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(RESEARCH ARTICLE)

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Management of regional sinistra palatal defects accompanied by partial loss of upper jaw teeth after Hemimaxillectomy using hollow obturators

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Abstract

Defects in the maxillary can occur due to birth abnormalities, growth disorders, trauma, and surgery. Patients affected by malignant tumor abnormalities in the upper jaw can have surgery to remove the tumor. The surgery will cause defects that will affect the function of chewing, articulation, and breathing. A rehabilitative treatment that can be done to close the defect after surgery is the creation of an obturator prosthesis. The purpose of making obturator prostheses is to restore speech, chewing, and respiratory functions. A good obturator prosthesis is a prosthesis that has good retention and stability, and has a light weight. The manufacture of obturator prostheses is expected to restore the quality of life and confidence of patients.

Keywords: Palatal Defects; Maxillofacial Prosthesis; Interim; One Piece; Hollow Obturator

1. Introduction

In general, defects in the maxilarry that occur can be caused by birth abnormalities, growth disorders, trauma, and surgery. In patients affected by malignant tumors, one of the treatments that can be done is surgery to remove the malignant tumor. However, the surgery performed can affect several anatomical structures found in the oral cavity and face (1).

Loss of soft and hard tissue of the palatal is one of the effects of the surgical procedure. This loss of palatal structure can affect chewing, respiration, and articulation functions (1). Patients who undergo maxilla resection will experience difficulties in chewing and limitations in opening the mouth. This occurs due to the loss of bone structure and inflammation in the surrounding tissues.

A rehabilitative treatment that can be done to overcome defects in the maxilla is the manufacture of obturators (2). The purpose of making this obturator is to improve chewing, breathing, and articulation functions. A good obturator is an obturator that has good retention, stability, and comfort levels, as well as having a light weight

2. Case Report

A 45-year-old male patient came to the prosthodontic specialist clinic of RSKGMP Universitas Airlangga on his own accord with complaints of wanting to make a defects cover or obturator and dentures so that they can be used to eat and restore poor speech function. The patient has a history of salivary duct carcinoma and has had a sinistra regional hemimaxillectomy 5 years ago. The patient is still undergoing chemotherapy treatment.

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The upper left back tooth was missing during hemimaxillectomy surgery 5 months ago. The patient had never used an obturator and dentures (Figure 1).

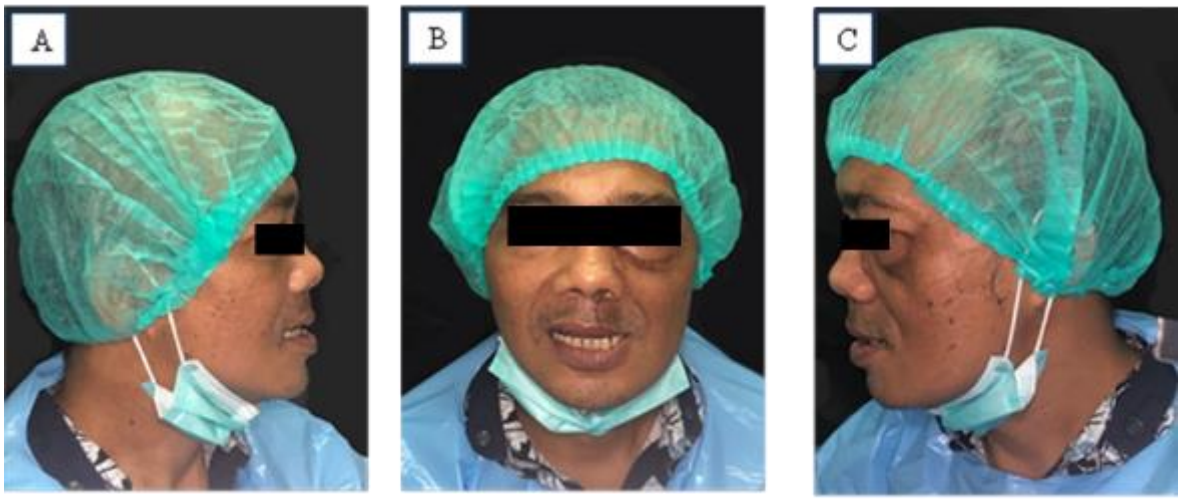

Figure 1 Patient Extra Oral Clinical Photo (A) Right Side View (B) Front View (C) Left Side View

After conducting intra-oral and extra-oral clinical examinations (Figure 2), then functional impression is carried out on the upper jaw and lower jaw.

Figure 2 Intra oral clinical photo of the patient (A) Front view (B) Left side view (C) Upper jaw occlusal view

Impression is done using stock trays and alginate impression materials. The defects in the palatal are closed using sterile gauze, then alginate is applied to the defect with the help of a syringe first and then using a stock tray (Figure 3).

Figure 3 Functional Impression Process (A) Defect closure with sterile gauze (B) Alginate application using syringe (C) Alginate application using stock tray

After functional impression, the casting results are cast using type III casts to obtain a working model (Figure 4).

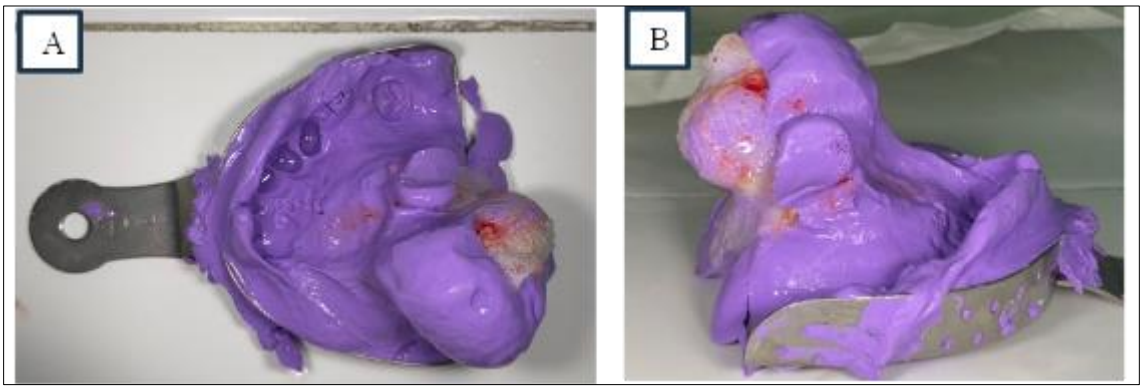

Figure 4 Functional Impression Results (A) Occlusal View (B) Right Side View

Then the working model is planted on an articulator (Bio.Art) to make the base plates and bite rim (Figure 5).

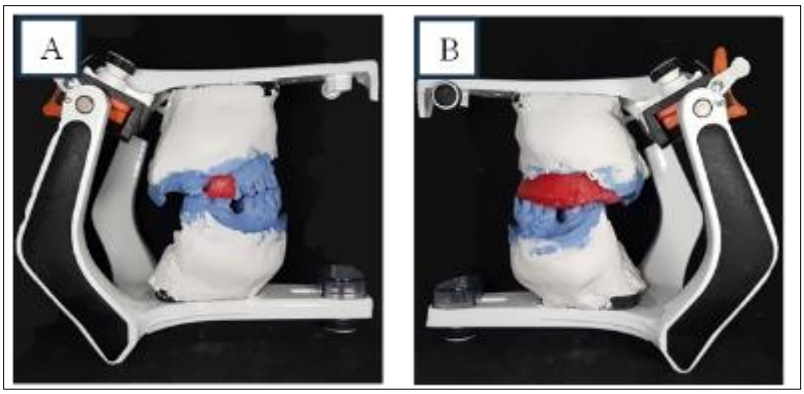

Figure 5 Manufacture of Base Plates and Bite Rim (A) Right Side View (B) Left Side View

The next stage is the preparation of dental elements made of acrylic. The chosen dental elements is that has a color and size similar to the original tooth. Then a wax denture was inserted into the patient's oral cavity. This wax denture trial was performed to see the median line, the arrangement of dental elements, the color of the teeth, and the occlusion of the patient (Figure 6).

Figure 6 Trial the Wax Denture (A) Right Side View (B) Front View (C) Left Side View

If trial the wax denture is complete, the next stage is the contour of the wax denture to form the gingival anatomy and continue with acrylic processing. In this patient, an obturator of the One Piece Close Hollow Obturator type was made (Figure 7).

Figure 7 One Piece Close Hollow Obturator

In this upper jaw obturator, a softliner is given to the obturator that is in contact with the gingival mucosa and the palatum (Softreliner, Tokuyama, Japan) (Figure 8).

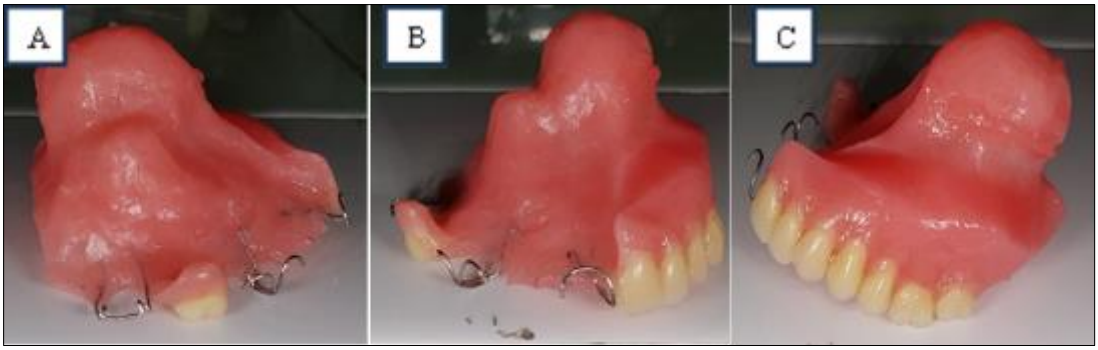

Figure 8 Application of Softliner (A) Right side view (B) Front view (C) Left side view

After application the softliner, the next stage is insertion of the obturator into the patient's oral cavity (Figure 9). Things that need to be considered during obturator insertion are retention, stability, speech function, and occlusion of the patient. Patients are taught how to remove and install the obturator. Patients are also educated on how to clean the obturator well, namely using a non-abrasive denture cleanser or soap and using a brush with soft bristles. Patients should routinely clean the obturator 3 times a day after using it for meals and at night before going to bed. The obturator can be stored in a container and in a dry condition. The patient must remove the obturator while sleeping at night. Patients were instructed for control on days 3, 7, and 15 after insertion. After that, patients can carry out routine control once every 2 months.

Figure 9 Obturator Insertion

3. Results and discussion

A maxillectomy or hemimaxillectomy is a surgical procedure to remove all or part of the upper jaw bone affected by a malignant tumor lesion. This surgical procedure will cause defects in the upper jaw bone that will affect speech, chewing, and breathing functions (1).

Patients who have a defect in the upper jaw can have a prosthesis called an obturator (6). Obturators have the function of improving or improving a person's ability to speak, chew, and breathe. In this case, an interim obturator was made with a One Piece Close Hollow design (3).

The selection of an interim obturator is very suitable for patients who have just completed a maxillectomy because the patient must maintain chewing, speech, and respiratory functions (4). An interim obturator can be made 1 to 2 months after the maxillectomy process is performed, and this obturator can be used for approximately 6 months during the healing process (1).

In this obturator, adam clasp, half jacksonc clasp, and gillete clasp are used to obtain retention (5). Additional retention can be achieved by utilizing the undercut contained in the defect by adding a softliner to the base of the obturator.

The selection of the obturator with the One Piece Closed Hollow design is to make it easy for the patient to remove and install the obturator into the oral cavity. The Closed Hollow design makes an obturator lighter and improves retention, as well as making the obturator more comfortable (3). In addition, the Closed Hollow design also helps prevent trapped liquids and foods impaction in the obturator, increases retention, and reduces empty cavities in defects so that the articulation function remains good (3).

4. Conclusion

Patients who experience defects after a complete or partial maxillectomy can have a hollow obturator prosthesis. Obturator prostheses function to maintain the functions of speaking, chewing, and breathing to keep them good. A good obturator is an obturator that has function, retention, aesthetics, and light weight so that the patient will feel comfortable. With the use of hollow obturator prostheses, it is hoped that the patient's confidence and quality of life can be improved.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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