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CRIKE (CRIB + RAKE) -Tongue Thrust Eliminator.

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KEYWORDS

Tongue thrust, Anterior open bite, Tongue crib, Habit-breaking appliance, Orthodontics, CRIKE appliance.

ABSTRACT:

Background:
Tongue thrusting is a common parafunctional habit associated with anterior open bite and proclination of incisors. Conventional habit-breaking appliances such as tongue cribs are widely used; however, their effectiveness may be limited in cases involving both anterior and lateral tongue thrust.

Aim:
To introduce and describe a simplified appliance (CRIKE) combining tongue crib and tongue rake for effective management of tongue thrusting.

Materials and Methods:
The CRIKE appliance was fabricated using 19-gauge stainless steel wire and incorporated both anterior tongue rakes and posterior crib elements. It was soldered to maxillary molar bands and cemented intraorally. The appliance included a rotating bead to enhance neuromuscular re-education.

Results:
The appliance demonstrated effective control of tongue thrusting by restricting abnormal tongue movement and promoting proper tongue posture. Patients reported good comfort and compliance, with no evidence of soft tissue irritation or adverse effects.

Conclusion:
The CRIKE appliance is a simple, cost-effective, and efficient modification of conventional tongue crib appliances. It provides effective management of both anterior and lateral tongue thrust with good patient acceptance.

INTRODUCTION

The development of normal swallowing patterns involves a transition from an infantile tongue-dominant swallow to a mature adult pattern regulated by coordinated orofacial musculature and lip function. When this transition fails, the tongue may continue to move forward between the dental arches during swallowing and at rest, a condition commonly described as tongue thrusting or atypical swallowing. This habit has been associated with malocclusions such as anterior open bite and proclination of the incisors due to repetitive pressure exerted by the tongue. [1–3]

Habitual tongue thrusting is recognized as a contributing factor in the development and persistence of anterior open-bite malocclusion, along with other etiologic factors such as thumb sucking, prolonged pacifier use, and mouth breathing. [4–6] Management of this dysfunctional pattern is essential for achieving functional correction and long-term stability following orthodontic treatment. [4,7]

One of the most commonly used mechanical approaches for eliminating tongue thrusting is the tongue crib appliance. It acts as a physical barrier that restricts anterior tongue movement and promotes the

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development of a mature swallowing pattern. [8–10] However, conventional cribs may be less effective in managing lateral tongue thrust or combined patterns.

The present article introduces a simplified appliance, **CRIKE (Crib + Rake)**, designed to manage both anterior and lateral tongue thrust effectively while maintaining ease of fabrication and patient comfort.

APPLIANCE DESIGN

Armamentarium Fig.1 -

1. 19 Gauge stainless steel wire.
2. Universal plier
3. Ortho wire Cutter

Fig.1 Armamentarium

STEPS IN FABRICATION

1. Maxillary and mandibular alginate impressions were made. Maxillary impressions were taken with bands on first permanent molars, while mandibular impressions were used for occlusal reference. Dental casts were prepared.
2. The CRIKE appliance was fabricated using 1 mm stainless steel wire. It consisted of anterior tongue rakes and posterior crib components and was soldered to maxillary first molar bands.
3. The appliance included five vertical rakes (6 mm) extending from the maxillary right canine to the left first molar region and three crib loops (9 mm) in the right posterior region.
4. A rotating bead or roller was incorporated along the palatal aspect. This provided sensory feedback and helped disrupt abnormal tongue movements while encouraging proper tongue positioning.
5. The appliance was checked intraorally for fit, comfort, and occlusal interference.
6. It was then cemented onto the molar bands, and the patient was instructed to maintain proper tongue posture behind the appliance.

DISCUSSION

Tongue thrusting is a multifactorial habit that significantly contributes to the development and persistence of anterior open bite. Conventional tongue crib appliances primarily address anterior tongue thrust but may not adequately control lateral tongue forces. [8–10]

The CRIKE appliance provides a combined approach by incorporating both crib and rake elements. The rake component acts as a deterrent for forward tongue posture, while the crib component restricts abnormal tongue movements. Additionally, the rotating bead enhances neuromuscular re-education by providing continuous sensory feedback.

Previous studies have demonstrated that habit-breaking appliances are effective in correcting tongue thrust and improving occlusal relationships.[9–11] the present modification improves upon conventional designs by addressing both anterior and lateral components simultaneously while maintaining simplicity in fabrication.

Patient acceptance is a crucial factor in the success of habit-breaking appliances. The CRIKE appliance showed good patient tolerance with minimal discomfort, making it a clinically viable option.

CONCLUSION

The CRIKE appliance is a simple, effective, and economical modification of the conventional tongue crib appliance. It successfully manages both anterior and lateral tongue thrust while promoting proper tongue posture and neuromuscular adaptation. Its ease of fabrication and patient-friendly design make it a valuable addition to orthodontic practice.

CRIKE = CRIB + RAKE

EXTRAORAL PHOTOGRAPHS

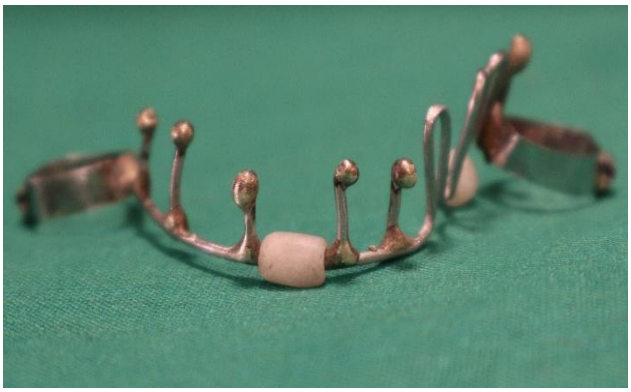

Fig.2

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Fig.3

Fig.4

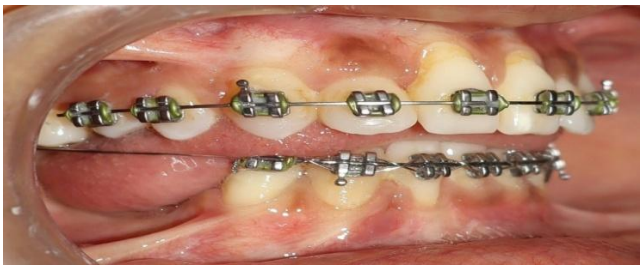
Fig.5

INTRAORAL PHOTOGRAPHS

Fig.6 & 7

INTRAORAL PHOTOGRAPHS

Fig.8 & 9



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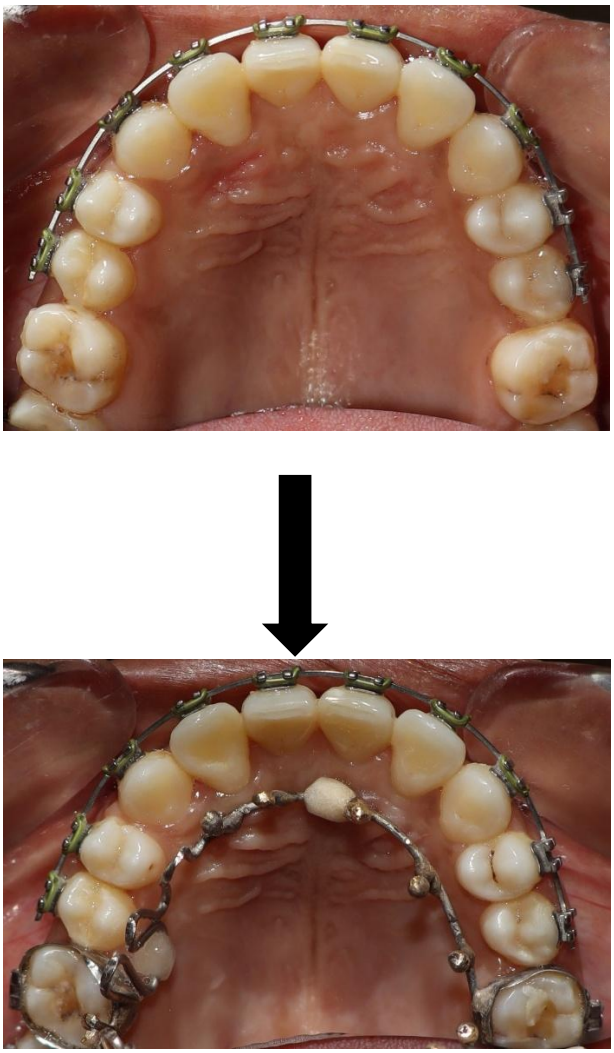
INTRAORAL PHOTOGRAPHS

Fig.10 & 11



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