

Cost effective dual approach treatment : anterior crossbite

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Abstract

Anterior cross bite is one of the most common problem in dentistry. It is referred as an emergency in orthodontics as well. The problems of anterior crossbite in permanent dentition show progression in severity, so an early intervention should aim at stimulating well balance growth and occlusal development . The present article serves as a viable alternative to carry out treatment of incisor crossbite in non-compliant patient.

Key words: Anterior cross bite, space maintenance, cost effective dual approach.

Introduction

An 11-year-old, female patient, came in Department of orthodontics and Dentofacial Orthopedics, Rural Dental College, Pravara Institute of Medical Sciences, Loni, Maharashtra with discontented esthetics.



Fig. 1 : Anterior cross bite (frontal view)



Fig. 2 : Occlusal views

On intra oral examination upper right central incisor was in cross bite (Fig 1). Apart from this, patient had undergone extraction of 73, (Fig. 2), 1 month before due to carious destruction, which has further complicated the problem, because of the chances of lower midline shift. She had proximal caries in upper both primary canines and lower right primary canine. There were caries present in lower right second primary molar as well as upper left second primary molar. There was mild gingival recession with lower right central incisor due to cross bite and trauma from occlusion. Molar relationship was Angle's class I (fig. 3). The occlusion was not properly settled as premolars were erupting.



Fig. 3 : Class I molar relationship bilaterally

Appliance design (Fig. 4)

For the above mentioned problems, the proposed plan for the patient was upper removable plate with double cantilever spring on I1 to correct the cross bite and lower fixed lingual arch along with it to maintain the space. Maintenance of space in the lower was required because it would facilitate eruption of 43. As the patient was non-compliant, did not agree to wear upper removable plate. Now the challenge was to design a single appliance

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to solve both the problems and serve both the purposes. After studying many literatures an appliance was designed. It is an acrylic inclined plane like a catalan's appliance attached to the fixed lingual arch. After the correction of anterior cross bite the acrylic extension was trimmed off and lingual arch was in place as the space maintainer till the canine eruption.



Fig. 4 : Appliance (occlusal and side view)

Treatment plan

Initial treatment involved appropriate preventive assessment and recommendations relative to diet, fluoride use and homecare instructions. Fluoride varnish was applied on the all surfaces of the permanent molars in an attempt to arrest the caries . The primary lower left canine is extracted to prevent midline shift in lower arch. Simultaneously caries excavation and restoration was done with upper primary canine and lower left second primary molar. Upper left second primary molar was not restored as it was grade III mobile and was about to shade according to the radiographic examination. All these treatment were done within very short period of time.

Then the separation between the teeth was done with the help of elastic separator to adapt band on the lower permanent first molars. Bands were adapted, the impression was made and cast was poured. Then the lingual arch was made and the acrylic inclined plane was made. The appliance was finished and polished and then the appliance was cemented. Initially, only bands were cemented on lower permanent first molars and the acrylic inclined plane was not cemented (Fig. 5). Retention for the acrylic inclined plane was taken from the wire of lingual arch, so there was no need of cementation of acrylic inclined plane. It prevented gingiva from getting inflamed. Patient was advised to come after every 5-7 days for follow up. The cross bite had been corrected within 21 days and after the cross bite correction the acrylic inclined plane was trimmed off (Fig. 6) and lingual arch is left in place for the space maintenance till the lower canines were erupted. Follow up after 6 months

showed good results and stability. The gingival recession reduced after the treatment. (fig. 7)



Fig. 5 : Appliance in mouth



Fig. 6 : Results after 21 days



Fig. 7 : Follow up after 6 months (coinciding midlines, good gingival health, lingual arch in place)

Discussion

The problems of anterior crossbite in permanent dentition shows progression in severity, so that ,early intervention should aim at stimulating well balance growth and occlusal development.[1] Before orthodontic treatment , the patient has to be internally motivated. There are differences in gender as well – girls are more keen for treatment than boys.[2] Early treatment of the patients with cross bite depends whether the problem is mandibular prognathism or deficiency in maxillary growth.[3]

The aim of our case report is to show an easy and cost effective method in order to deal with both the problems

with single appliance. Patient was not very co-operative but as the appliance was fixed, there was no need of patient's compliance. Other simple treatment methods in mixed dentition are: a palatal plate with anterior springs; a Quad Helix to which springs can be soldered. Each of these methods can be used to correct the anterior crossbite, but choosing the right one should be done with thorough diagnosis.[4]

The decision to use fluoride varnish to slow down the progression of caries was considered logical based on the need to correct the crossbite prior to restorative care. The 21 days active treatment time was sufficient to accomplish the necessary tooth movement, and the positive overbite exhibited post-treatment is essential to a favorable long-term prognosis for correction.

Conclusions

The main advantage of early treatment of anterior crossbite is the opportunity to influence the process of growth in the upper jaw with quite simple and cost-effective appliance. A sound treatment plan can avoid

many complicated procedures like orthognathic surgery in future. Before treatment, it is necessary to consider if the possible treatment result will justify all the used methods and input – material as well as psychological benefit of the patient. The main emphasis need to be placed on the diagnosis and evaluation of the malocclusion.

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