

Orthodontic Camouflage for Class III Subdivision Malocclusion: A Case Report

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Abstract

Introduction: Orthodontic camouflage treatment is a therapeutic approach aimed at disguising skeletal discrepancies by altering the position and angulation of teeth within the dental arches. Class III dentoskeletal malocclusion is considered one of the most complex and challenging orthodontic problems to manage. Skeletal and dental asymmetry in patients with class III subdivision malocclusion may further worsen the prognosis. Therefore, identifying the dentoalveolar and skeletal characteristics of subdivision malocclusions and understanding their possible treatment modalities are essential for achieving favorable non-surgical correction. This case report aims to describe the orthodontic camouflage treatment option for a patient with class III subdivision dentoskeletal malocclusion. **Case Report:** A 29-year-10-month-old female patient was referred from the Prosthodontic Clinic to the Orthodontic Clinic of the Dental Hospital, Faculty of Dentistry, Hasanuddin University, with complaints of crowding in both maxillary and mandibular teeth and protrusive lower anterior teeth relative to the upper teeth. Diagnosis revealed a skeletal Class III pattern with a normal maxillary position and a tendency toward mandibular prognathism (SNA 82°, SNB 83°, ANB -1°), Angle Class III subdivision malocclusion accompanied by moderate crowding, and a concave soft tissue profile. The case was treated using a non-extraction orthodontic camouflage approach with a straight-wire fixed appliance to correct crowding in both arches and anterior crossbite. Orthodontic treatment was completed within 20 months, resulting in successful correction of crowding and anterior crossbite. **Discussion:** Orthodontic camouflage provided satisfactory occlusal, skeletal, soft tissue, and functional improvements, correcting malocclusion and facial profile without orthognathic surgery. **Conclusion:** Orthodontic camouflage treatment in skeletal Class III malocclusion is considered a favorable treatment option because it can correct malocclusion through dentoalveolar compensation, thereby achieving good and stable occlusion. The treatment outcome demonstrated satisfactory and clinically acceptable results for the patient

Keywords:

Class III subdivision malocclusion, orthodontic camouflage

INTRODUCTION

Skeletal Class III malocclusion is defined as a facial deformity characterized by a mandibular position located anterior to the maxilla,¹ whereas dental Class III subdivision malocclusion is a condition characterized by a Class III molar relationship on one side and a Class I relationship on the contralateral side.² Class III malocclusion may involve solely dental components, solely skeletal components,

or a combination of both. These conditions may result in variations in facial profile changes, including a concave facial profile, increased lower facial height, and shortening of the lower facial region.³ Facial profile has always been one of the primary concerns motivating patients with Class III malocclusion to seek treatment. Class III malocclusion is characterized by mandibular prognathism, maxillary retrognathism, or a

combination of both conditions. Clinically, patients commonly present with a concave facial profile. The maxillary arch is usually narrower than the mandibular arch and is frequently accompanied by a negative overjet.⁴ The severity of Class III malocclusion influences both treatment planning and the prognosis of orthodontic treatment. Class III malocclusion caused by maxillomandibular discrepancies with mild skeletal abnormalities may be treated orthodontically without surgical intervention. Several studies have demonstrated that, in a number of Class III subdivision cases, the dental midline exhibits minimal deviation and the clinical facial midline appears relatively symmetrical despite the presence of facial asymmetry.⁶

In patients who have passed the growth period, the available orthodontic treatment options are limited to camouflage treatment or orthognathic surgery to improve esthetics and function.⁷ Camouflage treatment involves repositioning the teeth relative to their supporting tissues in order to compensate for maxillomandibular discrepancies.⁸ Orthodontic camouflage may involve extraction or non-extraction treatment as a form of dentoalveolar compensation to disguise skeletal discrepancies, although the final outcome may not demonstrate ideal skeletal correction.⁹ Orthodontic camouflage can be performed in mild skeletal Class III malocclusion cases through dentoalveolar compensation by proclining the maxillary incisors and retroclining the mandibular incisors, thereby achieving a Class I incisal relationship. Conversely, orthognathic surgery may be considered for patients with moderate to severe skeletal discrepancies because dentoalveolar compensation alone is insufficient to mask severe skeletal disharmony.¹⁰ The selection of a treatment plan capable of improving facial profile and dental relationships in skeletal Class III malocclusion patients who are unwilling to undergo orthognathic surgery is orthodontic camouflage treatment.¹¹ This case report was written with the aim of describing the treatment modality selected for a patient with Class III subdivision dentoskeletal malocclusion managed with orthodontic camouflage therapy.

DIAGNOSIS AND ETIOLOGY

A 29-year-10-month-old female patient was referred from the Prosthodontic Clinic to the Orthodontic Clinic of the Dental Hospital, Faculty of Dentistry, Hasanuddin University, with complaints of crowding in both the maxillary and mandibular teeth, as well as the lower anterior teeth being positioned more anteriorly than the upper anterior teeth. Extraoral examination revealed a concave facial profile, facial asymmetry, a dolichocephalic head type, and competent lip relationship. Intraoral examination before treatment demonstrated mild crowding in both the maxillary and mandibular arches, left-sided anterior crossbite, and a 0.5 mm deviation of the mandibular dental midline to the right. The patient also presented with an overbite of 2.5 mm, an overjet of -0.2 mm, and a positive curve of Spee.

Functional examination revealed temporomandibular joint abnormalities in the form of clicking and pain during mouth opening, resulting in limited mouth opening and closing movements. Swallowing and speech patterns were normal, and no deleterious oral habits contributing to the malocclusion were identified.

Panoramic radiographic examination (Figure 3) revealed missing tooth 26, agenesis of tooth 28, and a composite restoration with periapical abscess on tooth 46. Lateral cephalometric radiographic analysis demonstrated a skeletal Class III pattern with a normal maxillary position and a tendency toward mandibular prognathism (SNA 82°, SNB 83°, ANB -1°). The patient exhibited a concave skeletal profile and a hyperdivergent mandibular growth pattern (FMPA 33°). The inclination of the mandibular incisors relative to the NB plane was protrusive (L1-NB: 40°), with protrusive lower incisor inclination relative to the Frankfurt plane (FMIA 48.5°) and mandibular plane (IMPA 99°). The maxillary incisors were also protrusive relative to the mandibular incisors. The upper lip was positioned 3 mm behind the E-line, and the lower lip was also positioned 3 mm behind the E-line (Figure 3).

According to the Proffit-Ackerman classification, the patient's problem list included a concave facial profile affecting facial proportion, esthetics, and facial type. In terms of alignment and dental arch form, crowding was present in both the maxillary and mandibular arches. Transverse discrepancies included constriction of the posterior mandibular dental arch, mandibular midline deviation, and a scissor bite involving tooth 15. Sagittal discrepancies included anterior crossbite and a left-sided Class III molar relationship.



Fig 1. Profile and intraoral photographs before treatment



Fig 2. Profile and intraoral photographs after treatment

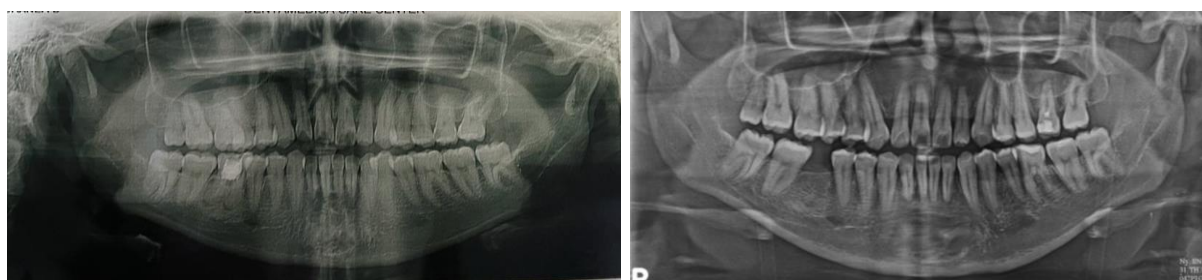


Fig 3. Panoramik radiographs before treatment (a) and after treatment (b)

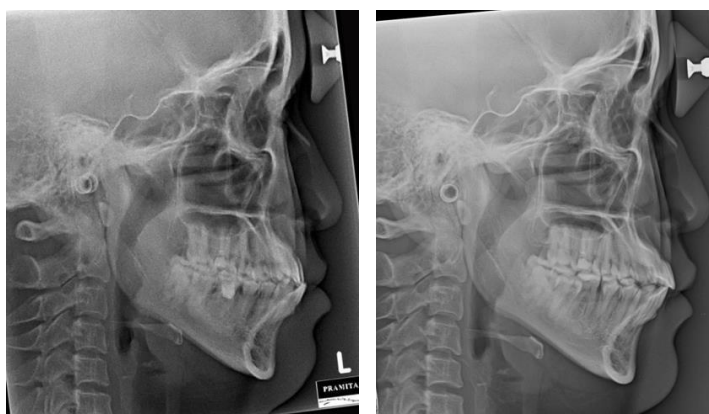


Fig 4. Lateral cephalometry before treatment (a) and after treatment (b)

TREATMENT OBJECTIVES

The treatment objectives were correction of anterior crossbite, correction of maxillary and mandibular crowding, and significant improvement in facial esthetics

TREATMENT ALTERNATIVE

Based on cephalometric analysis demonstrating proclined interincisal angulation, extraction treatment combined with temporary anchorage devices was proposed as an alternative. However, because the patient refused extraction, a non-extraction treatment plan was selected

TREATMENT PROGRESS

Orthodontic camouflage treatment without extraction for this Class III subdivision malocclusion case was performed using a fixed orthodontic straight-wire appliance with a 0.022-inch slot. Anchorage was reinforced using molar

bands on teeth 16, 17, 47, and 36. Extraction of tooth 46 was carried out after bracket bonding because the tooth could no longer be maintained due to the presence of hypercementosis. Leveling, alignment, and protraction of the maxillary anterior teeth were initiated using a 0.014-inch NiTi archwire with cinch-back, followed by a 0.016-inch NiTi archwire, and finally a 0.016 × 0.022-inch rectangular NiTi archwire. Leveling and alignment of the mandibular dentition were performed sequentially using 0.014-inch NiTi, 0.016-inch NiTi, and 0.016 × 0.022-inch rectangular NiTi archwires.

Following the leveling and alignment phase, treatment was continued using a plain archwire with 0.018-inch stainless steel wire, and a distal stop modification was performed on the left side to advance the teeth or flare the maxillary incisors anteriorly. For the mandibular dentition, Class III elastics were applied on the left side in combination with a 0.016 × 0.022-inch rectangular stainless steel wire and single ties on teeth 33, 34, and 35 extending posteriorly until posterior

mandibular rotational effects were achieved. Mesialization of teeth 23, 24, and 25 was performed using a 0.016×0.022 -inch rectangular stainless steel wire along with power chains to close the spaces created by the flaring of the maxillary incisors. After correction of the anterior crossbite and achievement of positive overjet, finishing and occlusal adjustment procedures were performed using 0.017×0.022 -inch stainless steel wire. Upon completion of active treatment, the brackets were debonded and clear retainers were provided to maintain the treatment outcomes that had been achieved. The patient was instructed to wear the retainers day and night during the first six months and nighttime only during the subsequent six months.

TREATMENT RESULT

After 20 months of active orthodontic treatment, satisfactory results were achieved according to the treatment objectives. Skeletal changes were minimal, as expected in adult camouflage treatment. The sagittal skeletal relationship improved slightly, indicated by changes in SNA (82° to 82.5°), SNB (83° to 82.5°), and ANB (-1° to 0°), reflecting dentoalveolar compensation rather than true skeletal correction.

In the maxillary and mandibular dentition, crowding was successfully corrected and proper alignment was achieved. The maxillary incisors were proclined (U1-NA: 27° to 32°), facilitating correction of the anterior crossbite and establishment of positive overjet. Mandibular incisor protrusion was reduced (L1-NB: 40° to 38°), contributing to improved dental compensation.

Occlusal improvement included correction of the anterior crossbite, scissor bite of tooth 15, posterior mandibular arch constriction, and mandibular dental midline deviation. Positive overjet and overbite of approximately 2 mm were achieved, along with bilateral Class I canine relationship and left-sided Class I molar relationship.

Facial esthetics improved, with a less concave profile and better lip position relative to the E-line. Functional improvement was also observed, as temporomandibular joint symptoms, including pain and clicking, resolved after treatment. Overall, orthodontic camouflage treatment produced clinically satisfactory and acceptable outcomes without orthognathic surgery.



Fig 5. Profile and intraoral photographs after treatment



Fig 6. Overjet before treatment (a) and after treatment (b)

Table 1. Cephalometric analysis pre and post treatment

Horizontal skeletal			
<i>Parameter</i>	<i>Norm (mean $\pm$ SD)</i>	<i>Pre- treatment</i>	<i>Post- treatment</i>
SNA ($^{\circ}$)	82 $\pm$ 2	82	82,5
SNB ($^{\circ}$)	80 $\pm$ 2	83	82,5
ANB ($^{\circ}$)	2 $\pm$ 2	-1	0
Wits Appraisal (mm).	1 $\pm$ 1	-4	-3,5
Angle of Convexcity	0 $\pm$ 5	0	0
Vertikal Skeletal	22 $\pm$ 2	28	30
Y Axis ($^{\circ}$)	54,9 $\pm$ 4	64	64,5
SN-mandibular plane ($^{\circ}$)	32 $\pm$ 3	35	35,5
FMPA($^{\circ}$)	27 $\pm$ 5	32,5	33
Dental			
Interincisal angel ($^{\circ}$)	131 $\pm$ 10	103	118
UI-NA($^{\circ}$)	20 $\pm$ 4	27	32
Li-NB ($^{\circ}$)	25 $\pm$ 4	40	38
Soft tissue			
Upper lip to E line (mm)	1 $\pm$ 2	3	1,5
Low lip to E line (mm)	0 $\pm$ 2	3	1

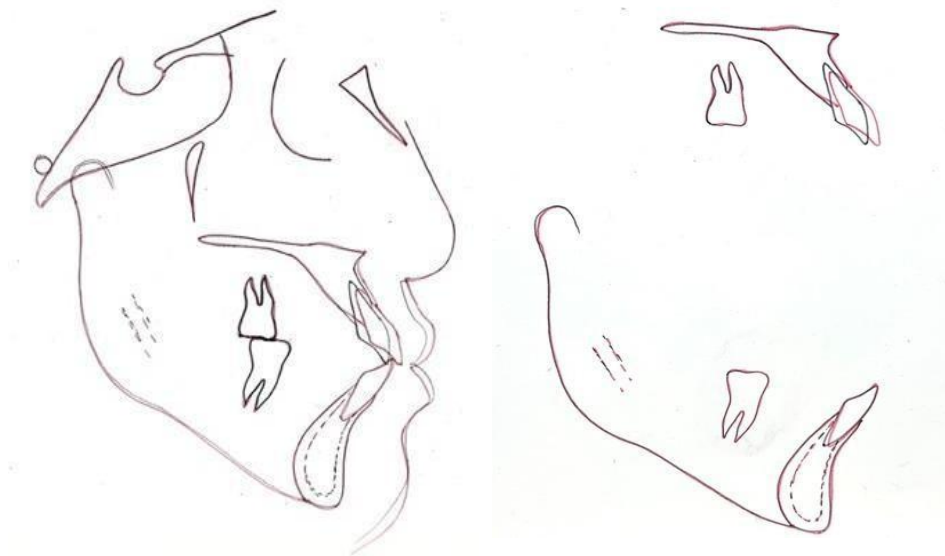


Fig 7. Lateral cephalometry before treatment (black line) and after treatment (red line)

DISCUSSION

The orthodontic camouflage approach using fixed orthodontic appliances was selected for this case due to the relatively mild skeletal discrepancy, which could still be masked through dentoalveolar compensation. Treatment using an orthognathic surgical approach must also take into consideration the patient's motivation and willingness. Patients are generally reluctant to undergo orthognathic surgery because the procedure is invasive, uncomfortable, and associated with high treatment costs. Orthodontic camouflage treatment has been reported to produce favorable facial proportions and satisfactory occlusal relationships in cases with a low mandibular angle and a short lower anterior facial height.

In this case, treatment progress at the third month demonstrated that both the maxillary and mandibular dental arches had achieved leveling and alignment. By the twelfth month, the patient's bite had reached an edge-to-edge relationship; therefore, flaring was performed using a left-sided distal stop with 0.018-inch stainless steel wire, resulting in the creation of spaces between teeth 23, 24, and 25. Mesialization of these teeth was subsequently carried out for space closure. At the eighteenth month, post-treatment intraoral

photographs revealed a Class I canine relationship on both sides and a Class I molar relationship on the left side. The patient's overjet and overbite had normalized to 2 mm. Extraoral

examination after treatment also demonstrated improvement in the patient's facial profile and upper lip position.

Cephalometric tracing analysis demonstrated changes in SNA from 82° to 82.5°, SNB from 82.5° to 83°, and ANB from -1° to 0°. The inclination of the mandibular incisors relative to the mandibular plane improved from protrusive to normal values (IMPA 95°). Soft tissue analysis showed correction of the upper and lower lip positions relative to the E-line. The patient showed excellent compliance in wearing Class III elastics. The use of Class III elastics resulted in forward mandibular rotation, extrusion of the maxillary posterior teeth, clockwise mandibular rotation, and changes in condylar position. Consequently, the patient's temporomandibular joint disorder symptoms, including clicking and pain, were corrected, thereby restoring normal mouth opening and closing movements.

Overall, the final treatment outcomes for this patient were successfully achieved, including correction of the facial profile, anterior crossbite, scissor bite of tooth 15, overjet, posterior mandibular arch constriction, crowding, and mandibular dental midline deviation. The total treatment duration was 20 months. Orthodontic camouflage treatment in this patient resulted in optimal outcomes that were satisfactory and acceptable to the patient.

CONCLUSION

Understanding the characteristics of Class III dentoskeletal malocclusion, particularly subdivision characteristics, is essential for establishing a more favorable treatment approach. Such understanding simplifies orthodontic mechanics, reduces patient complaints, and shortens treatment duration.

REFERENCES

1. Susiana. Treatment of skeletal Class III malocclusion using chin cap therapy in growing patients. *JKM*. 2009;19(1):59–68.
2. Bhalajhi SI. *Orthodontics: The Art and Science*. 5th ed. New Delhi: APH Publishing; 2012. p. 98.
3. Bishara SE. *Textbook of Orthodontics*. Philadelphia: WB Saunders; 2001. p. 375–411.
4. Doshi SS, Jayarama M, Gaikwad S, Mhatre A, Ravindranath. Nonsurgical treatment of a patient with Class III malocclusion and missing maxillary lateral incisors: a combined orthodontic-prosthetic approach. *Journal of Contemporary Dentistry*. 2012;2(2):57–63.
5. Purwaningsih YRW, Ardhana W, Christnawati. Treatment of Class III malocclusion with reverse overjet using fixed orthodontic appliances with the Begg technique. *Majalah Kedokteran Gigi*. 2013;20(1):112–118.
6. Janson G, et al. Orthodontic treatment alternative for a Class III subdivision malocclusion. *Journal of Applied Oral Science*. 2009;17(4):354–363.
7. Erwansyah E, Haerawati SD. Chin cup appliance. *Makassar Dental Journal*. 2018;7(1):1–5.
8. Zuniga RL. Camouflage treatment of a skeletal Class III malocclusion with tooth transposition using a nonsurgical approach: case report. *Revista Mexicana de Ortodoncia*. 2017;5(1):34–40.
9. Coubourne MT, DiBiase AT. *Handbook of Orthodontics*. 1st ed. Philadelphia: Elsevier; 2010. p. 167–168.
10. Suryajaya W, Anggani HS. Orthodontic camouflage treatment in skeletal Class III malocclusion with anterior open bite. *Journal of Dentistry, Universitas Padjadjaran*. 2021;32(Suppl 2):120–126.
11. Wardana PN, Hardjono S, Suparwitri S. Non-extraction camouflage treatment of Class III malocclusion using the edgewise technique in adult patients. *Proceedings of the Indonesian Association of Orthodontists (IAO)*. 2017:187–189.
12. Bahrin AN, Erwansyah E, Habar EH, Ranggani BM, Nahusona DR. Management of Orthodontic Camouflage Treatment in Class III Type 3 Subdivision Malocclusion: Case Report. *Indonesian J of Orthod Case Report*. 2024.1(1):8-15