



BLUEGRASS APPLIANCE THERAPY: A NONPUNITIVE APPROACH FOR THUMB SUCKING IN PEDIATRIC PATIENTS

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ABSTRACT

Thumb sucking is a common phenomenon of childhood behavior. It is commonly associated with oral and psychological pleasure, hunger, anxiety etc. This habit has an adaptive value for children up to the fourth year of life. Prolonged retention of habit may affect the normal growth of dentofacial structures. Bluegrass appliance has been proven very successful to intercept thumb sucking habit. We present here a case of a male child aged 13 years with thumb sucking habit intercepted by using a nonpunitive reminder therapy using Bluegrass appliance. This nonpunitive Bluegrass appliance proved to be very comfortable to the patient unlike other appliances and also it was successful in intercepting the habit within a short period of 6 months.

INTRODUCTION

Oral habits are part of normal development in children. Habits are learned patterns of muscle contraction with complex nature [1]. Thumb sucking has been described in literature as common childhood behavior manifestation that is considered normal up to 3-4 years of age. Efforts should be made to stop the habit if the child is older than 4 years of age as the retention of habit after 4 years of age may adversely affect the growth and development of oral structures.

The habit can be termed as chronic if it occurs over 2 settings (home, school, daycare) and during both day & night. Dental changes associated with thumb sucking include anterior openbite, increased overjet, spacing between teeth, unilateral crossbite, atypical root resorption, mucosal trauma, abnormal facial growth [2]. Various approaches have been described in literature to correct thumb sucking habit ranging from operant procedures (contingency reinforcement and reframing) to sensory attenuation procedures (consists of appliance therapy or response prevention) [3].

The use of a corrective appliance to manage oral habits is indicated only when the child wants to discontinue the habit. The clinician is often met with stares of parental concern when the palatal crib with or without spurs is suggested as the habit breaking appliance of choice for thumb sucking. Emotional problems, difficulty with speech and eating, and iatrogenically "self-inflicted" wounds can occur with such appliances. This type of appliance tends to be regarded as a punitive rather than a supportive treatment [4]. Here, we present a case report of thumb sucking habit in a 13 year old child corrected by nonpunitive reminder therapy using bluegrass appliance.

Case report

A 13 year old male child alongwith his mother reported to the department, with a chief complaint of thumb sucking habit. The patient used to suck his thumb regularly, 8-9 hrs/day, unconsciously in sleep or when idle from the primary dentition period. On examination, callous formation was seen over his right thumb, crowding was noted in the lower anterior region with associated gingival recession in relation to both the lower central incisors. A nonpunitive reminder therapy was planned using bluegrass appliance. Appliance was fabricated by adapting a 0.9 mm stainless steel wire over the palate

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extending from permanent maxillary 1st molar on either side. Child was asked the color preference and acrylic bead was made in our laboratory using dental monomer and polymer by adding the child's favorite pink color. Later this bead was inserted into the stainless steel wire so that it overlies the rugae area of the palate; bends were placed in the wire on either side of the bead so that the bead doesn't slip while rolling. No contact should be established by the bead with the palatal tissues to fabricate its rolling. The appliance was cemented using zinc

phosphate cement. The patient was instructed to roll the bead with his tongue whenever he feels like sucking his thumb.

The patient was recalled every 2 months for checkup. The child was very comfortable with the appliance and played by rolling the beads with the tongue. By the end of 3 months patient had discontinued the habit with the disappearance of callous formation in his thumb, but the appliance was left in place for 6 months after correction so that the habit does not relapse.

Figure 1. Front view showing gingival recession associated with lower central incisors



Figure 2. Palatal configuration of the child



Figure 3. Appliance cemented in place



DISCUSSION

Thumb sucking is common phenomenon in pediatric age group that reflects the earliest form of habitual manipulation of body. Many questions arise in the minds of general dentist, pediatricians, pediatric dentists and psychiatrists regarding impact of sucking habits on developing dentition. The age of the child, intensity, duration and frequency of the habit, child cooperation and motivation are all important factors to be considered for the success of any intervention. Sufficient time should be given for the child to stop the habit on his/her own.⁴ Appliance therapy should be considered after consultation with the parent of the child. From many years, habit breaking appliances in the form of palatal cribs, spurs, palatal bars, hay rakes, and cage type appliances have

been used in the pediatric age group. However, emotional disturbances, difficulty in speech and eating, and iatrogenically self-inflicted wounds can occur with such appliances [1].

Haskell and Mink described the blue grass appliance which is easy to wear, and did not have problems associated with traditional palatal cribs and rakes. The design consisted of hexagonal Teflon roller on a cross-palatal wire which was found to be effective in ending the sucking habit in several days [5]. In the present case the appliance was fabricated similar to the one suggested by Haskell and Mink except for child's preference for a pink color bead, resulted in positive reinforcement such that the child played with his tongue

by rolling the beads. It also acted as a distraction therapy when the child was idle. As recommended by Haskell and Mink the appliance was left in place even after correction of the habit to avoid reappearance. The advantage of the Bluegrass appliance is the use of the roller instead of cribs/rakes.

The smaller size of the appliance due to the roller allows it not to be seen from outside the patient's mouth. An additional advantage is that the roller can act as a neuromuscular stimulant for the tongue, which can aid patients in speech therapy. Though, it has a few

disadvantages like eating and speech difficulties few days after placement but it subsides later [4].

CONCLUSION

Blue grass appliance is a non-punitive appliance and child can wear it comfortably unlike the other appliances. It can also be given as a supportive therapy as it requires no reminding or bribing, and parents can be freed of un-necesssary anxiety. It does not interfere with child's normal growth and eliminates the habit with limited complications and in short period of time.

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