

## A Modified TPA for Correction of Bilateral Scissor Bite

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**Abstract:** Scissor bite is one of the common type of malocclusion most frequently seen in posterior region. Several treatment modalities like intermaxillary elastics, implants, lingual arch etc have been used but have their own reciprocal effects. To correct bilateral second molar scissor bite with simple and efficient modified transpalatal arch (TPA) as an alternative is used in this case report.

**Keywords:** Scissor bite, Transpalatal Arch(TPA)

Date of Submission: 23-05-2019

Date of acceptance: 08-06-2019

### I. Introduction

Scissor bite is observed most frequently between maxillary premolars and second molars<sup>1</sup>. The mandibular second molars tend to erupt lingually producing posterior cross bite or scissor bite<sup>1</sup>. Several treatment modalities have been proposed including intermaxillary cross elastics, modified transpalatal arch with intermaxillary elastics, lingual arches with intermaxillary elastics and most recently mini-implant are used to correct scissor bite.<sup>2</sup> Furthermore, when intermaxillary elastics are used, they produce extrusive forces on molars in both arches creating premature contacts, resulting in clockwise rotation of the mandible<sup>3</sup> leading to increased facial height. For success of the treatment we require good amount of patient cooperation and skill and compliance to place elastics. Implant insertion in palatal side carries risk of damage of greater palatine nerve and vessel in the molar region<sup>3</sup> and it require more time in clinic and cost to the patient. We do come across with articles showing unilateral scissor bite correction, to correct bilateral second molar scissor bite with simple and efficient modified transpalatal arch (TPA) as an alternative is used in this case report.

### II. Heading

#### 1. Diagnosis and treatment planning

A 15-year old female patient reported to the department with chief complaint of forwardly placed upper front teeth and outwardly placed back teeth. Clinical examination revealed Scissor bite present with upper second molars bilaterally along with other orthodontic findings.(See Fig-1). Cephalometric analysis indicated class II jaw relationship (ANB=4°) with end on molar and canine relationship bilaterally. The overjet and overbite were increased with proclined incisors.(See Fig-2) Treatment objectives were to correct incisor proclination, lip protrusion, obtain an esthetic profile, obtain class I molar and canine relationship and most important, eliminate the scissor bite to relieve mandible from posterior lock and allow proper mastication.

#### 2. Treatment progress

In a routine MBT setup, Upper and lower second molars were banded right from the beginning. A modified transpalatal arch was prepared on upper first molars with Omega loop opening anteriorly in the centre to receive elastics (See Fig-3). Composite turbos were bonded to both lower first molars to raise the bite. Intramaxillary elastics were run bilaterally on the second molars encircling the buccal tube to the omega loop, encircling elastics around buccal tube gives better control on 2<sup>nd</sup> molars, providing a palatal and mesial force on the second molars. The patient was recalled every month to check the correction of scissor bite.

#### 3. Treatment results

Significant improvement was achieved in 5 months of application of force and the bilateral scissor bite of second molar was completely corrected. Routine orthodontic treatment was then carried out as usual. Second molars were leveled and aligned along with the first molars in the corrected position.(See Fig-4,5)

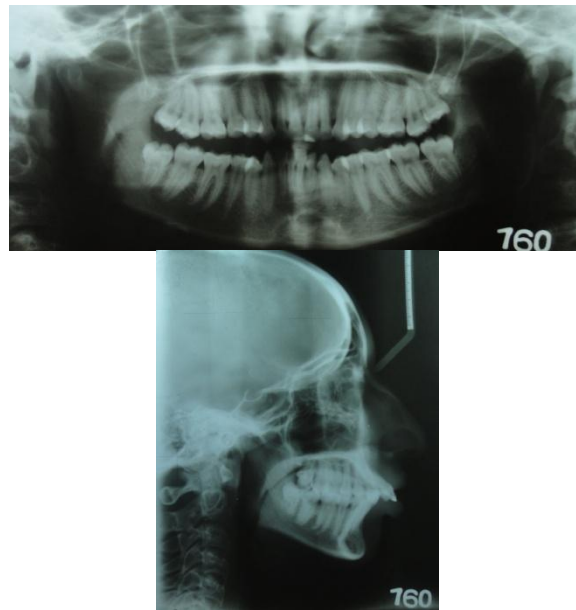
### III. Discussion

Several treatment methods have been proposed and have proven successful for unilateral scissor bite correction. Out of those one of the methods include modification of transpalatal arches. But till date no modification has been done to simultaneously treat bilateral molar scissor bite. In this case we have modified transpalatal arch to receive elastic force to correct bilateral scissor bite. The advantage of this modified TPA is that it prevents slippage of the elastics due to omega loop as well wider area on buccal aspect of molar tube . The assembly provides a palatal, mesial and intrusive bodily force on the second molars. The mesial and intrusive force on the molars prevents clockwise rotation of the mandible, while the bucco-palatal moment corrects the scissor bite.

#### Figures And Tables



**Fig 1.** Pretreatment photographs of the patient.



**Fig 2.** Pretreatment radiographs of the patient



**Fig 3.** Modified TPA with omega loop and elastics used for correction of scissor bite.



**Fig 4 & 5.** Bilateral Scissor bite corrected after five months of treatment.

#### **IV. Conclusion**

This modification of a TPA is not only cost effective, efficient, simpler, less technique sensitive but it also overcomes the shortcoming of using intermaxillary elastics as discussed earlier to correct scissor bite. Patient had no difficulty in changing the elastics.

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Dr. Ashok Kumar Panika. "A Modified TPA for Correction of Bilateral Scissor Bite." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, vol. 18, no. 6, 2019, pp 61-63.