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Definitive Obturator Prosthesis Post Mandibular *Dredging* for Treatment Ameloblastoma Patient: A Case Report

Prótesis obturadora definitiva posdragado mandibular para tratamiento de paciente con ameloblastoma: reporte de un caso

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SUMMARY

Background: *Ameloblastoma is an odontogenic tumor that can cause bone destruction in the mandible. Mandibular dredging is a conservative treatment that involves enucleation and curettage of tumor tissue to remove tumor tissue from the bone-tooth loss after mandibular dredging treatment results in reduced occlusion function and aesthetics. A definitive obturator prosthesis is helpful to restore occlusions and aesthetics.* **Case Report:** *A 23-year-old female patient came to the prosthodontics department of Hasanuddin University Dental Hospital. Mandibular dredging was performed. The patient was missing ten mandibular teeth. The patient was made a definitive obturator prosthesis.* **Discussion:** *A definitive obturator prosthesis in patients undergoing mandibular dredging treatment can restore occlusion, mastication, speech, and aesthetic functions.* **Conclusion:** *The definitive obturator prosthesis is a denture used after mandibular dredging treatment that can restore speech function, mastication, and aesthetics.*

Keywords*: Ameloblastoma, mandibular dredging, definitive obturator, prosthesis.*

RESUMEN

Antecedentes: *El ameloblastoma es un tumor odontogénico que puede causar destrucción ósea en la mandíbula. El dragado mandibular es un tratamiento conservador que implica la enucleación y el legrado del tejido tumoral para eliminar el tejido tumoral de la pérdida de hueso y diente después de que el tratamiento de dragado mandibular dé como resultado una reducción de la función de oclusión y la estética. Una prótesis obturadora definitiva es útil para restaurar las oclusiones y la estética.* **Informe de caso***: Una paciente de 23 años acudió al departamento de prostodoncia del Hospital Dental Universitario Hasanuddin. Se realizó dragado mandibular. A la paciente le faltaban diez dientes mandibulares. Al paciente se le realizó una prótesis obturadora definitiva.* **Discusión:** *Una prótesis obturadora definitiva en pacientes sometidos a tratamiento de dragado mandibular puede restaurar la oclusión, la masticación, el habla y las funciones estéticas.* **Conclusión:** *La prótesis obturadora definitiva es una prótesis utilizada después del tratamiento de dragado mandibular que puede restaurar la función del habla, la masticación y la estética.*

Palabras clave*: Ameloblastoma, dragado mandibular, obturador definitivo, prótesis.*

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INTRODUCTION

Ameloblastomas are one of the most common benign tumors of the jaw. Ameloblastoma is an odontogenic origin tumor that can cause bone destruction in the mandible and has various clinical features and histopathological patterns (1). Ameloblastoma originates from the dental epithelium and is commonly found in patients in their third and fourth decades of life but is not uncommon in children and adolescents. Ten percent of oral tumors are diagnosed as Ameloblastoma (2).

Ameloblastoma is more common in the mandible than the maxilla and occurs in both males and females. Several types of ameloblastoma and ameloblastoma tumors are classified into unicystic, multicystic, peripheral, and malignant. Malignant ameloblastomas, such as ameloblastic carcinomas, are very rarely found. The solid or multicystic type gives a histologic picture in various follicular, plexiform, and granular images (4). This solid type is rarely found in children and adolescents. In contrast, the radiological picture of this solid type shows a radiolucent picture with lobes separated by bone septa similar to soap foam. The unique type is mainly found in young patients and the age of the second decade. The radiologic picture is the presence of radiolucent bone of various sizes that are single and clearly demarcated (15).

The current gold standard of treatment for ameloblastomas is radical surgery involving jaw resection with a safety margin of 1 cm and resecting the soft tissue structures affected. Primary bone reconstruction is mandatory for large tumors with extensive bone damage. Treatment of ameloblastoma depends on the type of ameloblastoma itself. Ameloblastoma with solid type can be treated by resectioning the affected jawbone area because it tends to recur. Treating ameloblastoma with a unique type can be done by enucleation and curettage but must always be evaluated continuously (14).

The mandibular dredging method is a conservative treatment that involves enucleation and curettage of tumor tissue to remove tumor tissue from the bone. With this method, jaw bone resection can be avoided. The dredging method was first introduced by Kawamura (1991) to complement and anticipate the shortcomings of conservative treatment for ameloblastoma (8,9). The dredging method is the treatment after enucleation. Curette or bur removes 1-2 mm of bone around the tumor cavity, indicating the removal of recurrent tumors. The advantage of the dredging method is that if enucleation leaves epithelial remnants, curettage can remove these remnants, thus allowing recurrence to decrease, while the disadvantage is that curettage is more destructive to bone and other tissues (nerves and blood vessels), so extra care must be taken in its implementation (3,4). An obturator is a prosthesis used to close the oral cavity of the upper or lower jaw caused by surgery or defects. Obturators are commonly used post-surgery to close defects by replacing soft tissue and missing teeth. There are several types of obturators: Immediate Obturator, Interim Obturator, and Definitive Obturator (5,6).

The Immediate Obturator is made before surgery and fitted during surgery. An Interim Obturator replaces the post-surgical obturator about two weeks after surgery. The definitive obturator is made three to three months post-surgery. The time the obturator is made depends on the defect closure and healing processes (7).

This case report discusses the definitive obturator. The definitive obturator can be made of acrylic resin and a metal frame. This case report aims to use a definitive obturator post-mandibular dredging surgery to improve the patient's aesthetic appearance, speech, and masticatory function (8).

Case Report

A female patient, 23 years old, came to the prosthodontics department of Dental Hospital Hasanuddin University after the patient was referred from the Oral Surgery department of Dental Hospital Hasanuddin University. The patient had undergone mandibular dredging by the oral surgery department and wanted to make a denture. However, after mandibular dredging treatment, the patient experienced a partial loss of teeth in the mandible, so the patient complained that he could not chew properly and felt toothless. The missing teeth are 36, 35, 34, 33, 32, 31, 41, 42, 43, and 45, which will be made into a definitive

obturator. This treatment plan was carried out by considering the patient's dental panoramic results after mandibular dredging surgery (Figure 3).

After explaining the treatment plan to the patient, the patient filled out an informed consent form, and a definitive obturator was made. Dental panoramic of the patient before mandibular dredging treatment, where ameloblastoma is visible on the patient's mandible (Figure 1). The condition of the teeth that appear crowded and the protrusion of the mandibular anterior teeth indicate the presence of ameloblastoma in the patient's oral cavity. On intra-oral examination before mandibular dredging treatment, there were residual roots of teeth 36,45 and partial impaction of teeth 38 and 48 (Figure 2).

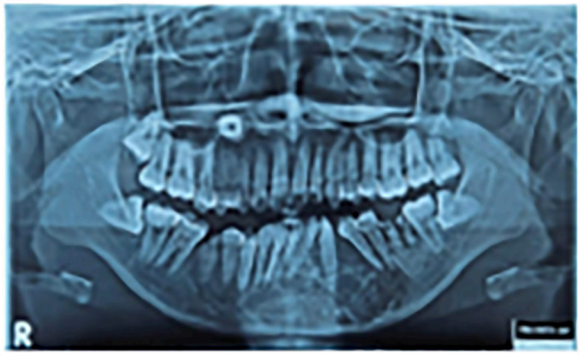

Figure 1. Dental panoramic.

Figure 2. Intraoral condition before dredging mandible.

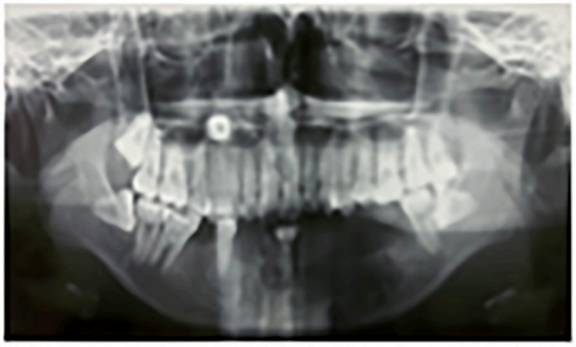

Figure 3. Dental panoramic post-surgery.

After mandibular dredging treatment was performed by the Oral Surgery Department of the Dental Hospital Hasanuddin University, the treatment resulted in the removal of several teeth from the patient, causing the patient to lose several teeth (Figure 4).

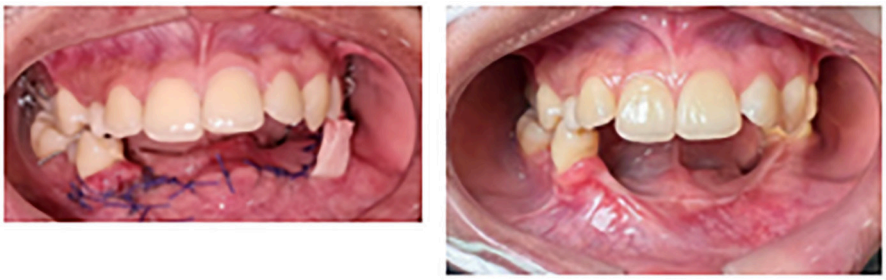

Figure 4. Intraoral condition after dredging the mandible.

After analyzing the intraoral and supporting examinations by considering complaints and existing anatomical conditions, a treatment plan was established for the patient until the healing process after dredging the mandible—mandibular intraoral condition two months after mandibular dredging (Figure 4). The clinical condition showed that the healing process was improving; the patient could eat softly, speak well, and feel no complaints. At this visit, anatomical impressions and dental panoramic were taken of the patient (Figure 3). The results of the anatomical study (Figure 5) on the patient's mandible were made into the individual tray for border molding, after which the border molding stage was carried out using green stick compound (Figure 6) and physiological molding using Elastomeric molding material. Beading boxing was carried out (Figure 6) on the mold results. The area that was border molded was the edentulous partial.

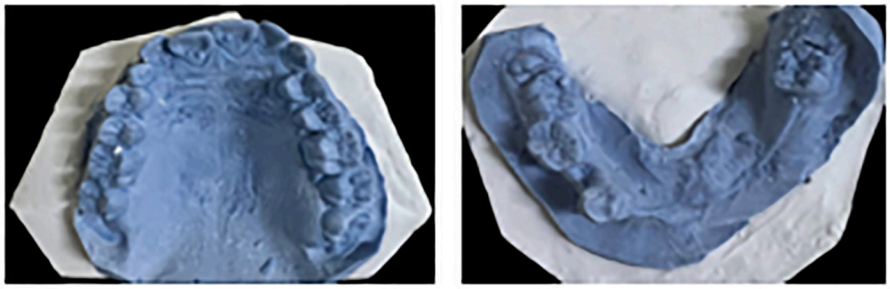

Figure 5. Anatomical Study.

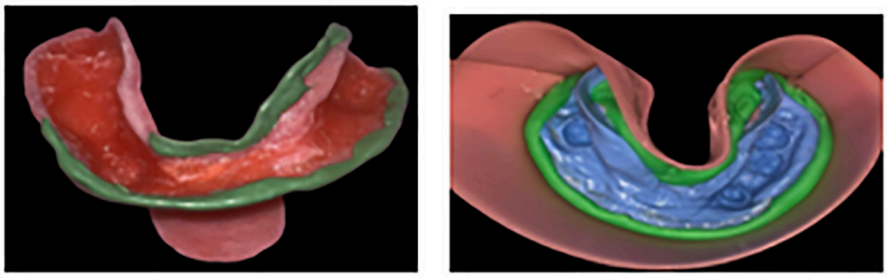

Figure 6. Border molding, physiological molding, and beading boxing.

At the next visit, the results of the physiological mold were to be made into a denture bite rim, and then try in the bite rim to measure the patient's vertical dimensions (Figure 7). After that, the process of arranging the teeth and making claps as retention for the patient and try-in again to check the patient's occlusion (Figure 8). After the patient felt comfortable after the try-in process of preparing teeth and claps, the preparation results were carried out with acrylic packing. After the packing process was completed, the insertion was carried out on the patient (Figure 9). Next, subjective and objective examination of the soft tissues of the oral cavity, assessment of the condition of the denture, and checking of occlusion and articulation were performed. Finally, instructions were given during the use of the denture, counseling regarding daily care of the denture, and periodic follow-up care.

Figure 7. Vertical Dimension Measurement.

Figure 8. Try in Biterim.

Figure 9. Insertion.

DISCUSSION

Ameloblastoma is a benign tumor of dental origin. It can grow from a wide variety of odontogenic epithelium that remains between the soft tissue and the alveolar bone. It is slow-growing, locally aggressive, and can cause major facial deformities (7,3). One of the most common odontogenic tumors in the oral cavity is ameloblastoma, which has a very high recurrence rate. These tumors occur four times more often in the mandible than in the maxilla (6).

Ameloblastoma is usually diagnosed in patients between the fourth and fifth decades of life, except in cases of the unicystic type, which generally occurs in patients between 20-30 years of age with no gender predilection. About 10 %-15% of these tumors are associated with unerupted teeth (10).

Mandibular dredging is performed starting with disinfection of the area to be curetted, mandibular block anesthesia, tumor enucleation or removal of the tumor from the cavities using hemostats and curettes, an inspection of the bone cavity to see the surrounding structures, performing sharp curettes or use bone burs, sterile irrigation is used to remove 1-2 mm of the bone layer in the periphery of the tumor which is done very carefully, gauze installation (replaced until the entire tumor cavity is covered, suture the surgical area) (11).

The definitive obturator benefits patients undergoing mandibular dredging treatment and restoring masticatory function, occlusion, and aesthetics. It can restore the patient's self-confidence and psychological and social mentality so that it becomes an encouragement and motivation for the patient (1,14). Definitive obturators can be made of acrylic resin or metal framework. In this case, the definitive obturator uses acrylic material because ameloblastoma can recur (12,13). The design of the obturator varies based on the amount of tooth loss of the patient. The obturator is removable and has two grips, making it easy for the patient to remove and clean (15). The clasps on the obturator are posterior to teeth 37 and 46, making the obturator relatively stable in the patient's oral cavity.

In follow-up care, the patient felt pressure on the lingual gums in the posterior area one day after insertion. The acrylic base was smoothed, and oxygen gel was applied to the reddish gums. At the 2nd and 3rd follow-up care, the patient had no complaints, and the patient was always advised to maintain oral hygiene, cleanliness of the definitive obturator, and routine follow-up care to the dentist.

CONCLUSION

Definitive obturator in patients after mandibular dredging treatment is one of the preventive measures for patients. The definitive obturator can restore masticatory function, occlusion, and aesthetics. In addition, it can restore the self-confidence and psychological and social mentality of the patient so that it becomes an encouragement and motivation for the patient.

Author contributions

RN, MD, and MFF contributed substantially to the concept and design of this case report. All authors contributed substantially to acquiring the data, reviewing the literature, and its analysis and interpretation. All authors contributed to drafting the manuscript, and MFF and RN edited the manuscript critically for important intellectual content. All authors approved the final version submitted for publication and take responsibility for statements made in the published article.

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Conflict of interest statement

Each author has completed and submitted an International Committee of Medical Journal Editors Uniform Disclosure Form for Potential Conflicts of Interest. None of the authors has any potential or actual conflict of interest to disclose to the present article.

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