A CASE REPORT – SIMPLE APPROACH TO CORRECT ANTERIOR CROSSBITE IN MIXED DENTITION

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Abstract

An abnormal labiolingual relationship between one or more maxillary and mandibular incisor teeth is called anterior crossbite. During mixed dentition anterior crossbite is not an uncommon finding. Anterior crossbite correction in early mixed dentition is highly recommended as this kind of malocclusion do not diminish with age. Early diagnosis will help the practitioner to treat minor irregularities seen in developing dentition. It is easy to fabricate, low economical cost and easy to implement in rural areas with less lab. technique.. The current paper presents a case report which describe the successful treatment of anterior crossbite in children with mixed dentition using Hawley's appliance with double cantilever spring in a short period of 3 – 4 weeks without any damage to tooth or periodontium.

Key Words Anterior Crossbite, Removable Appliances, Early Orthodontic Intervention

INTRODUCTION

One of the major concerns of pediatric dentist is to guide the developing dentition of a child in line with the stage of orofacial growth and development.[1] Moyers defines a simple anterior tooth crossbite as a dental malocclusion resulting from the abnormal axial inclination of maxillary anterior teeth.[2]

Anterior crossbite should be intercepted and treated at an early stage so as to prevent a minor orthodontic problem from progressing into a major dento-facial anomaly. An old orthodontic saying states "the best time to treat a crossbite is the first time it is seen".[3] Anterior crossbite could be the result of: labially positioned supernumerary tooth causing lingual deflection of the permanent incisor; trauma to the primary tooth causing displacement of the developing permanent tooth germ; an arch-length deficiency can cause a lingual deflection of permanent anterior teeth during eruption; habit of biting upper lip; repaired cleft lip.[4,5]

Anterior dental crossbite requires early and immediate treatment to prevent anterior teeth mobility and fracture, periodontal problems, and temporomandibular joint disturbances.[5-8]

A variety of approaches can be used to intercept anterior crossbite in mixed dentition. In the following article, anterior crossbite were treated with Hawley's appliance with Z-spring and posterior bite plane .

CASE REPORT

A 9-year-old female patient came to the Department Of Pedodontics And Preventive Dentistry, Dr. R. Ahmed Dental College, Kolkata, with a chief complaint of irregularly placed upper front teeth. The patient had no significant past medical or dental history. No abnormality was detected on extra oral examination. Intra oral

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Figure:1

Figure:2

Figure:3

Figure:4

examination revealed Angle′s Class I molar relation with permanent maxilary right and left central incisor in crossbite. (Figure1) Space analysis showed adequate space available for the permanent dentition. Thus, the treatment plan was to correct the crossbite. Hawley's appliance incorporating "Z" spring was used in this case for the correction of both the teeth in crossbite with posterior bite plane so as to achieve a 2 mm incisal clearance (Figure 2). The patient was instructed to wear the appliance full time. Activation was carried out in both helices simultaneously by opening the helices 2mm each time. The crossbite of central incisor was corrected in two activations within a span of four weeks (Figure 3&4). No retention was provided as adequate overjet and overbite had been achieved.

DISCUSSION

Anterior crossbite can be defined as the lingual positioning of the maxillary anterior teeth in relationship to the mandibular anterior teeth.[9] Anterior dental crossbite has an incidence of 4-5% and usually becomes evident during the early mixed dentition stage. The ideal age for the correction of anterior dental crossbite is between 8 to 11 years during which the root is being formed, and the tooth is in the active stage of eruption. The child's age not only plays an important role but also the motivation for treatment, how he or she perceives the problem.[12] Treatment, if delayed to a later stage may become more complicated,.[13] Relapse is prevented by the normal overjet/overbite relationship that is attained.[14]

The clinician should determine whether the crossbite is skeletal or dental from the profile analysis and intraoral findings, before beginning with appliance therapy. Lack of space for the maxillary incisors to erupt is the most common cause of anterior dental crossbite.[15]

Various treatment modalities for correction of anterior crossbite include tongue blade therapy, reverse stainless steel crown, inclined plane, removable appliance with finger spring, bonded resin-composite slopes and Bruckl appliance.[6, 16, 17]

In a young child, the best method for tipping maxillary and mandibular anterior teeth out of crossbite is a removable appliance using fingersprings.[18]

Treatment with removable appliances will help in the maintenance of good oral hygiene [3] They reduce chairside time. However, the success of therapy depends on good patient co-operation. The tongue blade therapy is indicated in case of erupting crossbite and is successful only with patient cooperation, and there is no control on the amount and direction of force applied.[5]

The catalan's appliance is a fixed appliance which uses resin slopes for the correction of anterior crossbite and works on the newton's third law of motion. It is rapid and easy alternative method, but

disadvantage of this appliance are difficulty in speech, mastication, frequent loss of cementation and risk of anterior open bite if the appliance is cemented for more than 6 weeks.[19] The reverse stainless steel crown has shown to be successful, but the main disadvantage is the unaesthetic appearance of the crown form. Furthermore, restrictions of working with an inclined slope that is already formed.[5]

In this cases, Hawley's appliance with a double cantilever spring was planned since there was sufficient space for labialisation of incisors and because the crossbite was of dental origin. A posterior bite plane was inserted to allow the crossbite correction. This limits closure and keeps the anterior teeth apart, which allows uninhibited incisor movement.

CONCLUSION

The above-mentioned case describe the acceptable alternative methods for correction of anterior dental crossbite instead of complicated fixed treatment modalities in mixed dentition period. Therefore it is important to realize that early diagnosis and correction may prevent the prospect of any adverse effects upon the growth and development of the child.

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