Posterior Maxillary Segmental Osteotomy for Management of Supraerupted Teeth – A Case Report
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Abstract
Insufficient interarch space due to the non replacement of extracted teeth leads to supraeruption of the opposing teeth which causes’ difficulty in prosthetic rehabilitation at a later date. The posterior maxillary segmental osteotomy becomes a more simple and conservative alternative management to achieve the surgical correction of the supraerupted maxillary segment. The purpose of this paper is to present a case of severe supraeruption of maxillary teeth managed by posterior maxillary segmental osteotomy.

Key Words: Maxillary Osteotomy, Supraeruption, Segmental Osteotomy

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Introduction
The extraction of teeth without being replaced by prosthesis can result in extrusion of opposing teeth. Once this happens it becomes extremely difficult to plan for further replacement of opposing teeth. The inadequate interarch space leads to a condition which needs initial management of supraerupted teeth.

The endodontic treatment and Coronoplasty of supraerupted teeth are the possibilities when the insufficient interarch space is not severe. When it is very severe supraeruption, the prosthetic rehabilitation becomes impossible and removal of the opposing teeth is often proposed.

A more conservative treatment by the surgical impaction of the supraerupted teeth with the alveolar bone is done to manage the prosthetic rehabilitation of opposing teeth. Kufners modification of Schuchartds posterior maxillary segmental osteotomy is one such procedure to manage the interarch space for replacement of opposing mandibular teeth (1).

Case report
A 45 year old healthy woman with severe dentoalveolar extrusion of the left upper first and second molar due to extraction of opposing molars reported to the department of oral and maxillofacial surgery.

On examination it was observed that neither the implant nor fixed partial prosthesis was possible for the mandibular missing teeth (fig.1). The maxillary teeth were almost touching the mandibular alveolar mucosa. This case was considered for the posterior maxillary segmental osteotomy.

Fig.1 Supraeruption of upper molars touching the mandibular arch
The case was completely analyzed for fitness general anesthesia and after the PAC review the posterior maxillary segmental osteotomy was performed. Prior to surgery, the model surgery was performed in which the supraerupted maxillary segment was cut and splint was prepared for the use during surgery.

Procedure

The posterior maxillary segmental osteotomy procedure was carried out under general anesthesia. With nasotracheal intubation under GA, the site was prepared. A vestibular incision was placed in the upper left vestibule extending from the distal of second molar region to the distal of first premolar region. The mucoperiosteal flap was elevated to expose the supraerupted dentoalveolar segment (fig.2). The necessary access was achieved.

The horizontal osteotomy cut was placed about 5 mm above the apices of the supraerupted teeth (fig.3). This was done with the fine taper fissured bur. The cut was made deep enough to almost reach the palatal aspect of the maxilla.

Fig. 2 vestibular incision with exposure of maxillary alveolus.

Fig. 3 Horizontal osteotomy cut

Fig. 4 vertical cuts

Lateral cuts were then placed again with the thin bur. The anterior cut was easily accessible and visible, and was placed around 2 mm anterior to 2nd premolar. The distal cut was just posterior to the 2nd molar without separating the pterygoid plates (fig.4). The fragment was then down fractured with the digital pressure and was separated from the maxilla (fig.5).

Fig 5 Down fracture
The required amount of bone was reduced from the segment on the horizontal cut (fig.6). The borders were rounded off to get the adequate union of the fragments after reduction. Then the osteotomised segment was impacted superiorly. This was guided by the acrylic splint which was prepared prior to the surgery on the model (fig.7). The superiorly impacted segment was stabilized with the help of mini plates and screw (fig.8).

One month post operative review showed that the impacted segment was well stabilized by leaving the interarch space adequate enough to replace the mandibular teeth.

Discussion

The prosthetic replacement of lower posterior teeth becomes almost impossible when there is severe supraeruption of the opposing teeth in the maxilla. The condition arises when the lost mandibular teeth are not replaced for a longer period. The posterior segment causes narrowing of interarch space and prevents the adequate restoration in the posterior quadrant. The posterior maxillary segmental osteotomy acts as an alternative technique (1).

If supraeruption is not severe enough the Coronoplasty, root canal treatment with shorter crowns, etc. has been tried. But the supraeruption is very severe and of more than one tooth the posterior maxillary segmental osteotomy act as a simple alternative technique (1-3). The procedure is very simple but known to be precise technique. If this procedure is not done precisely it might lead to poor final occlusion.

Compare to the extraction of the opposing supraerupted teeth, posterior maxillary segmental osteotomy becomes a more conservative approach. The Posterior maxillary segmental osteotomy procedure is done for the upward repositioning of the extruded posterior maxillary alveolar segment by one stage segmental orthognathic surgery(4).
The interarch space deficiency can be treated by Posterior maxillary segmental osteotomy to achieve adequate space for replacement of the missing lower teeth. Posterior maxillary segmental osteotomy is considered versatile and useful treatment alternative for variety of dentofacial condition, especially in management of bilateral distal extension RPD construction (5). The space achieved can also be adequate enough even to place the implants in the lower arch.

The Posterior maxillary segmental osteotomy might pose difficulty in maintenance of the teeth in arch form, because of the poor osteotomy on the palatal side. This can be precisely managed by accurately prepared splints prior to the surgery. Another method to avoid deviation of the fragment from tilting buccally is to replace the lower teeth interarch prosthesis.

The horizontal cut made in the maxilla needs to be precise to avoid teeth becoming non-vital. Thus it is important to note postoperative vitality of the teeth in the osteotomised segment (6).

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