserve the labial cortical bone, and

obtain maximum primary stability during immediate implant placement in the anterior maxilla.

SURGICAL PROCEDURE

An incision is made around the neck of the tooth to be extracted or extended to the marginal gingiva of the adjacent teeth. The tooth should be extracted atraumatically. Soft tissue remnants in the extraction socket are then carefully removed.

The apico-palatal guiding slot is prepared with a 2.0-mm round bur at the lower half of the palatal slope of the extraction socket (Fig 1a). Guided by this apico-palatal slot, the initial drilling is performed using a 2.0-mm twist drill (Fig 1b). The hole for 3.0-mm twist drill is enlarged with a 3.0-mm round bur or pilot drill. Sequential drilling is then performed as recommended by the manufacturer. To obtain better primary stability, the bottom of the apico-palatal slot should be located at least 2 mm below the apex of the extraction socket and enlarged according to the apical diameter of the implant.

Finally, the implant is placed, and small bone graft is recommended according to patient's periodontal biotype and residual bone defect.³

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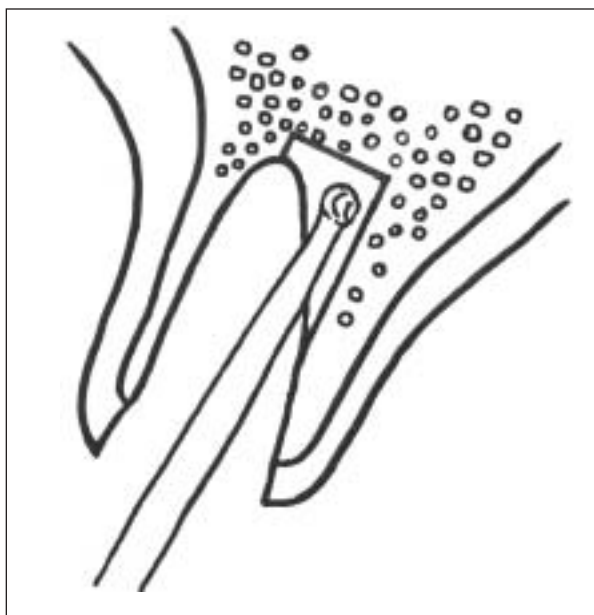


Fig 1a A schematic drawing of the creation of the apico-palatal guiding slot in an anterior maxillary extraction socket. Following extraction, the apico-palatal guiding slot is prepared with a 2.0-mm round bur at the lower half of the palatal slope of the extraction socket. The extraction socket is prepared for implant insertion on the palatal slope.

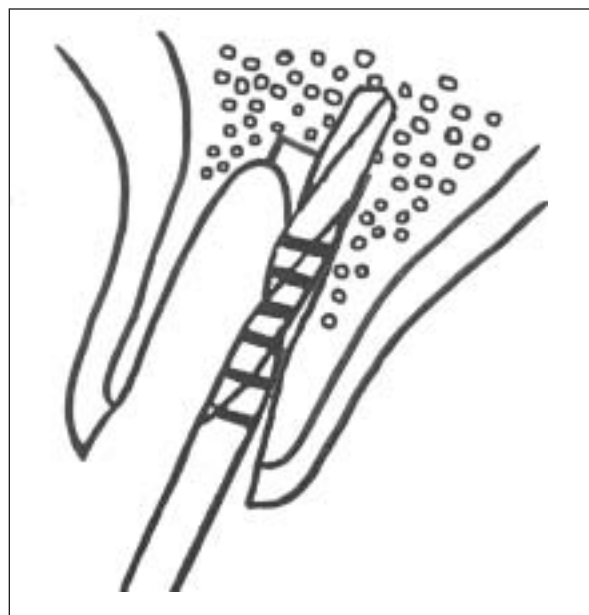


Fig 1b Guided by this apico-palatal slot, the initial drilling is performed using a 2.0-mm twist drill. It is suggested that the bottom of the apico-palatal slot be located at least 2 mm below the apex of the extraction socket and enlarged according to the apical diameter of the implant.

DISCUSSION

During immediate implantation in anterior maxilla, socket preparation should be performed carefully to avoid creating any force or pressure on the thin labial cortical bone. If routine drilling is performed over the apex or over the palatal slope of the extraction socket, the thin labial cortical bone may be damaged because of labial slipping. Therefore, slight palatal shifting of the drilling path is recommended.

Various techniques for palatal shifting of the drilling path have been suggested, such as the preparation of a coronal-apical groove or a hole in the palatal slope of the socket.^{4,5} However, it is not sufficient to prevent labial slipping during enlargement of the drilling site. Because the implant drill cannot be used for lateral cutting, apico-palatal slot-type decortication, is necessary to prevent labial slipping during enlargement of the implant site for ideal axial orientation of the implant. It has also been suggested that the bony socket walls be further decorticated to increase activation of endosteal bone-forming cells in the wound.⁶

In the anterior maxilla, the apico-palatal guiding slot technique described in the present article could

provide maximum primary stability and better osseointegration in cases of immediate implantation without damage to the thin labial plate.

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