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(CASE REPORT)

Prosthodontic management for loss of periodontal support in the anterior region with a lower immediate denture

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Abstract

An immediate denture is a denture that could replace the teeth immediately after the teeth are extracted. Therefore patient doesn't experience an edentulous period. This study aims to assess the ability of lower immediate removable partial dentures as a prosthodontic treatment for cases in which anterior teeth have lost their periodontal support. A 35-year-old male patient complained of difficulty eating because his lower front teeth were loose, and the patient did not want to appear edentulous. Intraoral examination showed grade 3 mobility in the lower anterior teeth region. Case management involves anamnesis, clinical examination, and prosthodontics rehabilitation using lower immediate removable partial dentures. This case report concludes that immediate removable partial dentures can be used in anterior teeth that have lost periodontal support.

Keywords: Removable Partial Denture; Immediate Denture; Tooth Mobility; Loss of Periodontal Support

1. Introduction

In prosthodontics, an immediate denture is a treatment that could replace the teeth immediately after the teeth are extracted so that the patient does not experience a partial edentulous period. Dentures are generally divided into removable partial dentures and fixed dentures. Patients with missing teeth need to replace missing teeth and surrounding tissue structures to improve patient's appearance, masticatory efficiency, prevent tooth movement (extrusion/shifting), and improve phonetics. The indications for the treatment of removable partial dentures are wide and varied, including in patients with limited financial ability, and could act as temporary dentures [1]. Immediate removable partial dentures are made before the teeth are extracted and inserted immediately after the extraction procedure [2]. There are two types of immediate dentures: conventional and interim. Conventional immediate dentures are complete or removable partial dentures made to be inserted immediately after the natural teeth are extracted and function as definitive dentures or are used for a long time. Immediate interim dentures are used temporarily, for a short period, due to esthetics, mastication, occlusal support, comfort, or to help the patient adapt to wearing dentures before a definitive denture is made [3]. Periodontitis is an inflammation that occurs in the periodontium, which can damage the soft and hard tissues in the oral cavity caused by bacteria and local factors that cause gingivitis to develop into periodontitis and cause morbidity and loss of teeth. Failure of periodontal tissue bonds can result in increased tooth mobility [4] Luxation of teeth, loss of periodontal tissue bonds, and loss of bone tissue of more than 50% are indications for extraction in teeth with damaged periodontal tissue [5] Immediate dentures are installed immediately after extraction and functions to help hemostasis, prevent trauma, and accelerate wound healing [6]. This paper examines the ability of immediate removable dentures in treating cases of anterior teeth that have lost periodontal tissue support.

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2. Case

A 35-year-old male patient came to the prosthodontics clinic because he wanted to have new dentures made. The patient's lower front teeth were loose and indicated for extraction. Initially, the lower anterior teeth were extruded, as seen on the panoramic radiograph (Fig. 1A), and were loose and then had periodontal splinting treatment. The intra-oral examination showed that the teeth were no longer extruding, but the lower anterior teeth have grade 3 tooth mobility. Then, the radiographic study showed that the lower anterior teeth had lost the periodontal tissue support (Figure 1B). The patient has no history of systemic disease and is not taking routine medications.

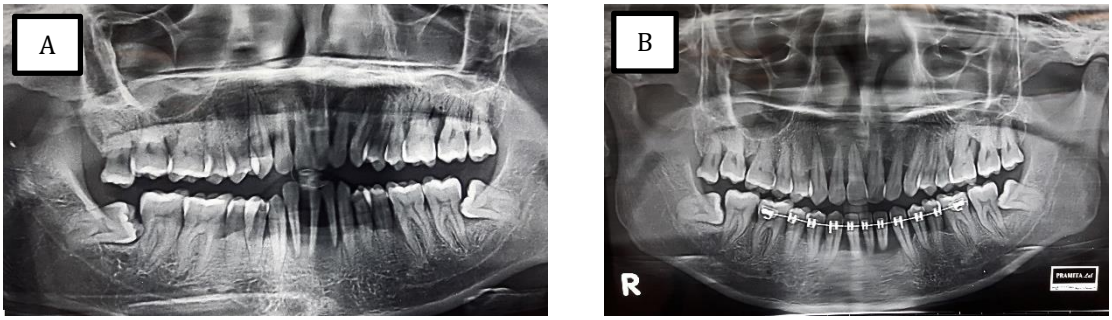

Figure 1 (A) shows the initial panoramic radiograph taken before splinting treatment (B) shows the panoramic radiograph patient after periodontal splinting

Intra-oral examination showed that teeth 42, 41, and 31 were patients with grade 3 tooth mobility. The prognosis for teeth 42, 41, and 31 was poor because they had lost their periodontal tissue support, so they indicated extraction. Class IV Kennedy Classification with indications of immediate removable partial denture prostheses on teeth 42, 41, 31. The patient was referred to the prosthodontics clinic to have dentures made. The patient did not want to appear toothless. Therefore it was planned to make a lower immediate anterior removable partial denture. The prognosis for making dentures in patients is good because of high patient motivation and cooperative patients during treatment.

Figure 2 Study model of the upper and lower jaws

Treatment aims to assess the ability of the lower immediate removable partial denture as a treatment that can be performed in cases of anterior teeth with grade 3 mobility and lost periodontal support. The treatment plan is the manufacture of lower immediate removable partial dentures. Alternative treatments that can be performed on patients are the manufacture of lower removable partial dentures, lower fixed dentures, and lower anterior tooth implants. Making conventional removable partial dentures takes longer because you need to wait for the wound to heal after tooth extraction for casting, and the patient experiences a period where the teeth look edentulous in the anterior part,

which will affect the patient's esthetics; therefore, this treatment option is not done. Fabrication of lower anterior fixed dentures requires reduction of healthy abutment tooth tissue. In contrast, implant placement is impossible due to periodontitis and loss of periodontal support in the lower anterior region. Fixed dentures and implants require a high cost because it was chosen for the manufacture of lower immediate anterior removable dentures. The patient has received an explanation and agreed to the treatment by making a lower immediate anterior removable denture and allowing the patient's case to be published.

The study model was printed using irreversible hydrocolloid impression material (Aroma, GC). Then the impression was filled with type III dental stone (Figure 2). The working model was printed after the splint was removed, and the impression was made with irreversible hydrocolloid material (Aroma, GC). The working model was filled with type III dental stones. After obtaining the patient's bite record, a working model was installed on the articulator. The reduction was carried out on the model on teeth 42, 41, and 31, which will be made of immediate dentures with the provision of reducing the depth of 4 mm on the labial and 3 mm on the lingual part. Clasps C and occlusal rests were made on the mesial abutment teeth 36 and 46, then tooth elements 42, 41, and 31 were installed in the working model. After the wax model is finished, a laboratory process is carried out by processing with hot-curing acrylic.

At the patient's next visit, teeth 42, 41, and 31 were extracted under local anesthesia with infiltration in the buccal and lingual regions of the teeth. Immediate partial dentures are sterilized first, then try in on the patient, check retention, stabilization, and occlusion in the patient, after which the denture is inserted (Figure 3B). Patients were instructed not to remove their dentures for the first 24 hours and not to eat hot food so that bleeding would not occur. If within 24 hours there is bleeding that does not stop, then immediately consult a doctor. Patients were instructed not to rinse their mouths out loud so the blood clot would not disappear and to keep their teeth and mouth clean. If it hurts, it is recommended to drink analgesics and control after one day and one week.

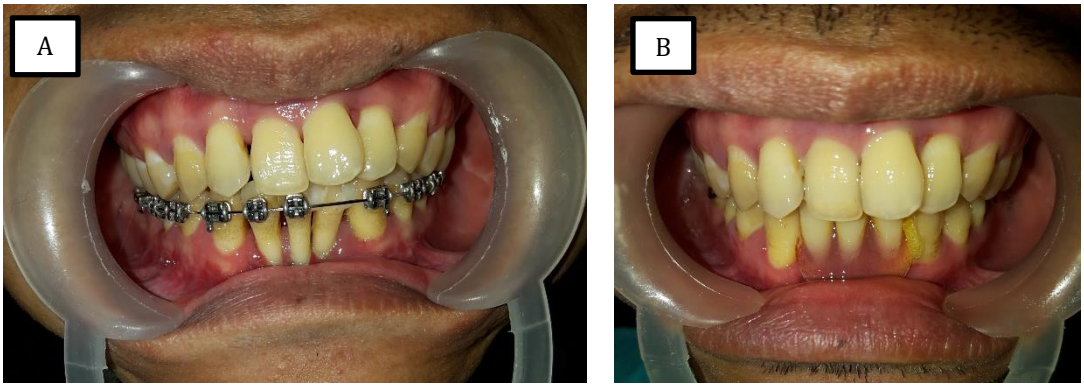

Figure 3 Condition of post periodontal splinting (A), after insertion of partial denture immediate removal of the lower jaw (B)

During the first control, after one day, a subjective examination showed that the patient had no complaints or difficulties with his dentures. The denture is removed from the patient, and the extraction wound is examined and then irrigated with an iodine solution. Patients were instructed to maintain oral hygiene and prostheses, then reminded to remove dentures at night and soak them in a glass filled with water. Control after one week showed no complaints with his dentures; objective examination showed good wound healing and occlusion; patients were advised to return for control after 2-3 months for relining if needed.

At the time of control, after a week, the patient felt more comfortable using the immediate denture. The patient could use dentures to eat and talk.

3. Discussion

In this case, the patient came in with mandibular front teeth with grade 3 tooth mobility on the lower front and had been treated with periodontal splinting using orthodontic brackets (Figure 3 A). Partial extruded or avulsed luxation indicates a breakdown of the periodontal ligament and a tear of the apical neurovascular bundle resulting in tooth mobility. Clinically the teeth appear elongated and often shift palatally [7]. Loss of periodontal tissue attachment in patients can result in increased tooth mobility. Periodontal splints are devices used to stabilize and immobilize loose teeth in functional and physiological positions. Radiographic results after splinting showed no improvement and loss of

periodontal tissue support in the patient's lower anterior teeth, so extraction was indicated. According to Heitor C et al. [5], luxation of teeth, loss of periodontal tissue attachment, and loss of more than 50% of alveolar bone are indications of extraction in teeth that have damaged periodontal tissue. The patient did not want to appear toothless after extraction. After a discussion with the patient, treatment was chosen by making an immediate denture.

Immediate removable partial dentures are made before the teeth are extracted and inserted immediately after the extraction procedure. [2] Immediate dentures have many advantages; they can act as a matrix and control bleeding, prevent contamination, and provide protection because they function as a cover for a wound. [8] Immediate dentures 42, 41, and 31 were made with retention on teeth 36 and 46, using C clasps with mesial occlusal rests and on teeth 36 and 46. This immediate denture was made with half-full wings for aesthetic purposes [to cover retraction defects) and function because of its anterior location; the color of tooth A 3.5 [vita shade guide) is adjusted to the rest of the teeth in the patient.

The patient was satisfied with the lower immediate anterior removable partial denture. The denture is retained and stable, and the patient feels confident about its appearance. Immediate dentures can improve masticatory and phonetic functions in patients and increase patient confidence even after extraction. [8] Post-extraction wound healing looked good, and there were no complaints of pain from the patient. Patients are advised to return if the denture feels loose and does not fit for relining or making a new removable partial denture.

4. Conclusion

The lower immediate anterior removable partial denture can be an alternative treatment for anterior teeth that have lost periodontal support. A thorough extraoral and intraoral evaluation and appropriate treatment planning will result in a functionally acceptable and aesthetically pleasing replacement of missing structures with immediate dentures.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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