

CASE REPORT

Modified RURS Elbow Guard: An Alternative Approach for Thumb Sucking

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ABSTRACT

Digit sucking or thumb sucking is one of the most common habits usually seen in children. These habits habitually lapse in mid-childhood. The continued persistence of these habits will bring about harmful unbalanced pressures to alveolar ridges, changes in the position of teeth, and occlusion which may result in abnormality if they are continued for a long time. This case report presents a case of a 5-year-old male child patient with a habit of thumb sucking that was successfully ceased by a modified RURS elbow guard appliance.

Keywords: Digit sucking, Habit breaking appliance, Modified RURS elbow guard, RURS elbow guard.

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INTRODUCTION

Habits are behaviors that are repeated and regularly tend to occur subconsciously. Thumb sucking, bruxism, lip and nail-biting, tongue thrusting, and mouth breathing may be considered as some of the habits that are frequently present in children. These repeated behaviors bring about harmful unbalanced pressures to the premature alveolar ridges and potential changes in the position of teeth and occlusion which may become abnormal if they are continued for a long time. Digit sucking receives attention from medical health professionals as well as it greatly concerns parents and families of a child. Thumb sucking habit or non-nutritive sucking habit ceases in childhood.¹ It is one of the most prevalent oral habits that range from 13 to 100% at the time of infancy.²

Various intra- and extraoral appliances are available in the management of thumb-sucking habits. Moreover, these appliances act as a punishment for indulging in this childhood activity.³ A new approach of an extraoral appliance for digit sucking was given by Shetty et al.^{4,5} as RURS elbow guard which was later modified by Anand et al.⁶ for economic purposes and better grip of the appliance. The objective of this paper was to present a case with primary dentition along with a thumb-sucking habit that was successfully managed with a modified RURS elbow guard.

CASE DESCRIPTION

A 5-year-old male patient with his parents reported to the Department of Pedodontics and Preventive Dentistry with a habit of thumb sucking during sleep. Parents reported a history of active digit sucking by the child since childhood. The child's mother revealed that he was unable to stop the habit even after repeated motivation from them. Extraoral examination revealed the presence of ovoid callus on the dorsal surface of the right thumb measuring 2 × 2 cm in size (Fig. 1). Lips were competent both at rest and during swallowing. Intraoral examination revealed normal shape and size of the tongue. Mesial step molar relationship was present and interdental and primate spaces were absent. The parents were explained about various appliances for interception of the habit but they were not willing for any intraoral appliance. Hence, with mutual understanding, we came to the conclusion for RURS elbow guard

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as an alternative for an extraoral appliance. Modified RURS elbow guard was fabricated by the technique given by Anand et al. in 2017.⁶

Step 1—The patient's elbow impression was made using a double layer of the modeling wax at 45 to 60° angulations or at rest position which served as a spacer to make a negative replica of the elbow (Fig. 2).



Fig. 1: Presence of callus on right thumb



Fig. 2: Modeling wax impression making of right elbow



Fig. 3: Modified RURS elbow guard appliance



Fig. 4: Restriction of the elbow movement after delivery of the appliance

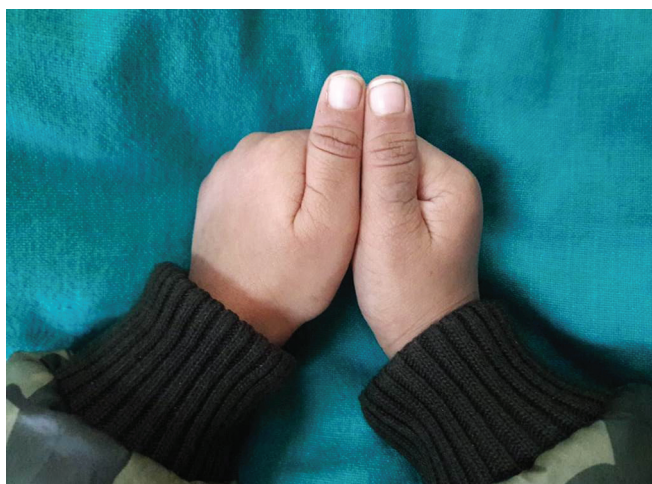


Fig. 5: Callus healed after 6 months

Step 2—A sheet of modeling wax was added vertically to both ends and the dental stone was poured to make a positive replica of the elbow.

Step 3—Self-cure acrylic was used to fabricate an acrylic elbow guard skeleton.

Step 4—Dewaxing was done in a hot water bathtub for 10 minutes, trimming and polishing of acrylic was done.

Step 5—A layer of sponge for cushioning was placed to allow limited movement of the elbow.

Step 6—A blue color velvet cloth was stitched over the acrylic elbow guard with four velcro straps for better retention (Fig. 3).

The appliance was then delivered to the patient (Fig. 4). It permitted slight movement of the elbow and restricted the thumb to reach the patient's mouth. The child was happy and contented with the modified RURS elbow guard appliance. The patient was asked to wear the appliance during sleeping hours. Regular follow-up was done every month till the habit was terminated. The habit of the child was ceased in 6 months including 2 months of the retention period. The callus present on the dorsal surface of the right thumb was healed (Fig. 5).

DISCUSSION

The severity of malocclusion depends on the intensity, frequency, and duration of thumb sucking. Clinical and experimental evidence suggests that 4 to 6 hours per day is the minimum necessary to cause tooth movement. There are various methods available for the management of thumb sucking such as age-appropriate explanation, positive reinforcement, preventive technique, and mechanotherapy. Some of these treatment modalities have reported limitations and disadvantages.⁶

Preventive methods comprise the appliance with a bitter and harsh solution, wearing socks, adhesive tapes, long sleeves gown, and gloves.² New anti-thumb sucking solutions like femite and thumb up are also being marketed but they also showed moderate success.⁷ Application of adhesive tapes carries the risk of reducing blood circulation and reported to cause infection or sweating.⁸ Long sleeve nightgown makes it difficult for the child to suck but at the same time, it increases the child's frustration and wakefulness.⁹ Other appliances include a thumb guard, acrylic shield, and thermoplastic thumb post.¹⁰ Use of fixed habit-breaking appliances might result in decalcification of enamel. The success of removable

appliances depends on patient cooperation. In the present case, a modified RURS elbow guard was considered because impression making of the elbow was easy, it had a better grip on the elbow and the child accepted it as a stylish appliance.

CONCLUSION

The modified RURS elbow guard has proven to be an additional useful appliance in the mechanotherapy armamentarium especially because of its better compliance and exclusion of the need for an additional intraoral appliance. It is easy to fabricate and can be used effectively in a young patient where other treatment modalities are difficult to render. However, further research is required to draw a better conclusion.

DECLARATION OF PATIENT CONSENT

The author certified that they have obtained all appropriate patient consent forms.

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