

Rehabilitation Post Hemimaxillectomy Patient Prosthetics Accompanied By Trismus With Printing Technique *Altered Cast*

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Abstract:

Introduction: Trismus was reported become effect side after hemimaxillectomy. Research report as many as 40% of patients experience trismus, and 10% experience severe trismus after operation tumor removal. This condition causes difficulty in the process of printing for rehabilitation prosthetics of patients who experience orofacial defects due to maxillary sinus tumor removal. Imaging needs adequate mouth opening to obtain area supportive support stabilization and retention prosthesis. In addition to trismus management, a prosthodontist must own skills to overcome difficult conditions in print oral cavity of the patient with. Maintenance pre-prosthodontics and modification technique impression are very important. This paper explains about rehabilitation Aramani Class IV post-hemimaxillectomy patient prosthetics.

Case Summary and Treatment Details: A man 42 years old come to the Prosthodontics Clinic, RSGM USU, with chief complaint difficult moment open mouth, pronunciation not clear, difficult to communicate with others and chew while eating. The patient had operation jaw tumor removal in May 2023 with ameloblastoma diagnosis.

Progress and Discussion: Preprosthetic treatment with infrared therapy and exercise physical, could increase mouth opening. Altered cast impression technique with modification maximized impression result.

Conclusion: Trismus is a condition frequent complications experienced by hemimaxillectomy patients involving area around the TMJ. Success treatment goals determined by TMD management and modifications in the manufacturing process prosthesis.

Key Word: Trismus, hemimaxillectomy ; obturator; altered cast; Class IV Aramany.

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I. Introduction

Ameloblastoma is a benign tumor aggressive that appears from epithelium odontogenic. These lesions account for 1% of all tumors in the oral cavity. head and neck and about 11% of all odontogenic tumors. The most common location of ameloblastoma is the posterior mandibular region, with mandible - maxilla ratio by 5:1 (1). Manifestation clinical from ameloblastoma can in the form of swelling of the mandible or maxilla and not pain. The third molar tooth is not eruptions are also associated with ameloblastoma. Ameloblastoma growth occurs in the direction buccolingual /palatal, which results in significant expansion. Pain is ameloblastoma symptoms that are not general but can happen because bleeding in or near the tumor. Malocclusion, deformity face, invasion network soft, or mobility tooth is other signs and symptoms of ameloblastoma (1,2).

Based on characteristic features clinicopathologically , Yang et al. divided ameloblastoma into three stages , namely stage I, maximum tumor diameter ≤ 6 cm; stage II, maximum tumor diameter >6 cm or tumor invasion into the maxillary sinus or base orbit ; and stage III, tumor invasion into the base of the skull or metastasis to the glands sap clear (3). Therapy modality ameloblastoma is surgery . Other modalities such as chemotherapy or radiotherapy own role limited and only in situation certain (2). Surgery in cases of ameloblastoma can cause a number of complications , one of which is trismus. Trismus is one of the associated symptoms with treatment of head and neck tumors , which has been lacking so far get attention . Trismus in oral cavity tumors is defined as a contraction tonic muscles chewing caused by a abnormal condition or disease with mouth opening < 35 mm. Trismus can caused by tumor growth , infection , surgery , or radiation . The incidence varies widely and results in difficulty in do activity like biting , chewing , swallowing , and talking , as well as furthermore can cause poor oral hygiene , pain , decline weight , and even depression . Trismus has an impact bad in quality life and function body , so that must become focus in Handling postoperative oral cancer patients . Research conducted by Padmanidhi Agarwal, HR Shiva Kumar b, Kirthi Kumar Rai in 2016 stated that trismus is a complication

significant from oral malignancies or surgery and radiotherapy treatment , or both . Trismus conditions will complicate the rehabilitation process prosthetic post hemimaxillectomy . Dentist will difficulty in do printing , so that required maintenance pre prosthetics to correct condition limitations are not the patient's mouth as well required modification technique printing

II. Case Report

Man 42 years old come to the Prosthodontics Clinic of the USU Medan Dental and Oral Hospital with complaint : difficult moment open mouth, pronunciation No clear , no can communicate with others well , and difficulties chew while eating. The patient gets operation jaw tumor removal at Adam Malik Hospital Medan, in May 2023 by oncology with diagnosis of ameloblastoma. After patient surgery using a surgical obturator , then after One month to be continued with use of interim prosthesis . Has been done control and examination by a specialist doctor oncology with results No There is sign malignancy . The patient works as a teacher who every day teaching . The patient wants made false teeth that can help talk and eat. Based on results examination , the patient has history hemimaxillectomy due to left maxillary ameloblastoma in May 2023 (Figure 1). The patient used a surgical obturator *immediate* after operation . Then continued with interim prosthesis fabrication using a surgical obturator base (Figures 2 and 3).

After done intra oral examination of the remaining teeth were: 12, 13, 14, 15, 17, 31,32,33,34,35, 36, 37, 41, 42, 43, 44, 45, 46, 47, 48 (Figure 2a-c) with diagnosis defect Aramany class IV post hemimaxillectomy with edentulous part Kennedy class II modification 1 on maxilla accompanied by with limitations mouth opening . The patient's mouth opening in September 2023 was 11 mm. The patient then underwent therapy Practice opening your mouth with use ice cream sticks , and infrared light . Procedure definitive obturator fabrication started with do printing with alginate then the results mold filled with *dental stone* type IV to be made *metal frame* . The first model is then cut to the area limit defect . Print physiological , using *metal frame for printing area defect* with two types elastomeric material , namely *regular body* and *light body* . Before printed , defect maxilla blocked too much formerly with use gauze that has been given *petroleum jelly* . The mold is then beaded and boxed and filled with dental stone type IV (Figure 7). Then carried out recording connection jaw , selection elements teeth , and arrangement teeth (Figure 8). Definitive obturator made from material framework metal combination *acrylic* . When the base insertion is evaluated with use paste indicator to see excessive pressure on the mucosa , checked occlusion with use paper articulator , and is done inspection patient phonetics with instruct the patient to read . The patient is instructed about procedure cleanliness , and control a week later, to evaluate installation tooth imitation .





III. Discussion

Defect maxilla post acquired or congenital hemimaxillectomy cause communication between the maxillary antrum and the oral cavity and oropharynx or nasopharynx, resulting in disturbance aesthetics face, disorder chewing, swallowing, and speaking, and decreased significant quality (1-4). Rehabilitation patient prosthetics after hemimaxillectomy can managed in accordance with quality network supporters, such as adjacent network with defect, remainder base palate, and the rest teeth. According to Aramany defect maxilla can classified into 6 groups different based on defect area relationship with tooth remaining supports. Classification This is useful for developing design obturator prosthesis (6).

Obturator is a prosthesis maxillofacial which is used to close hole acquired network , especially the palate hard , and/or alveolar structures or tissues adjacent software that has been lifted through surgery (8). Maxillary obturator made well minimize leakage liquid into cavity nose and maxillary sinuses and improve the ability swallowing , chewing , and aesthetics with replace extracted tooth during operation ablative . It also improves the ability talk with allow separation between oral and nasal resonance , so that minimize hypernasality .(10)

According to Haug the definitive obturator was made can under consideration after about 3 months healing after surgery or 3 months after therapy radiation , although the temporary obturator can made about 10 days after ablation surgery to facilitate closing the resulting defect after healing beginning .

Trismus can occurs as a result from surgery or therapy radiation involving area temporomandibular joint (TMJ) or surrounding area , trismus can occur happen with in a way gradual (10 to 15 mm or less). Normal mouth opening during rotation condyle nontranslation (in position connection centric) is 20 to 25 mm, while maximum mouth opening is 40 to 60 mm. If trismus occurs quick after radiation , required physiotherapy , use Opener occlusal , and exercises for the muscles involved . In this situation said , expert oncology radiation must refer patient to dentist prosthetics to start physiotherapy opening jaw as soon as possible maybe . Trismus that is not handled will become chronic , followed by gradual fibrosis . Trismus is evident happen consequence tumor invasion into muscle chewing or TMJ, due to muscle fibrosis or due to formation network scar postoperative . Immobilization of TMJ after operation in term long time also makes it worse problem . Patients with lesi mucosa buccal , maxillary more experiencing trismus. Tumors in the area known trigger reflex in the area maxillofacial , activating part efferent arch reflex tonic muscle chewing that results in increased tone, so that trismus (2,4,5) occurs In this case report, the patient's initial mouth opening was 11 mm, the patient received physical therapy in the form of mouth opening exercises with ice cream sticks, which were gradually increased every day. The patient also underwent heat therapy with infrared light every 3 weeks. After 3 months of therapy, the patient's mouth opening became 18 mm. Although there has been progress, this condition still makes it difficult for the operator when printing, the use of a frame as a physiological impression spoon for printing the defect area is very helpful in obtaining the patient's anatomical shape. When inserting the patient's maximum mouth opening was 31 mm. Surgical obturators that can help the healing process, and definitive obturators improve *the quality of life* from both aesthetics and function.

IV. Conclusion

Trismus is a common clinical manifestation in hemimaxillectomy cases, pre-prosthetic care and impression modification play an important role in the success of the treatment.

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