

Clinical Innovation

Modified transpalatal arch to correct sagging of palatal cusp of maxillary 2nd molar

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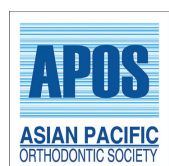
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ABSTRACT

“Sagging” of the palatal cusp of upper second molars is a common finding observed during orthodontic treatment which may develop heavy balancing side contacts, which have been found to be detrimental to harmonious function of the masticatory system. Various modifications of transpalatal arch (TPA) are advocated to correct crossbite, but most of them will utilize an additional step of soldering a wire attachment to TPA. In this clinical pearl, the TPA was fabricated using a single wire component, eliminating an additional step of soldering.

Keywords: Transpalatal arch, Sagging, Occlusal prematurities.

“Sagging” of the palatal cusp of upper second molars is a common finding observed during orthodontic treatment [Figure 1a and b]. Even, the eruption pattern of the upper second molar shows a tilting of the long axis of the tooth in a mesial-palatal direction.^[1]

“Sagging” of palatal cusp may develop heavy balancing side contacts, which have been found to be detrimental to harmonious function of the masticatory system.^[2-4]

Kucher and Weiland^[5] modified conventional transpalatal arch (TPA) to correct upper second molar crossbite. However, the method advocated required an additional step of soldering a wire component onto the conventional TPA.

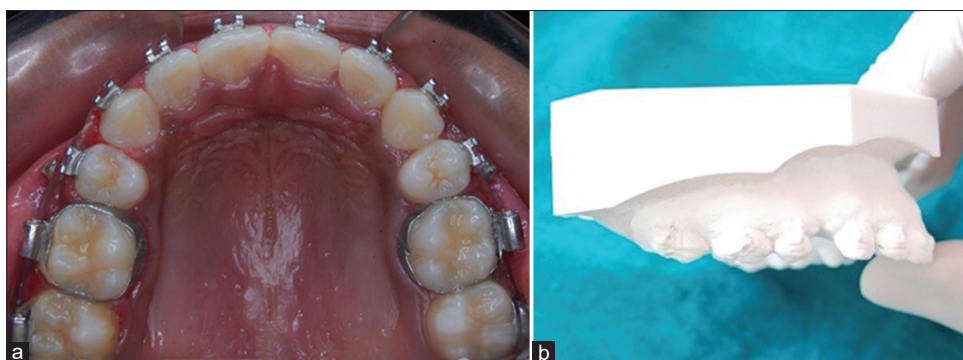


Figure 1: (a) Sagging of palatal cusps of 2nd molar. (b) Study model showing sagging of palatal cusp.

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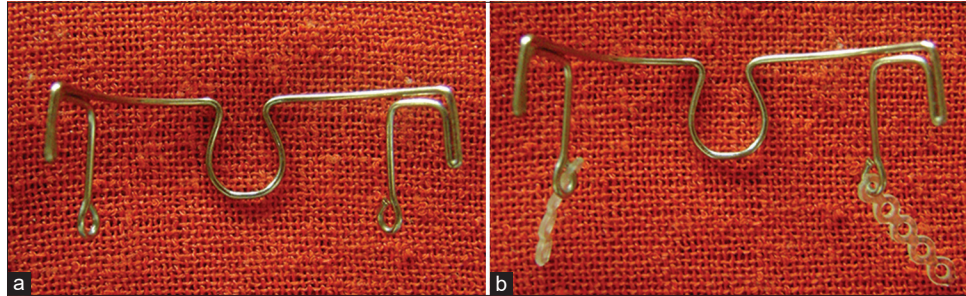


Figure 2: (a) Modified transpalatal arch (TPA). (b) Modified TPA with E chain.

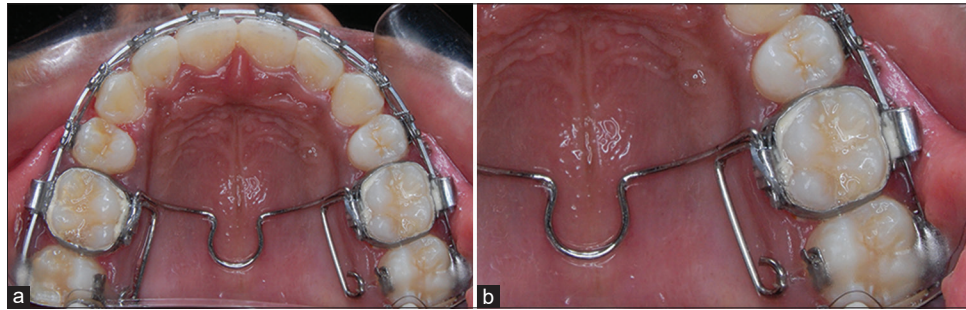


Figure 3: (a) Inserted modified transpalatal arch. (b) E chain in lingual cleat.

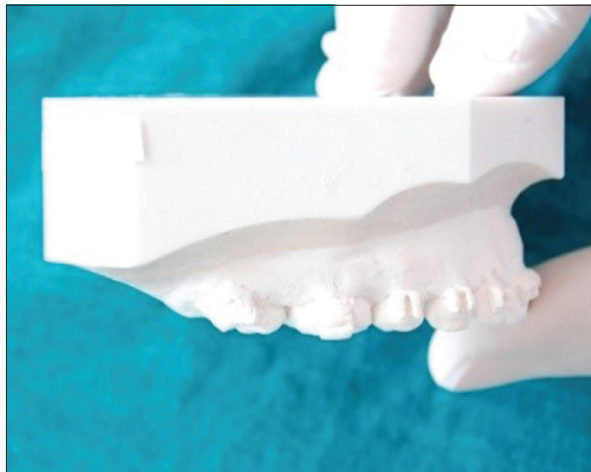


Figure 4: Corrected sagging of palatal cusp.

In this article, the TPA was fabricated using a single wire component, eliminating an additional step of soldering.

APPLIANCE DESIGN

Components of the appliance:

1. Lingual sheaths of 0.072" × 0.036" dimension.
2. 0.036" stainless steel wires.
3. Bondable lingual cleats.
4. Elastic chain.

PROCEDURE

1. Lingual sheaths were welded on upper first molars.
2. Lingual cleats were bonded on palatal cusp of upper second molars.
3. 0.032" stainless steel was adapted to form a modified TPA and the distal extensions of wire were curved to prevent impingement on soft tissues [Figure 2a and b].
4. MBT 0.022" × 0.028" bracket prescriptions were bonded and 0.019" × 0.025" Stainless steel archwire were placed. The inbuilt buccal root torque of -14° also aided in correction of sagging of palatal cusp.
5. Modified TPA was inserted in lingual sheaths and elastic chain was attached from the distal extension of wire to the bonded lingual cleat [Figure 3a and b].
6. The force magnitude was two ounces being measured using Dontrix gauge was applied and reactivation was carried out after 4 weeks till the desired corrections were achieved. As the direction of force was kept palatal to center of resistance of 2nd molar, the correction of sagging of palatal cusp was anticipated.
7. Study model with corrected sagging of palatal cusp of maxillary 2nd molar [Figure 4].

INDICATIONS

1. For correction of sagging of palatal cups of maxillary 2nd molars.

2. For correction of scissors bite of maxillary 2nd molars unilaterally or bilaterally.

Declaration of patient consent

Patient's consent not required as patients identity is not disclosed or compromised.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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