

Interdisciplinary treatment approach of skeletal Class III malocclusion patient with multiple missing teeth: A case report

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ABSTRACT

Background: Combination of poor dental hygiene and poor dental treatment lead to multiple missing teeth. Periodontics, orthodontics, oral & maxillofacial surgery, and prosthodontics treatments were undertaken in proper timing and sequence with an interdisciplinary approach. **Objective:** Proper diagnosis, treatment planning and teamwork were crucial to solve difficult cases. **Case:** A 30-year-old unilateral cleft lip and palate female patient with Class III malocclusion and several missing maxillary anterior and posterior teeth and mandibular posterior teeth came to the clinic to improve both her esthetic and function. Patient had a unilateral cleft lip and palate. **Management:** After initial periodontal care was completed, orthodontic treatment was completed to prepare her orthognathic surgery. Space consolidation and occlusion correction were also completed to prepare her for final prosthesis post surgery. Partial dentures were delivered by the prosthodontists. As a result, a stable Class I occlusion with good esthetic and function treatment results were achieved. **Conclusion:** The case showed that proper diagnosis and treatment planning is very important especially in an interdisciplinary treatment of Class III malocclusion patient.

Keywords: interdisciplinary approach, Class III malocclusion, multiple missing teeth, unilateral cleft lip and palate
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INTRODUCTION

Good hygiene along with regular dental visits and correct treatment will lead to good oral health. A 30-year-old female patient with a severe Class III malocclusion came to the office for treatment and with the chief complaint: "I want to fix my bite and my look.

In a tough case, a comprehensive treatment plan by combining several specialties in dentistry can provide satisfactory results for patients and doctors themselves. An organized, planned and well-discussed treatment plan allows doctors and patients to produce successful treatments. Interdisciplinary cares with a collaboration of various dental discipline can result in ideal and optimal occlusion.^{1,2}

The main objective of this case report is to show that proper treatment planning with the correct team will lead to a good result for the patient, both functionally and esthetically.

CASE

The initial extraoral and intraoral photographs (Fig.1) show that patient has a Class III malocclusion, anterior and posterior crossbite, multiple spacing, multiple missing maxillaries and mandibular (anterior and posterior) teeth. Patient also has asymmetry soft tissue and/or lip canting. She has a unilateral cleft lip and palate. Panoramic radiograph (Fig.2) shows that patient has multiple dental restoration and periodontal disease, along with mul-

tle, prolonged spacing shown by teeth drifting. Lateral cephalogram (Fig.3A) shows a high angle, skeletal Class III malocclusion and her posteroanterior cephalogram (Fig.3B) suggested skeletal asymmetry. The combination between poor dental hygiene and poor prior dental treatment was the cause of the multiple missing teeth.



Figure 1 Pre-treatment; A extra and B intraoral photographs



Figure 2 Pre-treatment panoramic radiograph

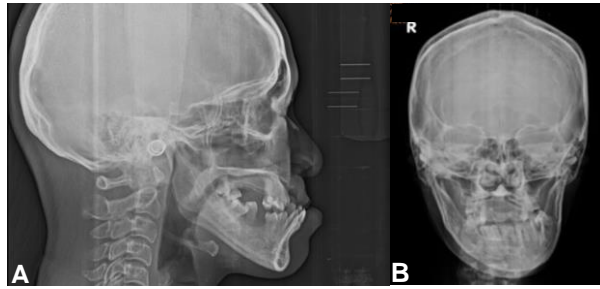


Figure 3 The cephalogram: **A** pre-treatment lateral; **B** pre-treatment posteroanterior cephalogram



Figure 4 Progress/intermediate panoramic radiograph (post periodontics and orthognathic surgery)



Figure 5 Progress/intermediate: **A** extra and **B** intraoral photographs (post periodontics, orthodontics and orthognathic surgery).



Figure 6 Post-treatment **A** extra; **B** intraoral photographs

MANAGEMENT

Periodontic, orthodontic, oral and maxillofacial surgery and prosthodontics treatments were

undertaken in the proper timing and sequence with an interdisciplinary approach. Initial periodontal care was completed by a periodontist. After stabilizing the patient's periodontal health, orthodontic treatment was completed to correct patient's occlusion and prepare patient for orthognathic surgery. After aligning, leveling and diastema closure phases, a modified Le Forte osteotomy, a mandibular setback with bilateral sagittal split osteotomy and a genioplasty were performed (Fig.4).

Space consolidation and occlusion correction were also completed to prepare her for final prosthesis post-surgery (Fig.5). Removable partial denture was delivered by the prosthodontist based on request by the patient after multiple options were given. As a result, a stable Class I occlusion with good esthetic and function treatment results were achieved (Fig.6). Patient were happy with the result of treatment.

DISCUSSION

Indonesia consisted of over 17,000 islands. In certain locations, especially in rural areas and/or islands, doctors and dentists are rarely found. In other areas, the level of health services is very low and is not able to fulfill the needs of the population. This incident was experienced by this patient which caused the patient to receive limited treatment, where curative and preventive care were minimal. The patient lost multiple teeth, both posterior and anterior teeth. Additionally, the patient had a skeletal Class III malocclusion with asymmetry where none of her local dentists can treat.

The patient needed a long commute to reach the clinic. After clinical examination and additional data collection it was decided that she needed integrated treatment between periodontist, orthodontist, oral and maxillofacial surgeon, and prosthodontist. Initial treatment consisted of periodontal treatment due to patient irregularity of having a dental cleaning. Patient has a generalized moderate periodontitis. Orthodontics treatment with fixed appliance were started after her periodontal disease was stabilized. The patient underwent a surgery to correct her upper and lower jaw relationship followed by completion of orthodontics treatment to adjust the position of her remaining teeth and close the space. Her surgery included a double jaw surgery to correct her Class III skeletal malocclusion and asymmetry of the mandible. A genioplasty was performed to reduce the position of the chin thereby reducing her Class III facial profile.

Orthognathic surgery is a good approach in treating anterior crossbite and open bite relating to

skeletal problems in adult patient.³⁻⁵ Changes in profile and occlusion were obvious. Study have shown that many orthognathic surgery patients have benefit which include improved smile, more positive esthetics, increased self-esteem, and consequently a better quality of life.^{6,7} After 24 months of active treatment, the patient showed a Class I molar and canine relationship and an ideal overbite and overjet. Her profile had improved, and her lip were competent. She has a good overall balance of her hard and soft tissue.

Her final treatment was the fabrication and delivery of upper and lower removable partial dentures. The prosthodontist and orthodontist had to

work together to ensure that the patient will have the most ideal and stable occlusion with her removable partial denture.

It is concluded that proper diagnosis and treatment planning is very important especially in tough cases which require an interdisciplinary approach such as the case shown at this case report. The treatment of patients with complex dentofacial abnormalities is always a great challenge to orthodontists. Orthognathic surgery is a good approach in treating anterior crossbite and open bite relating to skeletal problems in adult period. Sometimes, a multidisciplinary approach is necessary to achieve the best esthetic and functional outcome.

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