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MANAGEMENT OF REMOVABLE DENTURES WITH FEW REMAINING TEETH

(PERAWATAN GIGI TIRUAN LEPASAN RAHANG ATAS DENGAN SEDIKIT GIGI TERSISA)

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ABSTRACT

Tooth loss is the most common cause of decreased masticatory function. Losing teeth can also affect the oral cavity and general health, affecting a person's overall quality of life. Various things can cause tooth loss. The most common cause of tooth loss is poor oral health, especially caries and periodontal disease. Dentures can be made for patients who have lost all their teeth or have some remaining teeth. Retaining the remaining natural teeth can inhibit the alveolar bone resorption process and maintain bone height, thereby increasing the retention and stability of the denture. A 60-year-old female patient complained that many teeth were missing due to upper and lower jaw extraction, making it uncomfortable when eating and talking. The upper jaw has teeth 11, 21, 22, and 23 remaining, and the lower jaw still has 43 remain. The patient will have a removable denture with teeth 11, 23, and 43 as supporting teeth. The presence of a tooth can prevent alveolar bone resorption, especially if there is an occlusion load directly on the alveolar bone in edentulous cases. Natural teeth as supports can slow alveolar bone

resorption and maintain retention and stabilization of dentures.

Keywords: alveolar bone resorption; removable denture; tooth loss

ABSTRAK

Kehilangan gigi merupakan penyebab terbanyak menurunnya fungsi pengunyahan. Kehilangan gigi juga dapat mempengaruhi rongga mulut dan kesehatan umum sehingga akan mempengaruhi kualitas hidup seseorang secara keseluruhan. Kehilangan gigi dapat disebabkan oleh berbagai hal. Penyebab terbanyak kehilangan gigi adalah akibat buruknya status kesehatan rongga mulut, terutama karies dan penyakit periodontal. Pembuatan gigi tiruan dapat dilakukan pada pasien kehilangan gigi seluruhnya atau dengan beberapa gigi tersisa. Mempertahankan gigi asli yang tersisa dapat menghambat proses resorpsi tulang alveolar dan tinggi tulang dipertahankan sehingga menambah retensi dan stabilitasi gigi tiruan. Pasien perempuan berusia 60 tahun datang dengan keluhan terdapat banyak gigi yang hilang karena dicabut pada rahang atas dan bawah sehingga tersasa tidak nyaman saat makan dan berbicara. Pada rahang atas terdapat sisa gigi 11,21,22, dan 23, sedangkan di rahang bawah masih tersisa gigi 43. Pasien akan dibuatkan gigi tiruan lepasan dengan gigi 11, 23, dan 43 sebagai gigi penyangga. Keberadaan suatu gigi dapat mencegah resorpsi tulang alveolar terutama apabila terdapat beban oklusi yang langsung mengenai tulang alveolar pada kasus edentulous. Gigi asli yang menjadi penyangga dapat digunakan untuk memperlambat terjadinya resorpsi tulang alveolar dan mempertahankan retensi dan stabilisasi gigi tiruan.

***Kata kunci**: gigi tiruan lepasan; kehilangan gigi; resorpsi tulang alveolar*

INTRODUCTION

Teeth have a critical function and role in life. The function of teeth is for mastication (chewing), aesthetics (beauty), and phonetics (speaking). The health of the teeth and their supporting tissues also determines the overall health of the oral cavity, including general health conditions. Poor oral cavity conditions cause caries and periodontal disease, resulting in tooth loss.[1-2]

Tooth loss is a condition where an individual tooth is missing from its socket caused by extraction due to caries, periodontal disease, trauma, and systemic disease. Tooth loss usually occurs in older people and causes disruption of masticatory function, temporomandibular joint (TMJ) function, and psychological, aesthetic, and speech function.[3-5]

Many teeth in older people may be damaged, even dislodged, making it difficult to chew food.[3] One factor influencing older people's nutritional needs is the Reduced ability to digest food due to tooth decay or toothlessness.[4]

Losing teeth can also affect the oral cavity and general health, affecting a person's overall quality of life. Various things can cause tooth loss. The most common cause of tooth loss is poor oral health, especially caries and periodontal disease.[3]

Denture retention and stability are some of the problems dentists face in making dentures. Therefore, to maintain retention and stabilization of the denture, the dentist may consider retaining one or more natural teeth that are still strong enough to support the denture.[3,4]

If a tooth is removed, the alveolar bone resorption process will follow. This situation worsens the retention and stability of the denture. Alveolar bone resorption is eight times faster after wearing complete dentures, so the decision to retain or remove teeth that are still strong is an issue that needs to be considered.[5,6] In patients who use dentures, the alveolar bone resorption that occurs is ten times greater than that of patients who use artificial teeth with the support of existing natural teeth.[7]

This case report discusses the treatment of removable dentures in a patient with four remaining teeth who came to RSGM Unjani in October 2021.

CASE REPORT

A 60-year-old female patient came to the Prosthodontics Department of RSGMP Unjani Cimahi complaining that many teeth were missing because they had

been removed due to cavities and looseness.

In the upper and lower jaws since ten years ago, making eating and talking uncomfortable. The patient wants dentures made so he can eat and speak comfortably.

A general medical history was examined, and the blood pressure was 140/100 mmHg, pulse was 90 times/minute, respiration was 25 times/minute, and temperature was 36oC. Extra oral examination showed that the head shape was in the oval category, the face shape was in the oval category, the profile was convex, the eyes were symmetrical, the nose and breathing were typical, the ears were balanced, the lips were long and standard without hyper/hypotonus, there was no enlargement of the glands, the temporomandibular joint had to click towards the right side. , Range of Motion (ROM) vertically is 45 mm, lateral is 10 m, and there are no abnormalities in the masseter and temporalis muscles.

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Intraoral examination showed that the RA and RB arches were medium-sized, the RA and RB arches were oval, the RA and RB ridges were oval, the depth of the RA and RB vestibules were shallow, and tissue resistance moderate, normal retro mylohyoid, parallel ridge alignment, adequate interarch distance, normal horizontal relationship, normal maxillary tuberosity, no torus, U shape palate, moderate palate depth, class I soft palate with the active condition, moderate RA labial frenulum and low RB, moderate RA and RB buccal frenulum, moderate RB lingual frenulum, moderate oral hygiene, normal saliva, and normal gag reflex (Figure 1).

Figure 1. Condition of RA and RB ridges.

The patient still has teeth 11, 21, 22, and 23. The patient's diagnosis is edentulous RA except 11, 21, 22, and 23

and edentulous RB except 43 with a treatment plan for GTL with clamps on Acrylic RA and RB (Figure 2).

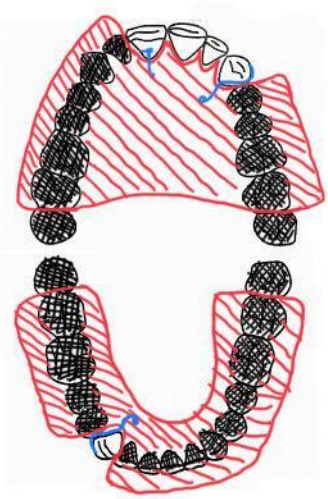

Figure 2. GTL RA and RB design.

The patient underwent anatomical molding using an irreversible hydrocolloid (alginate) much compressive material and continued with casting using a dental stone cast (Figure 3). Casting was carried out twice for the study model.

Figure 3. Anatomical impression.

Next, an individual tray was made using self-cured acrylic for the upper and lower jaws, which had previously been made with escape holes at several points and coated with a layer of base plate wax as a spacer (Figure 4).

Figure 4. Personalized printed spoon.

Next, muscle trimming is carried out using xantigen, which is heated until soft and then applied to the edge of the individual tray. After the desired anatomical boundaries are obtained and the individual impression tray has good retention in the patient's jaw, the spacer is removed. Physiological impression is carried out evenly using elastomers on individual tray. The resulting mold is then cast using dental stone, which has previously been bedded and boxed (Figure 5).

Figure 5. Physiological impression.

The upper and lower jaw bite rims are then made according to the guidelines. Analysis of the cranial and maxillary relationships is carried out by adjusting the maxillary embankment, then analyzing the Vertical Occlusal Dimension (DVO), then adjusting the mandibular wax rim and fixing it in the centric occlusion position, then continuing to create a low lip line, high lip line, and canine line with guidelines for the remaining teeth, namely 11, 21, 22, 23, and 43 (Figure 6). The bite rim is attached to the model, followed by preparation for installing the articulator; the model is adjusted to the Bonwill triangle projection by rubber bands, point pins, and incisal points.

Figure 6. Bite rims test.

Dental set up begins on the maxillary and mandibular anterior teeth with guidelines for the patient's low lip line, high lip line, canine line, and remaining teeth. After the maxillary and mandibular anterior teeth were arranged, an aesthetic and harmonization examination was carried out on the patient. It is followed by setting up the maxillary posterior and mandibular posterior teeth used a class I first molar occlusion relationship (Figure 7).

Figure 7. Teeth alignment.

Then, denture try-in was carried out on the patient (Figure 8), followed by clasps on tooth 11 in the form of a palatal rest and on teeth 23 and 43 in the form of a c-clasp. Next, the packing process is carried out.

Figure 8. Denture trial.

When the packing process is complete (Figure 9), the denture is inspected to ensure no sharp parts are well polished and inserted by checking adaptation, retention, and stabilization.

Figure 9. Denture after *packing.*

After the denture is ready, the insertion stage is continued with checking the occlusion, articulation, and phonetic examination (Figures 10,11). Patients are then given information and education regarding installing, removing, and caring for dentures and controls.

Figure 10. Denture insertion.

Figure 11. Denture insertion

DISCUSSION

Treatment can be carried out when a diagnostic procedure has been decided to preserve the remaining natural teeth to support the artificial teeth. [3-7]

Making artificial teeth for cases of tooth loss with four remaining teeth in the upper jaw can be done while retaining these teeth and using them as supporting teeth. The remaining teeth must be in good condition and strong enough to keep the denture—remaining teeth. Using one or more supporting teeth allows maximum retention and stability, avoids trauma to the mucosa, and inhibits the process of alveolar bone resorption, and alveolar bone height can be maintained.[1,8]

Alveolar bone resorption is a typical biophysical process and can occur rapidly after loss of natural teeth. Alveolar bone resorption is a complex process morphologically related to the extent of the eroded bone surface (Howship's lacunae) and the presence of multinucleated cells or osteoclasts. One of the factors that causes alveolar bone resorption is the use of dentures. For this reason, using artificial teeth while maintaining natural teeth that are still in good condition and strong can slow down the alveolar bone resorption process.[9,10]

Teeth support dentures with large occlusion pressure and protect the mucous membrane underneath. Alveolar bone supports tooth roots and can experience resorption if the tooth has been removed. It proves that the presence of a tooth can prevent alveolar bone resorption, especially if there is an occlusion load directly on the alveolar bone in edentulous cases. [11-17]

CONCLUSION

Lack of GTL retention can be caused by poor GTL condition, the condition of the patient using GTL, and can be due to a combination of these two conditions. Maintaining natural teeth in good condition can be done by making artificial teeth. Natural teeth that act as supports can slow alveolar bone resorption and support the retention and stabilization of dentures.

CONFLICT OF INTEREST

The authors reported no potential conflicts of interest.

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