

# NON-EXTRACTION TREATMENT OF DENTAL CLASS II MALOCCLUSION IN ADOLESCENT PATIENT USING FIXED FUNCTIONAL APPLIANCE

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## Abstract

The treatment approach towards a dental Class II Malocclusion is usually by extraction of premolars. Cases with mild dental Class II Malocclusion are treated by using Class II elastics. There is also an option of using Fixed Functional Appliances in such cases.

A Patient having Dental Class II malocclusion with peg laterals was treated using MBT 0.22 slot and Forsus FRD Appliance. The Pre treatment records were taken. The Cephalometric analysis was done along with superimpositions and the values were tabulated. The treatment duration was for 2 years and good results were achieved with significant improvement in profile and correction of Dental Class II Malocclusion. Forsus FRD is successful in correcting Dental Class II Malocclusion predominantly by jumping the bite.

**Key words:** Dental Class II Malocclusion, Forsus FRD, Non extraction.

## Introduction

Treatment of Class II Malocclusion provides various challenges to the orthodontist. Skeletal Class II Malocclusions are usually treated by Growth modification appliances. Dental Class II Malocclusion is treated either by extraction of premolars or by using Class II elastics. Non extraction treatment of Dental Class II can be done using Fixed Functional Appliances.<sup>1</sup> Forsus FRD is a fixed functional appliance which uses a Coil spring to exert forces to advance the teeth as well as mandible. The telescopic system is attached to the maxillary molar tubes and distal to mandibular canine engaging the arch wire. The compressed coil spring exert forces to the mandibular teeth to advance them forward. This Case report shows the use of Forsus FRD for non extraction treatment of Class II Malocclusion.<sup>2,3</sup>

## Case Report

A 19 year old patient reported to the department of orthodontics with complains of spacing between upper front teeth. On clinical examination patient had a mesocephalic head type, Euryprosopic facial pattern, straight profile and flat mandibular plane angle. On intra oral examination patient had a Class II Molar Relation with increased overjet and overbite along with peg laterals. (Figure 1)

The Pre treatment lateral cephalogram showed a normal Maxilla and Mandibular position with proclined upper incisor and an upright lower incisor with a normal nasolabial angle.

Treatment Objectives were to

1. Correct overjet and overbite
2. Obtain a Class I Malocclusion
3. Closure of spaces
4. Maintain facial profile and improve esthetics.

### Treatment plan

The treatment plan was to treat the case by non extraction modality. The MBT 0.22 slot was prescribed. Following initial levelling and aligning the plan was to jump the bite using Forsus FRD. The spaces for the build up of peg

laterals to be maintained followed by laminates and final finishing and detailing.



Figure 1: - Pre Treatment Photographs

### Treatment Progress

The maxillary and mandibular arches were banded and bonded with 0.022 MBT slot brackets. The initial levelling and aligning were done with 016 Niti, 018 Niti, 16 x 22 Niti and 19 x 25 Niti. The initial aligning and levelling was done for 8 months.

Then 19 x 25 SS wire was placed with a space maintainer between the laterals and central incisor, canine. The forsus FRD was placed to advance the mandibular teeth to achieve a Class I Malocclusion. The Forsus was left in place for 7 months. (Figure 2)



Figure 2: - Forsus placement and Post Forsus Photographs

This was followed by final finishing and detailing for 3 months. The patient was then referred to Dept of Prosthodontics for laminate build up for the peg laterals. The total treatment duration was for 24 months. The appliance was debonded and retention protocol was initiated. (Figure 3)

**Retention**

Beggs wrap around retainer with reverse inclined plane in the maxillary plate was given for maintaining the bite for 9 months. (Figure 3)



Figure 3: - Post Treatment Photographs

**Discussion**

Mild to Moderate Dental Class II malocclusion is usually an enigma to orthodontist. One method of treating a Dental Class II Malocclusion is by using Fixed Functional appliances.

Among Fixed Functional appliances Forsus FRD has been found to produce stable results.<sup>4,5</sup>

The Skeletal corrections achieved were negligible with major dental changes. The results achieved by Forsus FRD is shown below in the table 1.

Post treatment measurements showed no changes in the SNA and SNB Values. The angle of convexity showed improvement. The mandibular plane angle improved increasing the facial height. There was significant change in the axial inclination of both upper and lower incisors. The lower incisors showed significant proclination of 4°. The soft tissue profile improved indicated by Position of upper and lower lips and nasolabial angle.

Cephalometric values indicated significant dental changes compared to skeletal changes. (Figure 4)

Cephalometric Values	Pre treatment	Mid Treatment	Post Treatment
SNA	82	81	83
SNB	80	81	81
WITS	2	0	0
N-A-Pg	3	2	2
Upper Incisor to NA	30/4	25/3	28/3
Lower Incisor to NB	23/4	28/4	27/3
Lower incisor to Mand. Plane	100	104	103
Inter-incisal Angle	125	120	120
Nasolabial Angle	105	105	100
Upper lip to E line	-3	-5	-5
Lower lip to E line	0	1	2
Upper lip to S line	1	-2	-1
Lower lip to Sline	3	4	4

Table 1:-

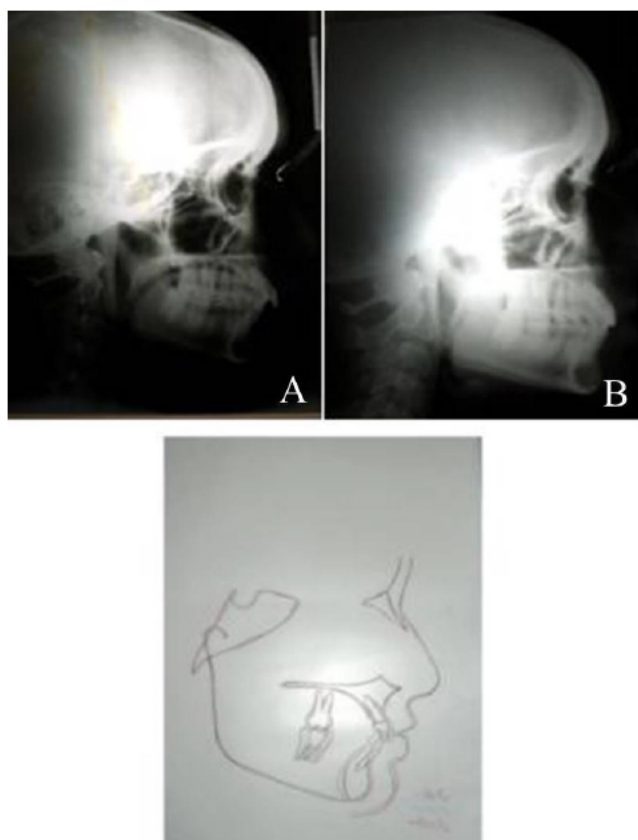


Figure 4: - A) Pre B) Post Lateral cephalogram with superimpose

The advantage of Forsus FRD appliance is that it integrates functional appliance with fixed appliance. It also provides the option of treating adolescent cases with non extraction approach with stable results.

### Conclusion

Class II malocclusions must be treated with careful diagnosis and a proper treatment planning for a stable result. Here in this case report the Class II malocclusion with peg laterals was treated by Forsus FRD.

Significant improvement in the soft tissue profile and occlusion was obtained in this case with advancement of mandibular teeth. This was followed by build up of crown for the peg laterals. Forsus FRD can be used as a bite jumper and also as an alternative to Class II elastics. It produces stable occlusion with improved compliance factor for patients.<sup>6,7</sup>

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