Full-mouth rehabilitation with fixed restoration

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ABSTRACT
A 32-year-old male patient with chief complaint of difficulty chewing food due to tooth loss was referred to Hasanuddin University Dental Hospital. Intraoral examination showed edentulous teeth 15, 16, 26, 36, 37, 46 and 47. Radiograph showed no radiolucency and crown root ratio of 1:2. The treatment was full mouth rehabilitation using an adhesive bridge and a fixed bridge on the upper jaw, and a telescopic crown overdenture on the lower jaw. Initial impressions were taken for diagnostic modeling and temporary denture fabrication. Preparations were performed in a box shape on occlusal teeth 25 and 27 for the fabrication of a fixed bridge and preparation of teeth 14 and 17 for the fabrication of a fixed bridge, followed by the double impression method and bite registration. Insertion of adhesive bridges and fixed bridgework followed by preparation of 35, 38, 45 and 48 for primary denture fabrication on telescopic crowns. Secondary impressions were made using elastomeric materials. Primary crowns of teeth 35, 38, 45 and 48 were made first and cementation followed by mandibular secondary impressions. Bite registration was taken and the maxillomandibular relationship was recorded. Afterwards, metal frame try-in, posterior tooth try-in, laboratory processing and then insertion were performed. It was concluded that prosthetic rehabilitation is essential, an adequate treatment plan should be put in place to improve the patient's mastication and maintain the stomatognathic system with denture fabrication.
Keywords: full mouth rehabilitation, fixed restoration, telescopic crown

INTRODUCTION

Nowadays, the dental care enables a dentist to make a restoration and try to keep the natural teeth as the abutment. There are many types of dentures, such as dental bridge, a combination of fixed and removable dentures, partial removable denture, and overdenture. The use of denture is not only to improve the mastication, phonetic and aesthetic function, but also to maintain the health of the rest of the tissues.[1]

The magnitude and direction of the partial removable denture movement for functioning were influenced by the natural supporting structure and the denture design. Functional load will be distributed to the supporting teeth through the occlusal, the guiding plane and the direct retainer. An optimal design can maintain the abutment health and the supporting tissue. An improper design can cause uncontrolled load distribution to the abutment and other supporting tissues.[1] Telescopic crown overdenture is a type of denture that using a double crown, which consists of coping and a removable denture on it. The principle of the telescopic crown system composed of two elements, they are internal crown called the primary crown and the external crown called the female or secondary crown. The using of telescopic denture can provide protection for an abutment, lighten the load received by the abutment and provide a more aesthetic result. Telescopic denture is a modified form of existing conventional denture and overdenture with some advantages, such as increasing retention, rigid vertical support, stability and proprioception.[2,3] In dental bridge, the magnitude and direction of denture movement are more stable so that the occlusion force applied to the periodontal tissues and alveolar bone close to normal. The type of dental bridge which commonly used are adhesive bridge and fixed fixed bridge. Adhesive bridge is a type of bridge which consist of a single pontic and two retainer wings attached to the abutment using cement or resin.

The retention is a micromechanical retention between the enamel surface and the retainer surface. The denture has a very minimal preparation so that it is more conservative. The FFB is dental bridge that has two or more abutments with rigid connectors on both ends of the pontics. This denture provides excellent strength and stability, and also distribute the pressure more evenly to the restoration and providing an excellent splinting effect.[4,5] This paper discusses about the fabrication of telescopic overdenture on the mandible and adhesive bridge and FFB in the maxilla that serves to repair and restore the mastication of the patients.

CASE

A 32-year-old male patient stated chief complaint of difficulty to chew food due to missing some on the posterior area. Patient was in good general

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health and there was no systemic disorder. The intraoral examination revealed missing teeth of 15, 16, 26, 36, 37, 46 and 47 (Fig.1). The position of 17, 27, 38, 48 were mesioversion. Radiograph showed no lesion and the general crown root ratio was 1: 2 (Fig.2). The treatment of this case were adhesive bridge for tooth 25-0-27 and FFB for 14-0-0-17 in the maxilla.

Figure 1 The overview of maxilla and mandible prior to the fabrication of the dentures.

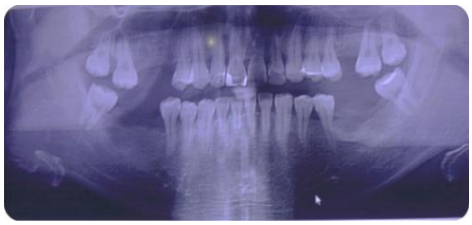

Figure 2 Panoramic view of the patient prior

The telescopic overdenture was made for 35, 38, 45 and 48. In the early stages, first impression was done to fabricate a diagnostic model and the temporary denture. The preparation was performed in boxshaped on the occlusal teeth of 25 and 27 for the adhesive bridge, and the preparation of 14 and 17 were done for the FFB, followed by the final impression and the making of the bite registration for the lab process. The adhesive bridge and FFB were inserted (Fig.3), and the process continued with the preparation of 35, 38, 45 and 48 for the primer coping of the telescopic overdenture. Furthermore, the impression was done with elastomer material for the maxilla and mandible to obtain a working model. Primary crown of the 35, 38, 45 and 48 were made and the cementation performed. The impression was done for the second time in the mandible to obtain a working model for the fabribrication of the secondary crown that will be attached with the metal frame dentures.

Before all the elements were sent to the laboratory for the fabrication of the metal frame, the clinician has to record the interarch relationship by making bit rim for the maxilla and mandible, followed by taking the bite registration. After that, the process continued with try-in of the metal frame, teeth arrangement, and insertion of the denture (Fig.4).

Discussion

The loss of the teeth, especially at the posterior region can cause a disharmony in the oral cavity.

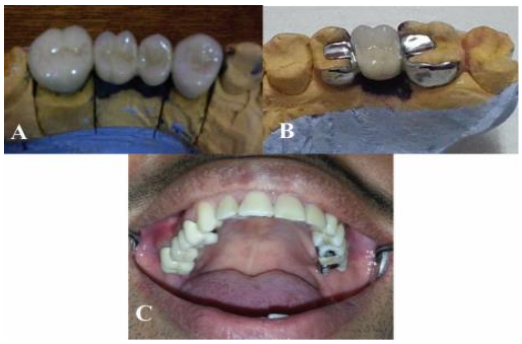

Figure 3A The FFB, **B** adhesive bridge, **C** the FFB and adhesive bridge has inserted

Figure 4 Insertion of **A** primary coping on teeth 45 and 48, **B** primary coping on teeth 35 and 38, **C** telescopic crown overdenture on mandible

The antagonist teeth and adjacent teeth may experience pathological migration resulting in decreased in efficiency of chewing, and disorders of the TMJ. To overcome the possibility of this condition, it requires a prosthesis to restore the normal occlusion. The prostheses used can be a removable prosthesis or a fixed prosthesis.[2]

Adhesive bridge is a bridge that has a pontic and a retainer of thin metal attached to the abutment in proximal and lingual/palatal part by adhesive material and using the acid etching technique. An adhesive bridge that also called with resin bonded fixed prosthesis due to its retention that uses an adhesive material. In this case, adhesive bridge is used to replace the 26 because of the narrowed alveolar ridge and the reduced of mesiodistal distance to the first molar.

The FFB is a fixed denture which uses the rigid connectors on both ends of the pontic. The dentures were attached using resin cement, so it can be removed by the doctor only. Compared with removable denture, fixed denture has several advantages, such as convenient as the original teeth, does not take long for adaptation but requires precision in cleaning. The patient must go to the dentist for the follow-up and for the plaque control about 3-6 months.[4,5] The teeth loss of 36, 37, 46 and 47 were treated with telescopic overdenture. Telesco-

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pic overdenture is a denture composed of two kinds of coping, they are, primary coping that will be attached permanently to the abutment and secondary coping which attached to the denture frame. The advantage of a telescopic crown overdenture is that there is more even distribution of the chewing load which can minimize the bone resorption. It also provides the proprioceptive effect of periodontal tissues of the abutments. Therefore, in this case is used a telescopic prosthesis.[2]

It is concluded that prosthetic rehabilitation especially in the case of loss of posterior teeth is very important because the denture will help patient to maintain the health of the stomatognathic system.

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