

MUSCLE EXERCISES IN CORRECTING TONGUE THRUSTING HABIT AND OVERBITE CORRECTION - A CASE REPORT

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Abstract:

This case report is focused on the correction of tongue thrusting habit which causes the proclination of maxillary anterior segment of teeth and hence results in an open bite. The undue pressure on teeth tends to move them in the direction of force applied and if the force is due to some deleterious habit the ill effects presented are severe as the habit is puts a continuous force on the dentition. The aim is to correct the swallowing habit and hence help in bringing out faster and stable corrections. This requires a set of instructions with good patient education and motivation.

Key Words: Tongue Thrusting, Oral Habits

INTRODUCTION

Successful orthodontic treatment is based on comprehensive diagnosis and treatment planning. The etiology of open bite malocclusion lies within factors such as unfavorable growth pattern, heredity, digit habits (thumb or finger sucking), retained infantile swallowing habit, enlarged lymphatic tissue, tongue function, and posture.¹ In 1960 Walter J Straub, described that it is possible to spoil any nipple by punching several holes in it to allow milk to flow too freely, thus causing the child to become an abnormal swallower.²

Tongue-thrust swallowing has been defined as the forward placement of the tongue tip between the incisors during deglutition.³

Also it is reported that tongue thrusting is an important etiological factor of open-bite malocclusions.⁴ It has also been reported that tongue-thrust swallowing is a physiologic adaptation to achieve anterior seal in patients with anterior open bites.³ The type of deglutition in which there is a tongue-thrust and excessive circumoral contraction is due to the fact that there has to be excessive contraction of the labial musculature in cases where the lips are “incompetent” and the tongue comes forward to complete the anterior oral seal. This tongue-thrust swallow can change dramatically if orthodontic treatment can place the labial segments in good relationship so that the lower lip can come to seal on the labial surface the upper incisor teeth.⁵ Speidel, Isaacson, and Worms (1972), abnormal form will elicit abnormal function, which may manifest itself as a compensatory function of the tongue and lips. They also stated that the prognosis for spontaneous correction of the malocclusion after changing tongue activity is still poor. Clinical experience suggests that the prognosis for

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spontaneous correction of the tongue activity after correction of the morphologic configuration is much better.⁶ case report covers the corrections achieved in a patient of 15 years female after switching to a normal swallowing from a deleterious tongue thrusting habit.

CASE REPORT

A female patient of 15 yrs reported to the Department of Orthodontics and Dentofacial Orthopaedics with a chief complaint of malaligned teeth. She also had a habit of mouth breathing, tongue thrusting and had a history of finger sucking till the age of 10 years. On clinical examination she had a high clinical FMA, incompetent lips, non-consonant smile arc, with 100 % incisor display on smiling. On intra-oral examination the patient had Angle's Class II Div. 1 malocclusion (Fig. 1). Radiographic examination of lateral cephalogram revealed a short anterior cranial base, posteriorly placed Maxilla, proclined & intruded maxillary incisors, a skeletal class - II condition, vertical growth pattern. Patient had a retrognathic mandible with decreased mandibular ramal, body and effective mandibular length, retrusive chin, anteriorly placed lower incisors, bidental proclination Soft tissue-convex profile with thick and protuding lips, retruded chin, and increased lower lip length.

Swallowing occurs about 2000 times per day. During each swallow, the tongue can exert momentary pressures of 1 to 6 pounds on the surrounding structures of the mouth. This pressure will push the teeth and bone forward or apart. Tongue thrusting will move teeth into abnormal positions and cause growth distortions of the face and teeth.⁷ To correct

malalignment of maxillary anterior teeth which is not possible without elimination of the tongue thrust habit, correction of Canine class II relation to canine class I relation. Extraction treatment plan (maxillary first premolars) is a must to allow aligning of maxillary anterior teeth and to achieve a class I canine relation. To correct tongue thrust a tongue crib is a good option but it can lead to anchor loss due to tongue pressure on the crib, and hence it is avoided.

One good option is to advice patient to practice tongue exercise to correct the tongue thrust habit. Patient was motivated and was educated about the deleterious effects of the tongue thrust habit on her dentition. She was also given instructions on how to correct the tongue thrust habit by exercise alone. The "PINK HABIT CARD" was given for correction of tongue-thrust swallowing.² (Table 1)

RESULTS

Patient successfully adapted to a new correct tongue position and the pressure from palatal side on the maxillary anteriors was eliminated. This resulted in a decrease in overbite and a successful decrowding of maxillary anterior teeth. Canine class I relation is achieved and overjet was reduced to normal values. (Figure 2)

DISCUSSION

Anterior open bite is considered to be one of the most difficult treatments. At about 5-6 months of age, as the incisors begin to erupt, certain proprioceptive impulses come into play and peripheral portion of the tongue starts to spread laterally. This change is gradual and it is called transition stage.⁸ Proper diagnosis and treatment planning, successful treatment, and

retention have been stressed for the long-term stability of open bite treatment. There are several factors that could be related to the development of open bite. Among these are an unfavorable mandibular

growth pattern, heredity, imbalance between jaw postures, digit-sucking habits, nasopharyngeal airway obstruction, tongue posture and activity and head position.⁹



Figure 1: Pre clinical records; Extraoral profile pictures A:Rest, B: Smiling; Extraoral front pictures C: Rest, D: Smiling; Intraoral Photographs E: Left occlusion, F:Front Occlusion, G: Right occlusion; Radiographs H; OPG, I:Lateral cephalographs.

While actual measurements of tongue and lip forces show that they are not equal in any one area during a particular function, a state of equilibrium has been reached, if we consider the morphogenetic pattern, the tooth size, available basal bone, character

of contiguous tissue, postural and the various functional forces.⁸ Airway obstruction has also been implicated in the cause of open bite. The thought is that enlarged adenoid tissue causes restriction in the airway, forcing the tongue

anteriorly, which in turn causes skeletal and dental open bite problems. These growth changes include rotation of the mandible downward and backward in a clockwise direction. Swallowing is not

learned behavior but is integrated and controlled physiologically at subconscious levels, so whatever the pattern of swallow, it cannot be considered a habit in usual sense.¹⁰

Table 1: PINK HABIT CARD

No.	Steps to follow
1)	Close the teeth firmly in contact with one another.
2)	Place the tip of the tongue against the palate or spot position.
3)	Suck the tongue up flat against the roof of the mouth; then slide the tongue back with sucking action.
4)	Swallow
5)	Again close the teeth firmly, close the lips easily with the tongue flat against the roof of the mouth, suck hard, and swallow.
	Remember
a)	Use mirror to watch for facial movements when practicing. Muscles around the mouth are completely relaxed when swallowing.
b)	Never curl the tongue
c)	Practice on small bits of food and small swallows of liquid. Do not blow but suck when swallowing.
d)	Keep the lips closed tightly; use card or wax paper between the lips as a reminder to keep the lips closed.
e)	Repeat the many times a day.
f)	Lick the palate or spot position many times each day.
g)	Place the tip of the tongue on the palate or spot position and keep it there while studying, playing, watching television, or in school.
	Night time suggestions
i)	Place the tip of the tongue on the palate or spot position when you go to bed and try to keep it there..
ii)	When you awaken in the morning, again place the tip of the tongue on the palate or spot position.





Figure 2: Mid Treatment clinical records after elimination of tongue thrust habit; Intraoral Photographs A: Left occlusion, B: Front Occlusion, C: Right occlusion; Radiographs D: OPG, E: Lateral cephalogram.

CONCLUSION

It is possible to treat open bite malocclusions especially where the etiology lies as tongue thrusting by motivation and training of patient alone. Good patient cooperation is must to achieve best results.

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