

Use of natural teeth in immediate removable denture treatment

Clinical Report

Vanderlei L. Gomes¹, Jose M. C. Costa², Juliana B. Gomes¹, Maria H.R. Godoy³, Julio B. Gomes⁴, Barbara L. Lucas⁴

ABSTRACT

The installation of an immediate complete denture can maintain both oral function and esthetics for a patient. This report describes the fabrication of an immediate complete maxillary denture using the patient's natural teeth. As soon as surgery is completed, the patient's vertical dimension, tooth position, alignment, occlusion, color and shape are restored.

KEY WORDS: Immediate complete denture, mouth rehabilitation, natural teeth

INTRODUCTION

The immediate complete denture (ICD) is a prosthesis fabricated for placement immediately following the removal of natural teeth.^[1] A well-made ICD acts as a splint over the surgical area and protects the wound against injury from food or teeth in the opposing arch.^[2-4] Although the elderly retain more teeth into old age, if left untreated, gums and bone supporting the teeth can lead to tooth loss.^[5] Natural teeth hold all the qualities the patient expects, and for this reason they have been used in the fabrication of fixed and removable prosthesis.^[6,7] This report describes an alternative technique using a patient's natural teeth in the construction of an immediate denture.

CASE REPORT

A 30-year-old man was referred by a periodontist to the Removable Prosthodontics Clinic, Faculty of Dentistry [Federal University of Uberlandia, Brazil]. He had received periodontal treatment with no therapeutic results and had no history of other health problems. Physical examination showed all teeth free from caries [Figure 1]. Periodontal probe identified periodontal pockets around many teeth and mobility of class II and III. The patient had a satisfactory

occlusion with correct vertical dimension of occlusion and no symptoms or signs of temporomandibular joints disorders. Radiographic exams showed a large area of bone resorption [Figure 2]. Diagnosis of advanced chronic periodontitis was established and extraction of all maxillary teeth indicated. The treatment plan included ICD construction.

1st Clinical Procedure

An accurate impression was made with irreversible hydrocolloid (Jeltrate Plus, Dentsply® Ind e Comercio Ltda, Petropolis, RJ, Brazil) and the impression was poured, with type III dental stone (Empresa e Indústria Gesso Mossoró SA, Rio de Janeiro, RJ, Brazil). The patient had a good jaw relationship and high-quality esthetics in the maxillary dental arch and for this reason tooth placement was reproduced.

1st Laboratory Procedure

An accurate laboratory core of rubber impression silicon (index) of the maxillary teeth was made (Silon2 APS, Dentsply® Ind e Comercio Ltda, Petropolis, RJ, Brazil) to register the position of the teeth, and subsequently, to guide placement of the natural teeth on the ICD [Figure 3]. The teeth were removed from the cast and flasking procedure was followed in the conventional manner. The ICD base was fabricated with heat-curing acrylic resin (Lucitone® Clear Resin, Dentsply® Ind e Comercio

¹Department of Removable Prosthodontics and Dental Materials, Faculty of Dentistry, ²Department of Oral and Maxillofacial Surgery, ³Health Technician College, ⁴Faculty of Dentistry, Federal University of Uberlandia.

Address for correspondence: Dr. Vanderlei Luiz Gomes, Av. Pará nº1720, Umuarama Camp. Bloco 2B. Sala 07 e 08, Uberlandia. MG. BRAZIL. 38401-136. E-mail: vanderlei@ufu.br



Figure 1: Initial Presentation

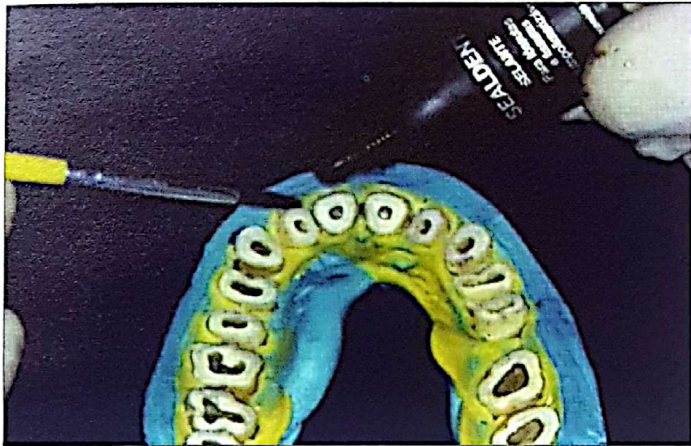


Figure 3: Deflated Dental Pulp and Application of Resin Sealant

Ltda, Petropolis, RJ, Brazil).

2nd. Clinical Procedure

We used a mouthwash, with 0.2% chlorhexidine digluconate, as an antiseptic; and local anesthesia was established. Teeth were removed in a manner that preserved as much of the bone and the soft tissue as possible. Following tooth removal and tissue suture, and with no sign of any bony undercuts or excess pressure, the ICD base was maintained in the patient's mouth, to reduce the swelling while the teeth were prepared.

2nd. Laboratory Procedure

Small glass containers was identified with the tooth number, and filled with 0,3% hydrogen peroxide (Água Oxigenada 10v, Rio química, Indústria Farmacêutica, São José do Rio Preto, SP, Brazil). After cleaning the teeth with water, they were debrided to remove periodontal tissues. The tooth crown was crosscut 2,0 mm apically distant from the cemento-enamel junction. The dental pulp was deflated avoiding pulp tissue oxidation which could alter tooth color. Dental pulp and dentin surfaces were etched with 35% phosphoric acid gel and then rinsed with water for 15 seconds. A resin sealant (Sealdent® fotopolimerizavel, Dentsply® Ind e



Figure 2: Radiographic Examination



Figure 4: Immediate Complete Denture with Natural Teeth, Soon after Denture Insertion

Comercio Ltda, Petropolis, RJ, Brazil) was applied to the dentin tissues [Figure 3]. The ICD base was adapted above the teeth and auto polymerized resin PMMA then applied to join the denture base to the natural teeth (Pattern Resin LS, GC America Inc, **Suarez Import Com.Int.Ltda**, Barueri, SP, Brazil). Chemical techniques of finishing and polishing were utilized to ensure highly polished surfaces.

3rd. Clinical Procedure

The described laboratory procedures were completed and ICD was inserted 90 minutes after surgery [Figure 4]. To prevent post-surgical edema, the patient was instructed not to remove the denture at bedtime. Twenty-four hours after surgery, the patient was seen and followed-up every day until it was possible to remove the sutures. The denture was relined with tissue conditioner to enhance retention and comfort of the patient 28 days post-insertion (Coe Soft, GC America Inc, **Suarez Import Com.Int.Ltda**, Barueri, SP, Brazil).

DISCUSSION

Tooth loss is a traumatic experience associated with advancing age, and thus can precipitate an emotional crisis. Although it is known that dentures can improve facial appearance, the belief that tooth loss must result in the use of "false teeth" is widespread.^[8,9] The use of natural teeth has psychological and esthetic value and individuals are less reluctant to have their

natural teeth removed when they are assured of immediate replacements with the maintenance of tooth position and alignment. The search for an ideal tooth arrangement that maximizes complete denture stability, esthetics, and function has been discussed for many years.^[8,9] When there has been a reasonably short time between extraction and denture construction, and the patient still has adequate bone, it is recommended to replace the teeth in their original anatomical position.^[10] Through this technique, it is possible to retain the maxillomandibular relationship and avoid future problems to temporomandibular joints; it is not necessary to transfer the stone casts to the articulator.

The use of natural teeth seems to improve tooth contacts. In this case, occlusion is preserved and no adjustments were needed at the alveoli area on the cast. It is not necessary to use a surgical template

during the surgery to guarantee denture fit. Incorrect occlusion at denture insertion can be due to post-surgical edema; when edema is reduced, occlusion is recovered. If it is determined that the denture must be relined, it must be made to provide denture stability and fit, avoiding undesirable stress.^[3] However, it should be performed only after primary healing has taken place and no edema is present in tissue.

CONCLUSION

As a combination of simple procedures, the presented technique could turn clinical and laboratory procedures of an immediate complete denture construction into an easier process. Facial expression remains virtually unchanged, with minimal difference in function, providing comfort for the patient after surgical treatment.

REFERENCES

1. Academy of Prosthodontics. The glossary of Prosthodontics Terms. *J Prosthet Dent* 1999;81:39-110.
2. Bissasu M. A simple procedure for minimizing adjustment of immediate complete denture: a clinical report. *J Prosthet Dent* 2004;92:125-7.
3. Gotlieb AS, Askinas SW. An atypical chairside immediate denture: a clinical Report. *J Prosthet Dent* 2001;86:241-3.
4. Soni A. Trial anterior artificial tooth arrangement for an immediate denture patient: a clinical report. *J Prosthet Dent* 2000;84:260-3.
5. Petit MD, Van-Steenbergen TJ, De Graaff J, Van Der Velden U. Transmission of *Actinobacillus actinomycetemcomitans* in families of adult periodontitis patients. *J Periodontal Res* 1993;28:335-45.
6. Kafandaris NM, Theodorou TP. Complete denture technique using natural anterior teeth. *J Prosthet Dent* 1975;33:571-4.
7. Ashley M, Holden V. An immediate adhesive bridge using the natural tooth. *Br Dent J* 1998;184:18-20.
8. Gomes VL, Gonçalves LC, do Prado CJ, Lopes-Junior I, de Lima Lucas B. Correlation between facial measurements and the mesiodistal width of the maxillary anterior teeth. *J Esthet Restor Dent* 2006;18:196-205.
9. Frush JP, Fisher RD. Introduction to dentogenic restorations. *J Prosthet Dent* 1955;5:586-95.
10. Engelmeier RL. Complete-denture esthetics. *Dent Clin North Am* 1996;40:71-84.

Source of Support: Nil, Conflict of Interest: None declared.