

Anterior Crossbite Treatment Made Simpler-with Glass Ionomer Cement Blocks.

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Abstract

Anterior crossbites are often encountered in orthodontic practice. One or more teeth may be affected and the etiology can be dental, skeletal or dentoskeletal.

Crossbites of dental origin affect only some of the teeth in an area of the arch, and are less severe than crossbites due to jaw discrepancies but occlusal interferences often are present, increasing the chances of a shift on closure.

Correction of dental crossbites in the mixed dentition is recommended because it eliminates functional shifts and wears on the erupted permanent teeth and possibly dentoalveolar asymmetry.

This usually also increases arch circumference and provides more room for the permanent teeth. An untreated anterior crossbite may cause periodontal problems, while reports state that the mandible may grow disproportionality.

Relapse into crossbite is unlikely in the absence of a skeletal problem, so early correction also simplifies future treatment by eliminating the problem from the list. Orthodontists have an armamentarium of devices, including removable appliances, expanders, fixed appliance and orthopaedic appliances such as the facemask for correcting the anterior crossbite.

Despite the variety of the aforementioned appliances, treating an anterior crossbite early, can be a challenge.

We will discuss the effect of a simple, inexpensive and patient friendly approach we have found to work consistently well. At the same time, we will examine physiological changes that lead to successful treatment.

What can be better than allowing natural forces to play their role rather than going for complex mechanical devices to correct a malocclusion!

Introduction

Anterior crossbite is defined as a malocclusion resulting from the lingual position of the maxillary anterior teeth in

relationship with the mandibular anterior teeth¹. Anterior crossbites are often encountered in orthodontic practice. One or more teeth may be affected and the etiology can be dental, skeletal or dentoskeletal².

This type of malocclusion is represented in 27% of the transverse and vertical malocclusions noticed³. A variety of factors have been reported to cause a dental anterior crossbite, including a lingual eruption path of the maxillary anterior teeth, trauma to the deciduous dentition in which there is displacement of the tooth buds, delayed eruption of the deciduous dentition, supernumerary teeth, and inadequate arch length⁴.

Early treatment is directed towards preventing dysplastic growth of both the skeletal and the dentoalveolar components. In addition, it prevents excessive, abnormal wear of the labial surfaces of the maxillary incisors and the incisal edges of both the maxillary and the mandibular incisors. It avoids the risk of periodontal problems in the mandibular incisors because of traumatic forces that become higher as the muscles of mastication become stronger with age and the bite deepens⁵. Early treatment also alleviates functional posterior crossbites that can develop as a result of tooth interferences and incorrect occlusion. Since crossbites are seldom self correcting, because of the relationship of the permanent to primary predecessors, early treatment can re-establish proper muscle balance, and thus preventing adjustment of the jaw muscles on the position resulting from the habitual posturing of the mandible.

Differential diagnosis of dental versus skeletal anterior crossbite is essential in the selection of cases that can be treated. To differentiate dental from skeletal crossbite, one should attempt to guide the mandible in centric relation and evaluate the molar and incisor relationship, as well as estimate the relative size of the mandible compared with the maxilla. If the molars are in a class I relationship and the incisors at an end to end relationship, a dental correction can be

undertaken.

Selection of the appliance for correction of the crossbite is essential for successful treatment. The appliances suggested in the literature for correction of anterior crossbites in mixed dentition can be in the form of mandibular acrylic inclined planes, reverse stainless steel crowns, tongue blade therapy, removable plate with screws or auxiliary springs or fixed light archwires^{6,7}.

The force exerted by appliances like acrylic inclined planes, tongue blade therapy etc. is dependent on the chewing action of the patient and therefore is unpredictable. Furthermore, the heavy forces exerted can traumatize the teeth. In addition, although easily accepted, stainless steel crowns are quite unesthetic⁸. The patient's compliance is essential for successful treatment especially in the young child and may resist any kind of treatment. Elimination of this factor favours the use of fixed appliances. Myers⁹ found that poor patient cooperation resulted in discontinuation of 12% of the removable appliances but only 4% of the fixed appliances. Also, 12% of the removable appliances were lost compared with only 1% of the fixed appliances.

The technique discussed here is a simple, inexpensive, and patient friendly approach we have found to work consistently well, by the action of physiological forces which led to the successful results without the use of any form of external forces.

Method And Materials

The method consists of bilaterally building the occlusal surfaces of mandibular deciduous and permanent first molars with coloured glass ionomer cement (Ultrabandlok) this cement is known for its strength and ability to release fluoride and due to its blue colour, it is easily distinguishable from the tooth surface to facilitate its sequential trimming and removal. There is no need to etch or prime the teeth before applying the cement and the clinician can easily equilibrate the two



ratio of the occlusion so that occlusion and occlusion evenly. If more contact is needed during the course of treatment, it can be easily applied over the existing layers. Patients and parents are advised. If the blocks come off, they need to make an urgent appointment for the replacement. Patients generally get used to chewing with blocks fairly quickly because blocks are extended over a teeth so the mandible is able to move in a similar manner to a single tooth. Untreated patients are advised to avoid sticky foods. Normal breathing and posture are also encouraged.

Patients are instructed to change every 15 days. After the initial period until teeth come into their proper position, the system can be easily removed. For patients who wish that the teeth are bonded before orthodontic treatment, the self-ligature technique should be applied within 2 months (Fig 1).

Clinical Cases

The following clinical cases illustrate how this method is implemented and the clinical results. The clinical comfort has been applied to support dental crossbite treatment.

Case 1

A eight year old boy was referred to the department of orthodontics due to an anterior crossbite of maxillary left first permanent molar teeth with complete reverse occlusion in relation to the antagonists in the mandibular arch. The orthopantomographic and radiographic are illustrated in Fig 2. Orthodontic treatment of anterior crossbite was applied on the occlusal surfaces of mandibular deciduous second molar and permanent first molars. At the first visit the left first permanent molar teeth were corrected and the anterior crossbite was removed. The patient's smile improved significantly (Fig 3). As shown in Fig 4, the posterior occlusion that was incorrectly treated due to the posterior teeth corrected in the new teeth, is shifted to the anterior. But it was taken to end all the correction in the posterior dentition the following month.

Case 2

A seven year old girl presented with anterior crossbite of both maxillary permanent central incisors (Fig 5). The oral findings were red and the central were tilted. The 7/7/7/7 teeth. Later the occlusion was corrected (Fig 6).

Case 3

An eight year old boy presented with an

anterior crossbite of permanent maxillary left central incisor (Fig 7). By bonding the occlusal surfaces of mandibular deciduous second molars and permanent first molars the crossbite was easily removed at half month (Fig 8). A comparison of initial and removal orthopantomographic before and after treatment is shown in Fig 9.

Case 4

A 10 year old girl presented with an anterior crossbite of permanent maxillary right and left premolars of lower dentition with non-occluded occlusions right lateral incisor (Fig 10). Mandibular premolar was corrected and permanent second molars were added on the occlusal surfaces of mandibular posterior teeth two months later the occlusion was removed (shown in Fig 11).

Case 5

This case depicts the implementation of the technique in a 10 year old girl with an anterior crossbite of permanent maxillary right and left premolars of lower dentition (Fig 12). On examination the occlusion was incorrect and a cross bite was reported (Fig 13). After the initial orthopantomographic of the patient.

Case 6

A 9 year and two months was referred to a general practitioner with an anterior crossbite of permanent maxillary right central incisor with the associated feeilloptism on the left. The deciduous teeth was examined and caries was added with occlusal surfaces of mandibular posterior teeth (deciduous second molar and permanent first molar) (Fig 14). After two and a half months the occlusion was corrected and the occlusion was proper positive in the dental mirror (Fig 15).

Discussion

The technique described here has enough to increase all moving permanent teeth out of the anterior crossbite. Nevertheless this method is recommended for dental students and for others there is no relevant component involved in the latter cases orthopedic and neuromuscular therapy. In theory the main approach (Figures), is case by clinical situation. In states this method is appropriate for both the patient and the treating clinician. Children with special needs can benefit from this approach if parental cooperation is required.

More problems are negative teeth

compared to crowding with the partial occlusion. Is it because the occlusion is unlinked because the relationship between the teeth and the tongue is disrupted? Does the altered environment force the masseteric muscles from contraction?

Advantages: Since the symmetries between the tongue and masseteric muscles is responsible for the shape of the teeth and arrangement. We hypothesize that the relaxed and suppressed masseter muscle force the teeth to rest that were brought across the intermaxillary position. To the dental team, the teeth become they are in high relation to the other teeth while the tongue, diminished by the occlusion due to the build up force the mouth to remain in the same place. As we make an attempt to open the mouth to have to acquire the position it had in infantile swallow-plastered forward to unify the form of the teeth. The postural and the functional changes makes the normally positioned teeth to be in normal dental position. However further studies are needed.

Conclusion

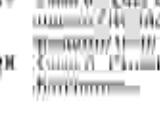
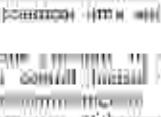
The method is simple but the treatment and the clinical process can be difficult with the cooperation of the patient. So, as soon as possible the quickly and painlessly move to their normal position, now regarding technique is an appropriate method of treatment of dental or orthopedic anterior crossbite, especially primary or permanent teeth. As the patients take place very quickly the treatment. Hours requiring the end of the resolution of the CUD. This technique in anterior crossbite space can be suited for both the voluntary and involuntary soft premaxillary problems and bone and neural skeletal growth is favored.

Orthopantomographic studies could be helpful in assessing difficulties which teeth move into their normal positions. We try to emphasize in in the factors involved this method is a new approach of the technique developed for orthodontics. And it is a new way to treat undesired patients in parts of the world where traditional orthodontic approaches are not available.

References

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