

## Orthodontic Camouflage Treatment in Skeletal Class III Malocclusion Patient with an Over Retained Deciduous Canine: A Case Report

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### Case Report

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**Abstract:** Orthodontic camouflage treatment is an acceptable option for mild to moderate skeletal discrepancies for correcting the malocclusion as well as the skeletal problem. Surgical treatment is the preferred and most stable treatment for adult patients with severe skeletal Class III malocclusion. Patients with borderline dentoalveolar compensation who are not willing to accept the costs, risks, and potential complications of surgery can sometimes be treated successfully with camouflage orthodontics. It is not clear which mechanics are most appropriate or which patients are most likely to benefit from an orthodontic approach to severe skeletal Class III malocclusion. In this article a case report of a camouflage treatment in a skeletal class III malocclusion patient with prognathic mandible with average growth pattern and partially erupted palatally placed upper right canine and retained deciduous right upper canine. The aim of this article is to show that Orthodontic camouflage is an acceptable option for mild skeletal discrepancies that offers esthetic results in the soft tissues as well as correction of malocclusion.

**Keywords:** Orthodontic camouflage, skeletal Class III malocclusion, aloclusion.

### INTRODUCTION

Skeletal Class III malocclusion occurs when there is discrepancy in the size or position of the maxilla, mandible or a combination of both.

According to Proffit [1], for any type of skeletal Class III malocclusion there are 3 options:

- Growth modification when possible
- Camouflage treatment
- Surgical correction

In adults, only 2 options are possible as the growth has ceased i.e. camouflage or surgical treatment. The treatment should be selected on the basis of required tooth movements, stability of these changes and whether or not the probable esthetic outcome complies with the patient's expectations. Also, in adult patients, the wishes and expectations of the patient should be kept in mind while deciding the appropriate treatment plan [2, 3].

As a general rule, Proffit [2] defines precise indicators to decide whether the class III problem is too serious to be treated with orthodontics only. Hence, a negative overjet of 3mm or more indicates a severe discrepancy too large to be treated exclusively with orthodontics alone. Similarly, hyperdivergent facial patterns have worse prognosis than those that are more convergent [4].

The advantages and disadvantages of both the orthodontic treatment and surgical treatment must be carefully analyzed. Camouflage requires longer treatment time and higher cooperation whereas surgery may be more expensive and risky. So, it is very important to explain to the patient the pros and cons of both the options so that they understand and make a totally objective decision [5, 6].

The following case report demonstrates an orthodontic camouflage treatment of an adult patient with skeletal class III malocclusion with over retained deciduous canine in the upper arch with extraction of the lower premolars only.

### CASE REPORT

A 21-year-old male presented with a chief complaint of upper and lower front teeth touching each other while chewing.

Extra-oral examination shows that the patient had a straight profile, anterior divergence, acute

nasolabial angle, competent lips with no significant facial asymmetry (Fig-1).



**Fig-1: Pre-treatment Extra-oral photographs**

Intra-oral examination shows that all the permanent teeth are present except the right upper second molar and the third molars in all the quadrants. Deciduous canine in the upper right segment was also present. The patient had bilateral class III molar

relation, non-assessable canine relation on right side due to retained deciduous canine and class III canine relation on the left side. He also presented an anterior cross-bite with a negative overjet of 0.5mm and crowding in the lower anterior region (Fig-2).



**Fig-2: Pre-treatment Intra-oral photographs**

Cephalometric analysis suggests Class III skeletal pattern due to prognathic mandible (SNB=84°), increased mandibular body length, proclined upper and

lower incisors (Upper incisor to NA = 30°, Lower incisor to NB = 92°) with average growth pattern (Table-1, Fig-3).

**Table-1: Cephalometric Data**

	Norm	Pre-treatment	Post-Treatment
SNA	82.8° ± 4.0	82°	82°
SNB	80.1° ± 3.9°	84°	83°
ANB	2.7° ± 2.0°	-2°	-1°
FMA	31.3° ± 5.0°	27°	27°
SN-GoGn	31.1° ± 5.6°	29°	28°
ANS-Me	65.8mm ± 4.1mm	58mm	56mm
U1 to SN plane	105.7° ± 6.3°	113°	116°
IMPA	93.9° ± 6.2°	92°	88°
Interincisal angle	125.4° ± 7.9°	129°	131°



**Fig-3: Lateral cephalograph and OPG**

### **TREATMENT OBJECTIVES**

The treatment objectives were

- To correct the Class III malocclusion.
- Improve the patient's facial esthetics.
- To eliminate the CR-CO discrepancy
- Resolve the anterior crossbite
- Establish a Class I molar and canine relationship
- Eliminate the maxillary and mandibular arch-length deficiencies
- Align the arches and midlines
- Establish a functional occlusion.

### **TREATMENT PLAN**

A camouflage orthodontic treatment for the skeletal class III was performed by placing 0.022×0.028 slot MBT Pre-adjusted edgewise appliance.

Lower premolars and upper right deciduous canine was extracted to relieve lower anterior crowding and to correct the anterior cross-bite by retracting the lower anterior segment.

### **TREATMENT PROGRESS**

Initial leveling and alignment was performed with round archwires (0.016 NiTi) in both the arches. Space created for the traction of upper right canine using open coil spring. Traction of the canine was done using piggy back wire technique (0.014 NiTi on 0.018 SS base wire).

After initial alignment and leveling the lower anteriors were retracted using active tie backs. Anchorage was achieved in the lower arch using a lingual arch.

Retention was carried out by Hawley's retainer in the upper arch and fixed lingual retainer in the lower arch.

### **TREATMENT RESULTS**

All treatment objectives were fully achieved, including an ideal overjet and overbite with Class I canine relationships. Also, improvement in soft tissue profile, aligned dental arches and improvement in smile, periodontal health and proper occlusion was noted (Fig-4).





Fig-4: Post- treatment extra- and intra- oral photographs

## DISCUSSION

Orthodontic camouflage treatment has been a controversial topic due to the limitations that this treatment might have, however, with proper knowledge and diagnosis, the stated objectives can be achieved at the end of the treatment [7, 8].

Orthodontic treatment to compensate for the minor skeletal discrepancies in the jaws is an excellent option provided there is a proper diagnosis and successful treatment plan. It provides convincing results for both the orthodontist and the patient as the patient is not subjected to a surgical intervention that includes an increased cost and inherent risks of the procedure [9, 10].

For Mihalik and Proffit [11] the most important decision to make between camouflage and surgery should be based on whether or not dentofacial cosmetic improvement accomplished with surgery is worth the increased cost and risk of the procedure.

The clinical case presented did not exhibit a severe dento-skeletal discrepancy so it was possible to perform orthodontic camouflage to decrease the problem both esthetically and functionally.

## CONCLUSION

Orthodontic camouflage has its limitations, since it involves solving a dento-skeletal problem through tooth movements only. This treatment was successful due to a combination of factors: cooperation, proper diagnosis and a properly executed treatment plan. The surgical intervention can be avoided if there are greater risks involved.

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