



Management of Oral Parafunctional Habits: A Case Report

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Abstract

Keywords

- ▶ oral habits
- ▶ parafunctional
- ▶ habit breaking
- ▶ palatal crib

One of the most common problems seen in dental practice is oral parafunctional habits. Thumb sucking and tongue thrusting habits are by far the most common ones encountered. These have adverse effects on the dentition and the orofacial structure. Habit breaking appliances can be used to stop these habits and give best results if used at an early stage. Here we present two cases, one each of digit sucking and tongue thrusting treated effectively with habit breaking appliance.

Introduction

Oral parafunctional habits are one of the common problems that is encountered by dentists which can hamper normal growth and development of the jaws. These habits play an important part in the development of any anomalies and may affect orofacial complex.^{1,2} Swallowing and speech patterns are altered depending upon the facial form, time span, frequency, and severity of the habit.¹

Oral habits are grouped into two³:

1. Acquired
2. Compulsive

Acquired habits are the ones which the child learns or acquires and can stop easily when the child grows up. Compulsive habits are the ones which are fixed in the child usually when the emotional pressure becomes unbearable for the child. The child feels secure or has a sense of safety with these habits and as a result on restricting these habits the child becomes anxious and irritative. Various oral habits

like thumb/finger sucking, tongue thrusting, mouth breathing nail biting, and lip biting have been listed in literature.⁴ One of the most common oral habits is finger/thumb sucking.⁵ The intuition of sucking emerges from the 29th week of age. Thumb sucking till the age of 4 is considered normal^{2,6}; but if this habit is continued in the mixed dentition phase, then it may result into malocclusion.⁷

Thumb/finger sucking has an enormous influence on the hard and soft tissues of the oral cavity. The pressure applied by the thumb causes certain dentomaxillofacial changes. The muscles try to compensate for the force that is created during thumb sucking thus causing the changes. There are changes in the inclination of the maxillary anterior teeth which is followed by increase in overjet.⁸ Anterior open bite with anterior proclination is the most represented effect of this habit.^{9–11} The finger/thumb used in sucking can become flat and wide with inflammation and callouses seen in some instances.¹²

The tongue is larger than the oral cavity proportionally in childhood and hence extends beyond the alveolar ridges.¹³

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Infantile swallow persisting in childhood and adolescence often leads to tongue thrust. Tongue thrusting habit also is an important etiologic factor that results in anterior open bite.¹⁴

Here, we present two cases: 12-year-old with finger sucking and 8-year-old with tongue thrusting habit with the treatment.

Case Report

A 12-year-old male patient reported to the dental clinic with parents complaining of the habit of finger sucking and forwardly placed upper teeth. The parents revealed that the child has been practicing finger sucking habit subconsciously during waking hours while sitting alone and regularly during sleeping hours. On clinical examination, class I molar relation with proclination of maxillary anterior teeth and associated anterior open bite was present. Maxillary canines had not erupted (►Fig. 1). On examination of the fingers, third (middle finger) and fourth digit (ring finger) showed callus formation (►Fig. 2). Counselling for the parents was done and the negative effects were explained to the child during the first appointment. On the second appointment, the child expressed the desire to discontinue the habit but was subconsciously practicing it and hence, needed a reminder to stop the habit. A palatal tongue crib was planned. Tongue crib was constructed using 0.9 mm stainless steel wire that was then soldered onto the molar bands placed on the permanent first maxillary molars. Patient was called every month for follow-up for 3 months. Ideal overjet was achieved with correction of anterior open bite (►Fig. 3). Maxillary canines erupted at the end of the treatment. Callus formation present in relation to the fingers associated with sucking also had become inconspicuous (►Fig. 4). The appliance was removed after 3 months.

An 8-year-old female patient reported to the dental clinic with parents complaining of space between the upper and lower front teeth on biting associated with esthetic discomfort. Clinical examination revealed convex facial profile with acute nasolabial angle. Patient showed tongue thrust on swallowing with contracture of the mentalis muscle. Open bite of 6 mm was present with potentially competent lips. Mixed dentition with distal step relationship of the primary first molars was present (►Fig. 5). A fixed palatal tongue crib was fabricated and then soldered onto the molar bands placed on the permanent first maxillary molars. Patient was recalled for follow-up every month for 3 to 4 months



Fig. 1 Pre-treatment.

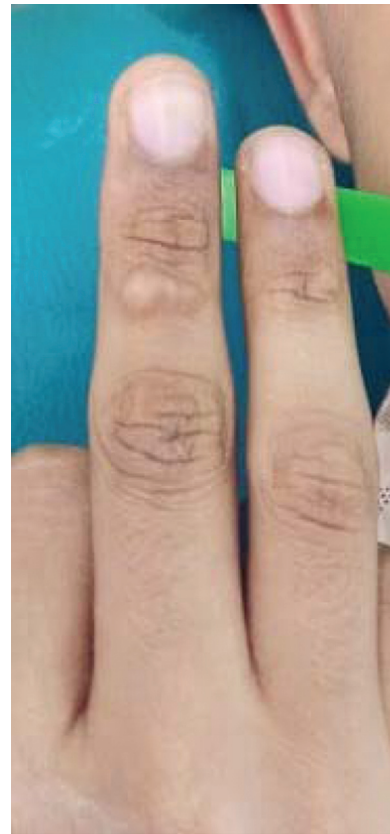


Fig. 2 Digits showing callus formation.



Fig. 3 Post-treatment.

after that patient came once in every 2 months for follow-up. After 1 year and 2 months, the appliance was removed and the swallow pattern was evaluated. Open bite was corrected and the swallow pattern had changed to mature pattern (►Fig. 6).

In both cases, informed consent was taken from the patient's parents.

Discussion

Thumb/digit sucking habit has been defined as the repetitive forceful sucking of the thumb/digit along with associated strong contraction of the buccal and lip muscles.⁴ Various side effects are associated with this habit like anterior open bite, increased overjet, posterior crossbite, labial inclination of the maxillary incisors with lingual inclination of the



Fig. 4 Posttreatment appearance of the digits with callus formation obscured.



Fig. 5 Anterior open bite at the beginning of treatment.



Fig. 6 Post-treatment.

mandibular incisors.¹⁵⁻¹⁷ A child may also develop speech problem, lose concentration on school work and sometimes reduction in peer acceptance may also occur.¹⁸

Tongue thrusting is an adverse parafunctional habit that can be defined as a behavioral pattern in which the tongue makes contact with any teeth anterior to the molars during swallowing. In order to correct this habit, it is important to redirect the resting position of the tongue.¹⁴ Tongue thrust can take place because of delay in transition from infantile to adult swallow pattern. Tongue thrust can also lead to open bite, increased overjet, crossbite and Class 2 malocclusion.¹⁹

These types of cases have to be treated in certain sequential stages in order to obtain best results, which include direct habit counseling of the patient by the dental surgeon, reminder therapy, rewards concept, and finally orthodontic appliance therapy.²⁰ One of the effective treatment modalities in habit breaking is a fixed palatal crib appliance. Anterior open bite is corrected by palatal crib as it prevents the tongue to rest onto the teeth and also acts as a reminder therapy for thumb/digit sucking. The design of the crib should be such that it reaches far more inferiorly to keep the tongue position below the crib. The design of the crib and duration of the treatment are important considerations for the success of this treatment.¹⁴

Various reminder and appliance therapies have been suggested and used. Following appliances have been considered successful in treating oral habits^{21,22}:

1. Psychological therapy—Behavior shaping and modification
2. Reminder therapy-

Extraoral approach: Ace bandage and long night sleeve gown.

Intraoral approach: removable appliances with palatal cribs.

3. Mechanotherapy-

- Palatal crib appliance
- Bluegrass appliance by Haskell and Mink consists of an acrylic roller that is placed in the most superior position of the palate with no contact onto the palatal tissues so that the roller can be moved freely with the tongue and this is welded onto the molar bands. Patient is asked to roll the roller with the tongue whenever he/she feels like thumb sucking.²³
- Hay rake appliance consists of either sharp/blunt points/rakes can also feature loops or a palatal bar with short, blunt protuberances forming a hybrid which interferes with the digit or tongue while digit sucking or tongue thrusting and serves as a negative/painful feedback.²⁴
- Quad helix appliance

New interventions have also been proposed with vast changes in technology. Electronic devices have been used like

Alarming wrist watch consisted of a new device by Krishnappa et al with an alarm system that gets activated when the child placed the finger in the mouth. The alarm was incorporated in a wristwatch that made it appealing for the child to wear it and thus cooperated.²⁵

Revised three alarm system consisted of placement of a modified RURS' elbow guard. This restricted the movement of the digit to the mouth and also activated an alarm thus reminding/warning the child to not to suck the finger.²⁶

In this paper, case 1 presented reported a 12-year-old patient who had finger sucking habit and case 2 reported an 8-year-old patient who had tongue thrusting habit. A range of treatment modalities have been mentioned in the literature ranging from habit counseling to various appliance therapy as already discussed.¹⁴ We too initially started with counseling and motivation, but as the patients showed interest and needed a reminder, hence initiated treatment with fixed palatal crib appliance.

Conclusion

Oral parafunctional habits are known to cause severe adverse effects on the maxillofacial complex. Most parents are not aware of these deleterious effects. They should be informed by the dentists regarding the various oral habits, their causes, and effects on the dentition and the orofacial structure. If identified early, habit breaking appliances can be very effective and in future may avoid fixed orthodontic treatment. Habit breaking appliances are easy to fabricate and thus are a worthy tool for dentists. Palatal crib appliance is relatively the most common and easy appliance used. Duration of the treatment may vary from patient to patient depending on the child's cooperation and severity of the malocclusion.

Conflict of Interest

None declared.

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