

# Developing CI-II Div 1 Malocclusion- Should We Wait Or Intercept?

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## ABSTRACT

In our day to day practice, we come across many cases in which a class-II div-I malocclusion is developing due to the mesial drifting of the maxillary permanent 1st molars. This mesial drift could be the result of the loss of tooth material due to caries, the premature exfoliation/ extraction of the deciduous molars or the ectopic eruption of the maxillary permanent 1st molars. A common advise at this juncture

by a general practitioner, is to wait till the eruption of the full compliment of the teeth before initiating orthodontic treatment, thereby increasing the chances of premolar extractions for the correction of a full blown class-II div-I malocclusion. Presented in this article are cases in which a developing Class-II div1 malocclusion was successfully intercepted and corrected in the mixed dentition period.

**Key Words :** Developing CI-II Div 1 malocclusion, Molar distalization, Pendulum appliance.

## INTRODUCTION

Class-II, Div-1 malocclusion i.e. the anterior positioning of the upper 1st molars in relation to the lower 1st molars is a very common problem in children today. Though the genetic component dominates the incidence of this malocclusion [1-4], the lifestyle changes in the urban population has given a new dimension to the same. The recent evidences show an increased incidence of nursing bottle caries, rampant caries and the early exfoliation of deciduous teeth, especially in the upper arch, thus leading to the mesial migration of the upper 1st molar, thereby developing a CI-II div1 malocclusion. A skeletal CI-II div1 malocclusion can indeed be easily managed in the mixed dentition stage with functional appliances, but a developing dental CI-II div1 malocclusion is somewhat misunderstood and mismanaged by general practitioners. An interceptive treatment is often not suggested, but rather the patient is advised to wait till the eruption of the full compliment of the permanent teeth. Intercepting these cases early by upper molar distalization before the eruption of the 2nd molars gives the advantage of bringing the molar to its naturally destined position, thereby creating room for the normal eruption of the anterior teeth and a class-I intercuspation of the upper and lower 1st molars [5,6].

## CASE REPORT 1

The patient reported to the clinic at the age of 8 yrs with missing upper right and left deciduous 2nd molars. On examination, it was found that the patient had a dental class-II molar relation. Both the upper first permanent molars had migrated mesially and were rotated mesiopalatally, leaving little space for the erupting 2nd bicuspsids. The consequences of this developing malocclusion were discussed with the parents of the patient and it was decided to intercept the developing malocclusion. The patient's impressions were made and a pendulum appliance was fabricated to distalize the maxillary 1st permanent molars. The pendulum appliance was activated to deliver distally directed forces on the upper 1st permanent molars, thus pushing them back into the maxillary arch in order to create sufficient space in the maxillary arch for the erupting 2nd bicuspsids. The appliance was kept in place for a period of eight months, in which time the molars were sufficiently distalized to create adequate space for the erupting premolars.



[Table/Fig 1]: Case 1 Before Interception

Fig 1a Upper Occlusal view, showing premature loss of deciduous molar & mesially migrated & severely rotated upper right first permanent molar, Fig: 1b&c Left & right lateral views, showing CI-II molar relationship, Fig:1d Lower occlusal view, showing normal development of lower arch.

Fig: 2a Upper occlusal view, showing the corrected upper molars which have been derotated & distalized. The correction is being maintained by the use of a Nance's button. Note: adequate space has been created for the eruption of the subsequent permanent teeth. Fig. 2b &d: Right & left lateral view, Showing a good CI-1 intercuspation of the posterior segment. Fig. 2c, showing normal development of the lower arch

At the end of eight months, the molars had been pushed back in a Class-I relationship with respect to the lower 1st permanent molars. After the correction had been achieved, the appliance was removed, a Nance button was cemented in the upper arch and a lingual arch was cemented on the lower arch till the eruption



of the cuspids and the bicusps was complete. The developing malocclusion was thus successfully intercepted and the treatment ended without the need for braces or active orthodontic treatment at a later stage.

## CASE REPORT 2

The patient reported to the clinic at the age of 9 yrs with a developing CI-II div1 subdivision on the left side and little space for the eruption of maxillary canines. The treatment planning included the distalization of the maxillary 1st permanent molars to create space for the normal eruption of the cuspids and the premolars and to achieve a Class-I molar relationship. A pendulum appliance was fabricated and cemented on the maxillary arch. The appliance was kept in place for a period of five months, in which time an adequate distalization of the maxillary molars was achieved, to bring the molars into a class- I relationship, as well as an adequate space was achieved for the subsequent eruption of all the maxillary cuspids and the bicusps.



Fig: 3a&b left & right lateral views showing a developing CI-II div1 malocclusion, Fig: 3c Frontal view showing an increased overjet,

proclined upper/lower anterior teeth & buccally blocked out right canine, Fig: 3d Upper occlusal view showing retained Left & right deciduous canines and inadequate space for erupting permanent canines, Fig: 3e showing a normally developing lower arch

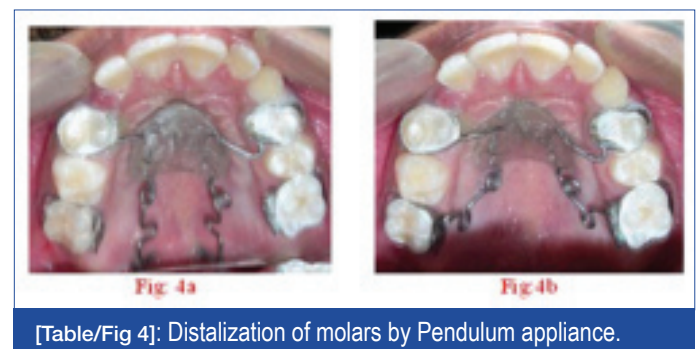


Fig: 4a showing the amount of activation built into the pendulum appliance, Fig 4b showing the pendulum appliance in place exerting a distalizing force on the molars

Since the patient also had proclined upper anterior teeth and an increased overjet, a corrective orthodontic treatment with braces was followed to retract the upper anterior teeth in the Class-I occlusion. We were able to treat the case without extraction, thus saving the upper 1st bicusps from being extracted if the case was delayed till after the eruption of the 2nd permanent molars.



Fig: 5a-c post-treatment photographs of the patient showing a good CI-I intercuspation on the right & left side and a normal overjet & overbite, Fig: 5d-e Fully developed upper & lower arches with well aligned permanent teeth.

## CASE REPORT 3

A patient aged 8 yrs reported to the clinic with a history of premature extraction of the upper right deciduous canine and the first molar and subsequent loss of space by the mesial migration

of the permanent 1st premolar into the extraction space of the deciduous canine, so that there was no space left for the eruption of the upper right cuspid. The patient presented with a developing CL-II div1 Subdivision on the right side. It was decided to intercept the developing malocclusion without any further delay. The upper right molar was planned to be distalized with the Jones Jig appliance. The appliance was cemented in position with bands on upper right 1st molar & 1st premolar.

The distalization of the maxillary right 1st molar took place in a period of eight months, thus creating enough room for the maxillary right cuspid to erupt in the right place, as well as a Class-I molar relationship was also achieved on the right side. A Nance button was cemented in place till the eruption of all the permanent teeth was complete. The interceptive treatment was followed by corrective orthodontic treatment for the minor correction of the alignment after a gap of one year, when all the permanent teeth had erupted.



Fig 6a

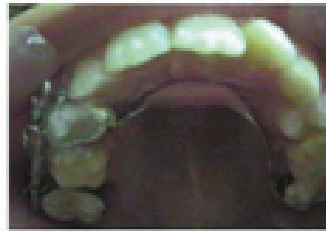


Fig 6b

[Table/Fig 6] : Labially blocked upper canine

Fig: 6a showing a labially blocked out upper right canine with no space for its eruption in the arch, Fig: 6b showing distalization of upper right 1st molar with a Jones jig appliance.

Fig:7a&b, Showing post-treatment results with proper alignment of



Fig 7a



Fig 7b

[Table/Fig 7] : After Interception

the blocked out upper right canine into the arch after successful distalization of upper right 1st molar and a good CI-I intercuspatation in the posterior segment.

## CONCLUSION

The interception of a developing CL-II div1 malocclusion of dental origin, due to the mesial migration of the upper 1st permanent molars in the late mixed dentition stage, before the eruption of the permanent 2nd molars, gives less resistance for the distalization of the 1st molars to a position that they rightfully belong to. This gives the clinician enough room in the maxilla to attain an ideal Class-I molar relationship of the teeth, as well as avoid the extraction of the upper 1st bicusps, which is the line of treatment for the correction of an increased overjet in a full blown, CL-II div1 malocclusion of dental origin. The amount of distal movement of the maxillary first molars is significantly greater and the anchorage loss is significantly lower before the second molars have erupted. The molar distalization time is also significantly shorter before the eruption of the second molars [7]. The reason why it is more difficult to move the maxillary first molars distally after the second molars have erupted is, of course, because there is one more tooth, and thus, a larger area of root surface to be moved when the second molars have erupted. Thus, if there is an option to choose to move the maxillary molars distally in the mixed dentition or in the permanent dentition, it is an advantage to make this intervention at an early stage.

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