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(CASE REPORT)



Facial profile correction with immediate denture

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Abstract

One of the most important consideration for patients in dental treatment is esthetics. It presents a great challenge when teeth (particularly anterior teeth) have to be immediately replaced following removal of teeth structure. Immediate denture is the answer to restore esthetics and functional (mastication, speech and deglutition) purpose. A 48-year-old male patient came to Department of Prosthodontic Clinic, Universitas Airlangga Dental Hospital to fix his old dentures because there were missing and mobile anterior teeth. The patient did not want to undergo edentulous phase and wanted to be able to chew properly and fix his teeth appearance. Immediate partial denture treatment was given as a solution to the patient. The problematic teeth were extracted and endodontically treated. Afterwards the immediate partial denture, made using heat cured acrylic, was inserted directly in one visit. The patient was satisfied with the resulting immediate denture. The denture was able to deliver esthetics, function and comfort.

Keywords: Immediate Partial Denture; Overdenture; Dental Prosthesis; Medicine

1. Introduction

Patients undergoing teeth extraction have to wait for at least 6-8 weeks of alveolar bone remodeling before a conventional denture can be fabricated. During that time, patient may suffer edentulous phase. The immediate denture treatment offers a solution because the denture is fabricated before and placed immediately following tooth removal [1]. It could be made as complete, partial or overdentures. Sometimes patients may not be completely satisfied or comfortable when the denture is inserted because try-in is not possible. Therefore the dentist must explain to the patient the limitation of the procedure before treatment [2].

There are two methods in the fabrication of immediate denture. The first one is conventional immediate denture which relies on relining of the denture following soft tissue healing and supporting bone stabilization. The second one is interim or transitional denture to enhance function, esthetics, and prosthesis stabilization for a limited period of time. Then it would be replaced by the definitive prosthesis when the healing process is complete. The second method is used most often when many anterior and posterior teeth are retained until the day of extraction or decapitation and placement of the immediate denture [2].

Some type of immediate dentures in the field of prosthodontics are immediate extraction and immediate overdenture. Immediate overdenture is usually done using bare root design and restored using GIC above the orifice immediately after the tooth is cut above the gingival margin. Overdenture can enhance support and stability of the prosthesis, extend the life of the supporting teeth and suppress ridge resorption [3].

Some advantages of immediate denture are avoidance of edentulous period, maintaining vertical dimensions, jaw relationships, and tongue position. Immediate denture fabrication is more difficult and demanding therefore, its

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disadvantages are more chair time, additional appointment, patients' dissatisfaction of tooth position and sometimes may require the remake of new denture [2,4].

2. Case Report

A 48 year old male patient came to Department of Prosthodontic Clinic, Universitas Airlangga Dental Hospital to make denture for replacement of previous denture because some teeth are mobile. The previous denture was fabricated 1 year ago at a private clinic. The patient wanted to avoid edentulous phase. The patient also complained about protruding front teeth in upper region. The patient presented no significant medical history and no adverse habits. Clinical examination and radiographic assessment (Figure 1, 2 and 3) revealed a restored mouth and bone loss diagnosed with generalized moderate chronic periodontitis. Missing teeth on 11, 36, 34, 32 and 31. Grade III mobility on 41 and 42. Teeth 17, 16, 15, 14, 25, 26, 35, 45 were previously endodontically treated. Overjet and overbite were found 15mm. Teeth 12, 21, 22 were found with extreme overjet. On cephalometry examination (Figure 1) SNA was 86, SNB was 84 and ANB was 2. The patient was diagnosed with skeletal malocclusion class I Angle and dental malocclusion class II Angle. The patient was treated with immediate removable partial denture on maxilla and mandibular arch.



Figure 1 Panoramic and cephalometry radiography of patient.



Figure 2 Intra oral examination.



Figure 3 The patient wearing the old denture.

The case was proceeded by taking history of the patient. Thereafter, diagnostic cast was obtained using irreversible hydrocolloid impressions poured with dental stone.

Teeth 21 was planned to be extracted because unfavorable overjet and deep caries on palatal. Teeth 41 and 42 were also extracted because severe mobility. Teeth 12 and 22 were endodontically treated and planned to be cut off and restored using GIC. The patient was then referred to periodontics and conservative department for scaling and root planning, root canal treatment tooth 12, and restoration teeth 33, 23, 24, 44, 45.

The primary cast was surveyed to decide the clasps and path of insertion. Afterwards preparation of rest seat was done on abutment teeth. Final impression was taken using irreversible hydrocolloid and poured with dental plaster to produce working cast. The next step, vertical dimension of occlusion (VDO) was taken using wax rims and installed in the articulator. Arrangement of non immediate teeth was done and tried in patient's mouth (Figure 4). The colour and size of the teeth were matched according to the skin and facial profile of the patient.

In the working cast, the teeth that were planned to be extracted were grinded under gingiva margin by 1-2 mm resembling extraction socket. The teeth that were planned to be decapitated were cut above the gingiva margin (Figure 5). Arrangement of teeth were done to fix the overjet and follow the ideal teeth position (Figure 6). After the patient agreed, the denture was processed.

Before the denture insertion, teeth 12 and 22 were cut 1 mm above gingiva and beveled to accommodate the shape of dome and covered with GIC type VII. Teeth 21, 41, and 42 were extracted using minimal invasive method with local anaesthesia (Figure 7). Once the bleeding stopped and the patient was given post extraction instruction, the denture was inserted and the occlusion was evaluated using articulating paper (Figure 8).

The patient was instructed to consume soft or liquid diet and wear the denture overnight for the first 24 hours for the adaptation of the new denture and oral mucosa. Immediate denture act as a bandage on the extraction socket to aid in healing. At the 24 hour visit, the patient was checked for ulcer and the healing process. After the examination, the socket was cleansed and irrigated. Patient was satisfied with the denture retention, stability and esthetics (Figure 9). Further instructions were given to use the denture at night until swelling had reduced. The second follow up was done 1 week after insertion and third follow up was done 2 weeks after insertion to check for any discomfort or complaints regarding denture flange and occlusion. Recall visit after 6 months was scheduled to check for stability and retention of the dentures.

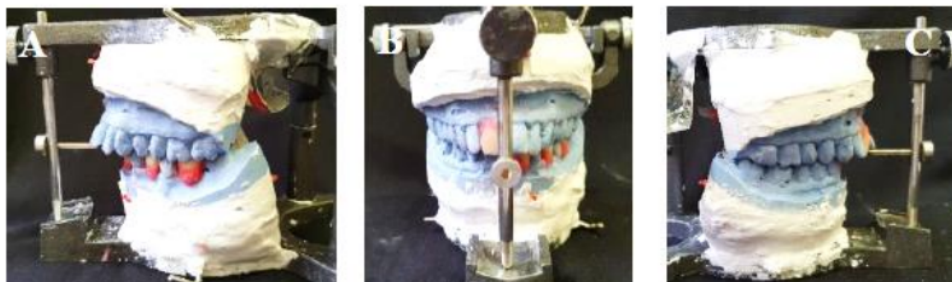


Figure 4 The arrangement of non immediate teeth.



Figure 5 Modification on working cast.



Figure 6 Arrangement of immediate teeth following ideal occlusion.

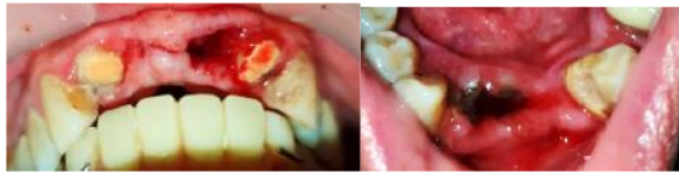


Figure 7 Extraction and decapitation.



Figure 8 Denture insertion.

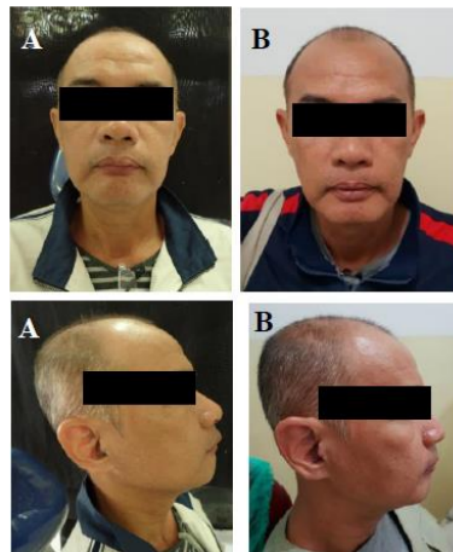


Figure 9 Facial profile improved after immediate denture insertion.

3. Results and Discussions

The loss of front teeth may cause psychological trauma to some patients. On this case, patient was already using denture but complaining instability and wanted to fix the inclination of upper front teeth. Therefore immediate partial denture treatment was chosen for this case.

The mobile teeth in this case shows periodontal problem. According to Siagian [5] in the case of long-term loss of teeth, the remaining teeth often experience periodontal problems, such as mobility, changes in tooth position (protrusion, extrusion, rotation), and multiple diastema. Teeth 41 and 42 were found with grade II mobility. Tooth 21 was too protruded with deep caries lesion. Teeth 41, 42, and 21 were decided to be extracted. Teeth 12 and 22 were also too protruded with good periodontal tissue, the plan were to be endodontically treated and covered with GIC using overdenture method. GIC was used due to its fluoride release to avoid secondary caries [6].

The treatment outcome in immediate denture treatment cannot be truly assessed before insertion. In addition, the dentist must be aware of complications from surgery aspect such as bleeding, pain control, difficult extraction, and prolonged dental visit [7]. But in this case, the patient was very satisfied with the denture because the treatment was able to fulfill his complaint about the anterior protruding teeth.

The advantage of overdenture are preserving alveolar ridge, proprioception, force distribution, stability and retention. The disadvantage of overdenture are the need to maintain oral hygiene and the risk for caries and periodontal problems [8,9].

Immediate denture is a prosthesis designed to replace loss of teeth immediately after tooth extraction or decapitation. The goal is to provide comfort, function and esthetics to patient [10]. Using this treatment method, the denture could be fabricated before extraction to avoid edentulous phase. Factors increasing the success of immediate denture are the right diagnosis and treatment planning, and coordination between dentist and patient [11].

4. Conclusions

In the era of implant treatment, immediate denture is still considered as an important treatment. It is able to provide the patient with esthetics, function and help the healing process. The right evaluation, treatment planning, proper follow up and instructions will lead to a successful and functionally acceptable treatment for the patient.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest.

Statement of informed consent

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

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