

# MANAGING DEVELOPING MALOCCLUSIONS THROUGH TIMELY INTERCEPTION

## ABSTRACT

Identifying a developing malocclusion during mixed dentition or early permanent dentition and orthodontic intervention by the general dentist or specialist can go a long way in reducing future malocclusion. This interceptive approach will simplify later orthodontic treatment or sometimes even can eliminate future comprehensive orthodontic treatment. This article intends to give general practitioners an overview of the different developing malocclusions and basic guidelines of when to treat, what to treat and when to refer.

**Key Words-** Developing Malocclusion, Interception, General practitioner.

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## INTRODUCTION

Every dentist who treats children, consciously or unconsciously would do limited orthodontic procedures such as interceptive extraction of deciduous teeth, space maintenance for permanent teeth etc. It is not prudent to think of orthodontics just in terms of appliances alone. It is also taking care of development of occlusion and jaws longitudinally<sup>1</sup>. All qualified dental practitioners should recognize the orthodontic requirements of their patients<sup>2</sup>. This article is designed to help general practitioners examine children from an orthodontic point of view.

Practitioners should be well versed with the normal development of jaws and occlusion to identify potential malocclusions in the future. The recognition of abnormality is the first step towards providing care. So a few words related to normalcy in both deciduous and mixed dentition is discussed below.

### Deciduous Dentition

Spacing is normal between the anterior teeth in deciduous dentition<sup>1</sup>. Lack of it may be a concern since crowding of permanent dentition is a probable sequel. Usually minimal intervention is carried out during this stage. Patient should be evaluated at regular intervals. The presenting deciduous condition will give an idea of the future permanent dentition.

### Mixed Dentition

The usual sequence of eruption of permanent teeth is- first molars [6 years] lower central incisor [6-7 years], upper central incisors and lower lateral incisors [7 years], upper lateral incisors [8 years], lower canines [9-10 years], first premolars [10-11 years], second premolars, upper canines and second molars [12 years]. The sequence of eruption is more important than chronological age of eruption<sup>2</sup>. General delay in eruption of more than 2 years needs proper investigation. Localized delay of more than 6 months with contralateral tooth of same arch erupted also needs to be evaluated through proper history, clinical examination and radiographs<sup>3</sup>. The fanning and distal tipping of upper incisors with midline diastema [ugly duckling stage] is a normal

finding at this stage and usually self corrects after eruption of upper canine<sup>1</sup>. Mild crowding of upper and lower incisors in early mixed dentition period is also not an abnormality, as it usually gets reversed by itself with growth of jaws and usage of primate spaces<sup>2</sup>.

### Possible Interceptive Measures For Different Developing Abnormalities In Occlusion And Jaw Growth

#### Unerupted Upper Central Incisor

It is vital to take thorough history [for trauma, avulsion, contra lateral tooth eruption] and clinically examine the patient for any gingival bulge. Radiographs would be required to establish the presence or absence of the permanent incisor, any pathologies like odontomes, supernumerary or eruption cyst that can prevent normal eruption. Dilaceration of the incisor root can also interfere in normal eruption. The orthodontic management would require creation/maintenance of space for the central incisor, surgically remove the pathology, expose and bond central incisor and bring it to the arch via traction. It is logical to get a specialist's advice in such cases as stage of root development of the incisor dictates the time of removal of pathology.

#### Single Tooth Cross bite

They are self devastating as it leads to upper incisal wear and gingival recession of lower incisors there by demanding emergency attention. Such crossbites are usually dental in origin and can easily corrected using a simple removable appliance design incorporating z springs in relation to upper incisor in cross bite, Adams clasp on upper permanent first molars, ball end clasp between deciduous molars and posterior bite plane. Once the cross bite is corrected, it is self retaining without needing any retainers.

#### Increased Overjet

Increased overjet could be due to skeletal or dental etiology. Clinician should be able to diagnosis the underlying problem between a skeletal Class II or due to environmental causes like digit sucking, tongue thrusting etc. As diagnosis of an orthodontic patient is beyond the scope of this article, reader is advised to

look for another source<sup>4</sup>. If the increased overjet is due to mandibular retrognathia, functional appliances like Twin Block may be needed [Figure 1] with or without head gear [Figure 2] depending up on the presence of any maxillary component. If the cause is due to any aberrant habits, etiology eradication using habit breaking appliances is absolutely vital for the stable correction.



Figure 1- Twin block appliance



Figure 2- Head Gear appliance

### Reverse Overjet

Clinician should be able to diagnosis the underlying problem between a skeletal or dental etiology. Single tooth crossbite is more of dental in origin where as large number of teeth can be of skeletal origin. Depending up on skeletal base diagnosis, 3 scenarios exist with different management strategies. Single tooth cross bites with displacement and Class I skeletal base can be treated with simple removable appliances with z springs. Two or

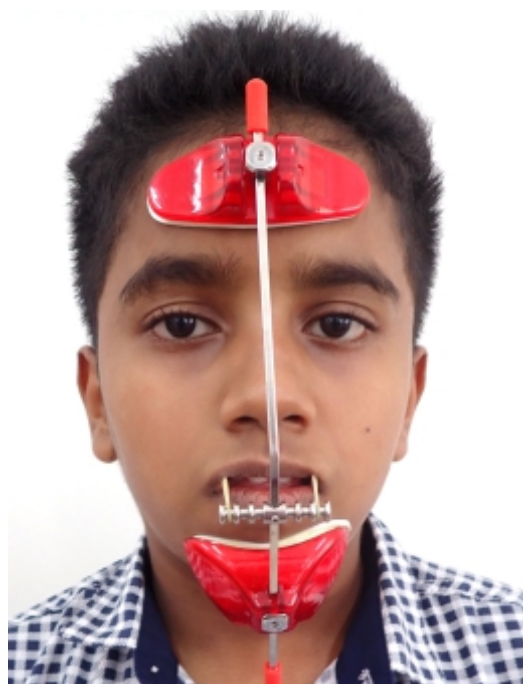


Figure 3- Reverse pull head gear appliance

more incisors in cross bite with Class I skeletal base can be treated with 2x4 fixed appliances. Anterior cross bite with Class III skeletal base needs to be intercepted with orthopedic appliances like reverse pull headgear [Figure 3]. There are no hard and fast rules here and clinician sometimes needs to take appropriate decision taking into consideration the growth status and compliance of the patient.

### Early Loss of Deciduous teeth

In situations where deciduous teeth need to be extracted (Caries) or has been lost prematurely the space should be maintained for the succeeding permanent tooth. This can be done by giving space maintainers. It can be done using band and loop appliance if unilateral or lingual arch/Nance button if bilateral.

### Some Important Points Revisited<sup>5</sup>

- Correct age for using Class II functional appliances is 10-13 years for females and 11-14 years for males during growth spurts.
- Correct age for Class III growth modification appliances is 7-10 years age.
- Reverse pull headgear is most effective if

- used in early mixed dentition stage [upto 10years age]
- U2, U/L 5, L1 are the most commonly congenitally missing permanent teeth apart from third molars.
  - Relatively little space loss occurs if Es are extracted in a spaced dentition [not upper] and also after 10 years of age. Mesial drifting is more in the upper arch than lower arch
  - Significant expansion of upper arch to correct crowding during mixed dentition except in the presence of posterior cross bite is unstable.
  - Posterior cross bite needs to be corrected in mixed dentition stage to prevent them become established in permanent dentition.
  - Supernumerary teeth in primary dentition almost always erupt and can be extracted. In turn the successor tooth may develop supernumeraries in 35-50% cases.
  - Supplemental or missing primary teeth can be reproduced in permanent dentition also.(#)
  - Primary canines are whiter and more bulbous at cervical level than permanent canines
  - If upper lateral incisor is rotated and labially positioned before the eruption of the permanent canine, there are high chances that the canine will be impacted labially.
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## CONCLUSION

I believe this article might have provided a blueprint to help you how to monitor, intercept or refer a developing malocclusion so that we can provide the best possible care at the right time with the limited resources. To conclude, it does not matter who treats, what matters is what best you can offer in terms of esthetics, function and stability.

## REFERENCES

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