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Case Report

Hook habit breaker: A modified appliance to control tongue thrusting

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ABSTRACT:
Oral habits affect the form and function of orofacial structures. Tongue thrusting is one such most common oral habits. This case report deals with the management of tongue thrusting habit in a 13-year-old patient who reported with the chief complaint of spacing and proclination in maxillary arch. Fixed orthodontics along with interception of tongue thrusting habit was planned. A modified appliance was devised and the habit was intervened with a hook habit breaker.
Key words: Tongue thrusting habit, Palatal crib, Fixed orthodontics

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INTRODUCTION

Oral habits are common in children.[1-2] Habit being a routine behaviour which is repeated regularly and occur unconsciously in an individual. These habits can be divided into non-nutritive sucking habits (thumb, finger and pacifier sucking habits), tongue-thrusting, mouth breathing and lip or nail-biting habits. Adverse oral habits as thumb sucking, tongue thrusting, lip and cheek biting may produce harmful effects on the development of maxillofacial complex, resulting in anterior open bites and posterior cross bites in children.[3]Tongue thrust in simple words may be defined as the habit of placing tongue in the abnormal position during swallowing, either anteriorlly or laterally. Associated clinical features include proclination of teeth, open bite and bimaxillary protrusion.[1,2,4] Generally all open bites area companied by a tongue-thrust, once the habit has been eliminated spontaneous correction of the open bite usually occurs except in cases where there are other associated habits. Management of habit is quite challenging for the clinician especially in cases of open bite involving tongue thrusting. Amongst fixed habit breaking appliances for tongue thrust, crib is the most acceptable and efficient appliance.[1]These appliances help to keep the tongue back during swallowing and also results in a disturbance in intraoral pressure equilibrium which leads to closure of bite and correction of habit. Now a day's orthodontic treatment which are patient friendly are acceptable in clinical practice. Invariably cribs possess trauma to the tongue and leads to rejection by the patients. We designed hook habit breaker to eliminate these habits. It provides habit control within few months of treatment. These are inexpensive and promote greater freedom to the tongue due to its small size. It acts as mechanical restrainers and muscle retraining devices. No trauma to the tongue and patient acceptance are the major advantages of this appliance.

CASE REPORT

A 13 year old patient reported with the chief complaint of anterior proclination and spacing in maxillary arch. On inspection, along with anterior proclination and spacing, tongue thrusting habit was diagnosed. Fixed orthodontics was planned formal alignment correction. Also, a new modified fixed palatal crib appliance was designed along with it, called hook habit breaker. Following are the steps for fabrication of appliance:

- Maxillary arch impressions were made with pre-

formed bands by alginate impression material.

- Bands were transferred in the impression and poured with dental stone. (Fig.1)
- After obtaining the cast, a 0.019x0.025 stainless steel arch wire was adapted in the palatal area. (Fig. 1)
- 6 long crimpable hooks (size 19x25- Innovative Material and Devices, Inc. China Mainland) were crimped in the anterior region and spot welded. (Fig. 2)
- Bilaterally soldering of wire was done at first molar region. (Fig. 3)
- After polishing and finishing hook habit breaker were transferred in the patient's mouth and cemented with glass ionomer cement. (Fig. 4)

Initial one week follow-up was done to evaluate patient discomfort, traumatic ulcerations, fit& stability. Patient reported no discomfort with the appliance and no signs of trauma were noticed. Further, patient is under follow-up.

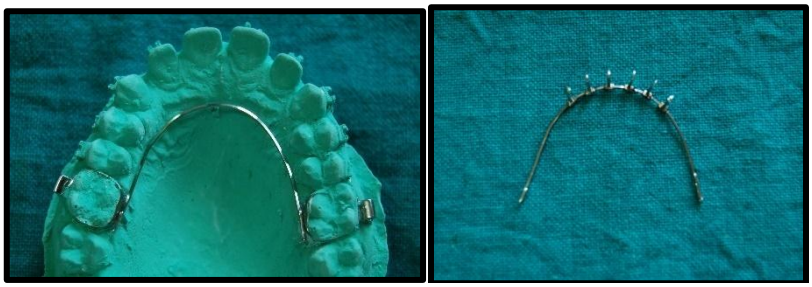

Fig. 1: Band &stainless steel wire adaptation
Fig. 2: Hooks crimped & spot welded

Fig.3: Soldering of wire to the bands
Fig. 4: Appliance after finishing & polishing

Fig. 5: Pre-operative placement of appliance
Fig. 6: Under follow-up

DISCUSSION

Tongue thrust can be primary, the etiological factors of which include learned behavior, hyperplastic tonsils, prolonged thumb sucking, nasal congestion and macroglossia. According to Proffit, the anterior tongue position at rest may have greater impact on the

tooth position, Rather than the tongue pressure during thrusting.[1,4]

Fixed appliances are more predictable in attaining the correction of habit-breaking. The appliance acts as a training device in tongue thrusting cases, which prevents the low positioning of the tongue and helps to position the tongue in the region of the incisive papilla. The appliance should be retained for another six months after the correction of the habit. It can be given as a supportive therapy during mixed dentition, as it requires no reminding orbribing, and parents can be freed of anxiety and frustration.[2,5] It does not interfere with child's growth and eliminates the habit easily without hindering the speech. The use of hook habit breaker requires less chair side time, as this can be placed simultaneously with brackets on the first appointment of bonding itself. Procedure to make this appliance is simple and convenient. No tedious wire bending was needed during the complete procedure as preformed crimpable hooks were used that replaces the cribs. It provides efficient and effective result with spontaneous space closure. Spacing because of tongue thrusting gets closed once oro-muscular imbalance gets eliminated and habit gets corrected.

CONCLUSION

This is a new, innovative, simple, cost-effective and efficient appliance for tongue thrusting habit correction. It is a modification of conventional palatal crib habit breaking appliance. It overcomes the disadvantages of conventional habit breaking appliance such as discomfort or trauma.

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