Malocclusion is a disturbance of contacts and/or occlusion between the maxillary and mandibular teeth. Its etiologies can be categorized into general and local factors. Orthognathic surgery is a combination of surgical and orthodontic treatments that aims to correct dental and skeletal malocclusion caused by severe abnormalities in size and shape of teeth, as well as the relationship between the jaws and cranial base. Orthognathic surgery aims to achieve functional balance of the stomatognathic system, improve dental aesthetics, promote psychological well-being, and produce long-term dental stability.

Severe Bilateral Mandibular Hyperplasia and Angle’s Class III Malocclusion in Indonesia: A Case Report

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CASE REPORT

A 20-year-old man complained of lower jaw growth since he was 15 years old. The patient also complained of difficulty in chewing hard food. During physical examination, we observed open and crossbite malocclusion, with a negative overjet of 15 mm and a maximum interincisal opening of 45 mm.

A panoramic radiograph showed dental cavities and missing teeth. Cephalometry showed proclination of the mandibular maxillary incisor position and a class III maxilla and mandible relationship, leading to protrusion. CT scan 3D reconstructions were consistent with type III malocclusion.

After clinical assessment, the patient was diagnosed with class III malocclusion (Angle’s classification), bilateral mandibular condylar hyperplasia, and apical periodontitis due to tooth gangrene. He was advised to undergo osteotomy Le Fort I advancement, bilateral sagittal split, and anterior subapical ostotomies using Kole’s procedure were performed. The patient underwent preoperative and postoperative examinations. After surgery, the occlusion was corrected and facial symmetry significantly improved.

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base, and a 5-mm osteotomy incision line was drawn above the cranial roots of the dental canine. Le Fort I osteotomy was performed with an inferior segment of the maxilla, which was approximately 7 mm. After the first wafer was fixed with a 0.4 wire, the jaws were occluded.

A bone graft was harvested from the left iliac crest and inserted into the right maxilla, measuring approximately $2 \times 1.5 \text{ cm}^2$ and $1.5 \times 1 \text{ cm}^2$ to the left maxilla. Open reduction internal fixation (ORIF) plating of the medial and lateral buttresses of both right and left maxillae was performed. The iliac bone graft was inserted into the maxilla, and the wafer was removed.

A mandibular vestibular incision was made 1 cm lateral to the gingivobuccal fold, from the occlusal plane level to the second molar, in the right and left mandibles. Then, the bodies and angles of both sides of the mandible were exposed. A separate incision was created to expose the anterior mandible. Next, using Kole’s procedure, an anterior segmental mandibular osteotomy design was made for the body of the right and left mandibles, posterior to the first premolar and approximately 5 mm from the root of the dental canine below the alveolar bone. Bilateral osteotomies were then performed from the first premolars, and the segment was set back approximately 8 mm. ORIF plating was applied to the left anterior segment with a 2.0-mm-thick, three-hole plate and two screws. Subsequently, bilateral split sagittal osteotomy was performed at the right angle of the mandible, approximately 1 cm cranial, from the foramen lingula to the posterior of the second molar; osteotomy was performed as designed, with mobilization of the inferior segment of the mandible, set back approximately 10 mm. The second wafer was then fixed to the mandible with a 0.4 wire. ORIF plating of the right and left mandibular angles was applied. After wafer removal, intraoral irrigation was performed with an antibiotic solution. Finally, to maintain the occlusion, a maxillomandibular fixation elastic band was used for 6 weeks. Skull radiography of the anterior, lateral, and Waters projections was performed on the first day after surgery.

The patient was advised to adhere to a nonchewing soft diet and begin masticatory rehabilitation with passive mouth-opening exercises. We recommended monthly visits to the plastic surgery and orthodontics department for follow-up. Cephalometry was postoperatively performed at the first, third, and sixth months. At the first and sixth months of follow-up at the outpatient department, the patient had no complaints, the malocclusion was corrected, and facial symmetry had significantly improved (Figs. 1, 2).

**DISCUSSION**

Malocclusion is a dental problem in which the maxilla and mandible do not achieve occlusion, leading to problems with both hygiene and aesthetics. Class III malocclusions are caused by multiple genetic and environmental

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**Fig. 1.** A, Preoperative photograph of a 20-year-old man with bilateral mandibular condylar hyperplasia and Angle’s class III malocclusion. B, Postoperative photograph shows that the malocclusion was corrected, and facial symmetry had significantly improved.
factors and are considered difficult to treat. Class III malocclusions are classified into skeletal and dental types. This is important for choosing appropriate treatment, because dental class III can be treated with orthodontics alone, while skeletal class III requires both orthodontics and surgery. Malocclusion treatment focuses not only on the teeth but also on the jaw and skeletal relationship.

This report describes a patient with class III malocclusion that was successfully treated with surgery. The objective of the case report was to present the management of Angle’s class III malocclusion, which is a rare presentation. The patient also presented with bilateral mandibular hyperplasia. Condylotomy was unnecessary because orthognathic surgery alone corrected the problem, and growth was not an issue because the patient is an adult.

In the class III malocclusion, soft tissue profiles differed depending on the surgical technique or the amount of displacement. We found that soft tissue behavior differed between the maxillary advancements combined with mandibular setback or bimaxillary procedures, which were more equal to each other. Thus, after some consideration, the Le Fort I osteotomy and mandibular bilateral sagittal split and anterior subapical osteotomies were chosen.

Treatment success was confirmed by the patient’s satisfaction with the end results. Patients should be educated on presurgery and postsurgery management to achieve better results and satisfaction.

**PATIENT CONSENT**

The patient provided written consent for the use of his image.

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