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# CORRECTION OF CROSS BITE USING PIGGY BACK WIRE TECHNIQUE

Dental Science

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## ABSTRACT

Malocclusion is prevalent in the society we live in. Cross bite is one of the most complex ones which not only hinders the function of the tooth and jaw but also compromises the aesthetics. Correction of cross bite should be carried out as early as possible before it fully establishes itself; but often we find patients come with a fully established cross bite. In this case report anterior tooth cross bite was corrected with the technique of piggy back wire with the inclusion of the open coil spring.

## KEYWORDS

Cross bite ; Malocclusion ; Piggy back wire

## INTRODUCTION

Dental malocclusion in India contributes to 20-43% of the dental problems. Many of the malocclusion poses no threat or complication to the associated dentition and others surrounding structures. While others should be treated without fail in order to prevent further exacerbate the problem. Cross bite is one such entity[1]. Anterior cross bite is the most often encountered malocclusion during the mixed dentition period where the permanent occlusion is yet to be established. So, it is the liability of paediatric dentist to appraise the condition and correct the malocclusion in order to establish normal occlusion during the developmental stages[2]. Untreated cross bite may lead to cuspal interferences, lower anterior teeth abrasion, mandibular asymmetry due to mandibular shift and temporomandibular disorders[3, 4]. Cross bite must be treated as soon as it is discovered unfortunately in our society the prediction of the outcome is at a later stage where the latter is fully established. This article documents and provides an insight with a case in which an anterior dental cross bite was successfully corrected by fixed mechanism using piggy back wire technique.

## CASE REPORT:

A 9 yr. old boy was referred to the Department of Pedodontics and Preventive Dentistry, Chandra Dental College, Lucknow with the chief complaint of irregular teeth and unaesthetic appearance. His medical and dental history was non- contributory. There was no history of an over retained primary tooth or a supernumerary tooth. Clinical examination revealed a straight profile with mild convex profile. Intra oral evaluation showed Class I molar relation bilaterally with mild crowding present in relation to lower anterior and 11 in cross bites with 41 and 42(Fig 1).

**Figure no.1 Pre Treatment Intraoral Photograph**

The maxillary and mandibular dental midline was coincident with the facial midline. A panoramic radiograph showed no evidence of bone or dental pathology and lateral cephalometric radiographic view showed no evidence of basal problem between mandibular and maxillary arches. So it was decided to treat the patient with non-extraction and fixed mechanics. Fixed orthodontic treatment was started by placement of pre-adjusted edgewise appliance (MBT 0.022"x0.025" slot). Bonding was done in all teeth except 11. Initial alignment was carried out with 0.014" Niti, 0.016" Niti and 0.018" Niti for 12 weeks respectively. An open coil spring of 18mm in length was placed between 12, 21 with 0.019"x 0.025" SS to create space for 11. (Fig 2)

**Figure no. 2 Initial Alignment of Maxilla and Open Coil Spring between 12, 21 And 0.019x0.025 "Ss Wire**

A sufficient space of 14 mm on was got after 4 weeks. A GIC block was placed on the moreover posterior to raise the bite and clear the blocked incisor of any occlusal interference. A 0.019"x 0.025" ss wire was again placed as the base wire and a 0.014" HANT was placed from premolar to premolar in the maxillary arch. The 11 was bonded with the bracket and the HANT wire was tied on the bracket with an elastic module. The rigidity of the heavy ss wire was used for the stabilization of the arch while the flexible HANT wire pulls the palatally placed incisor outward to the occlusion arch (Fig 3). This is called the Piggy back wire technique, where two wires are placed one heavier and the other lighter wire in the bracket slot.

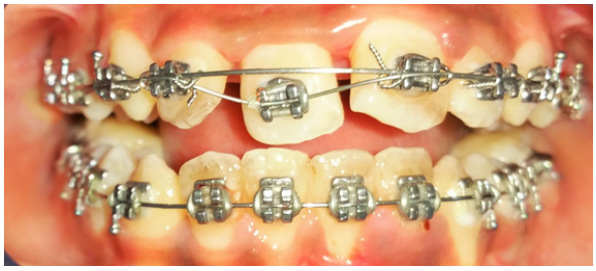

**Fig 3 Piggy Back Wire With 0.019x 0.025" ss, as a main arch wire And 012 niti Placed additionally With the Involvement of 11.**

Both the wires properties are used in unison to achieve the latter into position. After 6 weeks the incisor was brought into position. Final alignment was done with 0.016 niti followed by 16 x 25 niti and then 17 x 25 ss for the correct crown and root positioning. The treatment was completed in 28 weeks (Fig 4).

**Figure no. 4 Post Treatment Intra Oral**

Follow up of 6 months was done and no clinical or radiographic problems were observed.

## DISCUSSION

The aim of paediatric dentistry is to maintain arch integrity to facilitate proper eruption of permanent teeth and development of malocclusion. In order to achieve this many a time's intervention with the developing occlusion must be done. The anterior cross bite may result from variety of factors such as lingual eruption path of the maxillary anterior incisors; a repaired cleft lip; traumatic injury to the primary incisor resulting in lingual displacement of the permanent tooth bud; supernumerary anterior teeth; an over-retained necrotic or pulp less deciduous tooth or root; odontomas; inadequate arch length; deleterious habit pattern5. Various techniques have been established to correct anterior dental cross bite, including removable acrylic appliance, tongue blade therapy, Catalan's appliance, reversed stainless steel crowns and fixed appliance.6, 7.

Fixed therapy is opted during the later stages of development but as it is operator driven the results appear in shorter time with less cooperation from the patient. With newer wires and lighter forces a more physiological movement occurs aiding in the arch formation. They are precise and as led in later stages of development usually give a better aesthetic than its counterparts.

## CONCLUSION

No technique is best or perfect. Based on the situation at hand the operator with his/her unique knowledge must choose the technique which would get the result conferring minimal problems.

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