

DENTINO
JURNAL KEDOKTERAN GIGI
Vol VI. No 1. Maret 2021

**AESTHETIC REHABILITATION OF MAXILLARY AND MANDIBULAR HOPELESS
 TEETH WITH IMMEDIATE REMOVABLE PARTIAL DENTURE**

Afif Surya Adena¹⁾, Endang Wahyuningtyas²⁾, Intan Ruspita³⁾

¹⁾Student of Prosthodontic, Faculty of Dentistry- Universitas Gadjah Mada, Yogyakarta, Indonesia,

²⁾Department of Prosthodontic, Faculty of Dentistry- Universitas Gadjah Mada, Yogyakarta, Indonesia,

³⁾Department of Prosthodontic, Faculty of Dentistry- Universitas Gadjah Mada, Yogyakarta, Indonesia,

ABSTRACT

Background: Edentulism post tooth extraction is an undesirable state among patients, specifically with the involvement of anterior dentition. Immediate denture in cases of anterior teeth extraction is a selected treatment to recover aesthetic and phonetic function. This treatment shows an impact on psychological stability and improves patients' confidence level. **Objective:** This case report provides information on the management of immediate removable partial denture for maxillary and mandibular teeth. **Case:** A female teacher suffered from tooth loss of 26, 28, 36, 46, 47. Tooth 11, 14, 21, 22, 31, 32, 41, 42 were not supported with adequate periodontal tissue and presented with level 3 tooth mobility. Patient expected the teeth to be removed and managed with prosthodontic appliance, yet disfavoring the stage of edentulism because her profession demanded high social performance. **Case management:** The treatment for this case includes immediate removable partial denture with acrylic material in upper and lower jaw. Denture was fabricated prior to the extraction of tooth 11, 14, 21, 22, 31, 32, 41, 42, and inserted promptly. The insertion result showed good occlusion, retention, stabilization, and tissue adaptation of denture. It also demonstrated good aesthetic result. On 24 hours control post insertion, wound closure was gradually established with the presence of redness. A week after insertion, wounded tissue had been fully covered and redness had been diminished. **Conclusion:** Immediate removable partial denture provides good aesthetic and function. Patient was satisfied with the treatment because it improved her appearance without experiencing any period of edentulism.

Keywords: Aesthetics, Edentulous, Extraction, Immediate Removable Partial Denture.

Correspondence: Afif Surya Adena; Faculty of Dentistry- Universitas Gadjah Mada, Jl. Denta 1 Sekip Utara Yogyakarta 55281 Indonesia, Email: suryaadena@gmail.com

INTRODUCTION

Edentulism occurred post tooth extraction is an undesirable state among prosthodontic patients, especially in cases of edentulous condition at anterior teeth region. It is the main consideration in selecting the treatment among patients and dental health care providers. Not only assessing the aesthetic function, phonetic and masticatory outcome are also highly essential in edentulous condition. Thus, edentulous stage after tooth extraction should be hampered.¹

Immediate denture treatment after anterior tooth extraction is an appropriate procedure to recover aesthetic, phonetic and masticatory function as soon as the removal of the teeth. Immediate denture is a type of appliance which is fabricated preliminarily and inserted immediately to the oral cavity of patient after tooth extraction. This treatment will prevent the patient to

experience any period of edentulism as well as any social impediment.^{2,3}

From patient perception, this prosthetic appliance can affect psychological stability by increasing the level of confidence when smiling and speech.⁴ Several cases revealed that treatment using immediate denture may reestablish aesthetic function, facial support, vertical dimension, occlusion and masticatory function during the healing process of post extraction socket.^{1,5,6} Rignon-Bret et al., 2016 reported on his case that immediate denture may prevent the occurrence of alveolar bone resorption after tooth extraction, thus promoting the retention of replacement denture.⁷

Aside from the advantages of using immediate denture as prosthetic treatment, accuracy and skill are required for the success of the treatment and the proper function. The presence of mistakes and technical

difficulties are highly frequent in the fabrication of accurate immediate denture.⁶ The difficulties may occur at the stage of artificial tooth arrangement for esthetic purpose and stability may be achieved well. Furthermore, the treatment result cannot be predicted due to the inability to assess denture adaptation before its insertion. The success will depend on various procedures that should be conducted adequately. Therefore, this case report aims to provide information on treatment management of immediate removable partial denture on maxillary and mandibular teeth indicated for extraction.

CASE

A 55-year-old female teacher arrived at Prof. Soedomo Dental Hospital Yogyakarta to complain about loose and missing teeth on the upper and lower jaw, which rose difficulty in chewing as well as

interference on her appearance. Patient expected every loose tooth to be extracted and replaced with prosthodontic appliance without experiencing any edentulous stage due to the high demand of social performance within her profession. The patient urged for an immediate treatment that might also yield a satisfying result.

Intraoral condition presented missing teeth of 26, 28, 36, 46, 47 and restoration on tooth 25 and 38. Tooth 11, 14, 21, 22, 31, 32, 41, 42 showed level 3 mobility. Several teeth demonstrated malposition, recession, and extrusion which are elaborated on Table 1. The result of panoramic roentgen revealed tooth 11, 14, 21, 22, 31, 32, 41, 42 were not supported by adequate periodontal tissue. Initial patient condition may be observed on Figure 1.

Table 1. Clinical dan roentgenographic manifestation on initial visit of patient

Examination	Tooth							
	11	14	21	22	31	32	41	42
Mobility	Level 3	Level 3	Level 3	Level 3	Level 3	Level 3	Level 3	Level 3
Recession	+	+	+	+	+	+	+	+
Extrusion	+	-	-	+	-	-	-	-
Malposition	+	-	+	+	-	-	-	-
Bone resorption	> 2/3 root length	> 2/3 root length	> 2/3 root length	> 1/2 root length	> 1/2 root length	> 1/2 root length	> 2/3 root length	> 2/3 root length

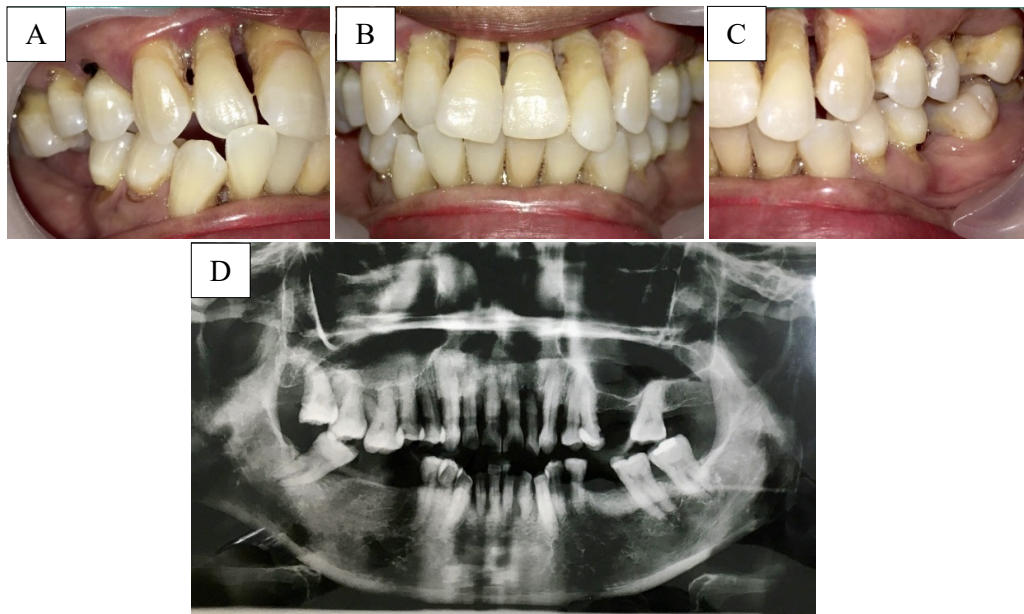


Figure 1. Patient condition at initial visit, (A-C) Clinical manifestation showed several teeth that were suffering from mobility, malposition, recession, and extrusion. (D) Panoramic roentgenography revealed resorption in alveolar bone on tooth 11, 14, 21, 22, 31, 32, 41, 42.

CASE MANAGEMENT

Treatment planning for this case includes immediate removable partial denture using acrylic material for the condition in upper and lower jaw. Tooth 11, 14, 21, 22, 31, 32, 41, 42 was extracted due to inadequate periodontal tissue support and level 3 mobility. Treatment was commenced with initial procedures involving scaling and root planning.

The first step was comprising the obtainment of working model impression using irreversible hydrocolloid material, the recording of occlusal contact, and the alignment of artificial teeth shade with natural teeth colour in patient. The second step was consisting of acrylic removable partial denture fabrication procedures, namely the mounting of working model in articulator, the cutting of teeth at working model that are planned to be extracted, the construction of bite rim and the arrangement of artificial teeth, the construction of wire clasp for abutment teeth, the manipulation of wax, the packing of acrylic and polishing.

The third step to be performed was tooth extraction. Tooth extraction procedure was inaugurated with blood pressure examination and local anesthesia injection using infiltration technique on the region of the teeth that were going to be extracted. Soon after the evidence of anesthetic onset was observed, extraction procedure was performed on tooth 11, 14, 21, 22, 31, 32, 41, 42 with minimally invasive technique. Procedure was advanced to irrigation of the socket, placement of spongostan, and instruction for the patient to bite the gauge for 10 minutes. Clinical tissue manifestation after tooth extraction can be seen on Figure 2 (A-B).

The fourth step was the insertion of immediate removable partial denture (Figure 2, C-E). Sterilized denture was promptly inserted to the oral cavity followed by the correction of occlusal contact, denture retention and stabilization. The result of insertion demonstrated denture with good occlusion, retention, stabilization, as well as tissue adaptation.

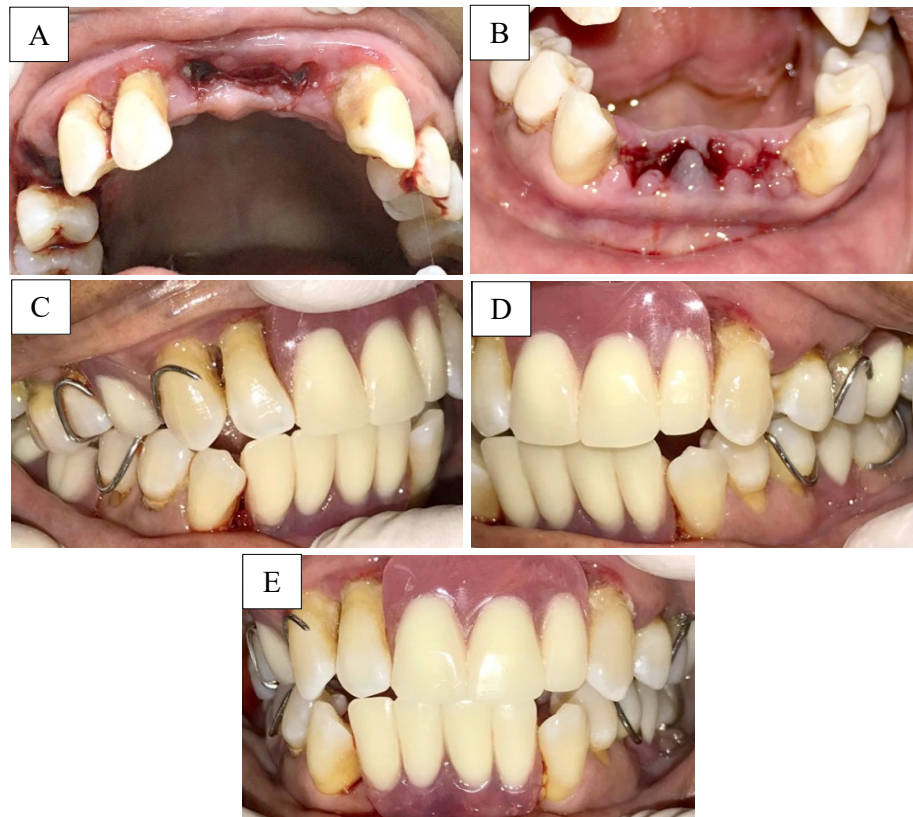


Figure 2. (A-B) Condition after tooth extraction of 11, 14, 21, 22, 31, 32, 41, 42; (C-E) insertion of immediate removable partial denture on upper and lower jaw. Insertion result showed denture appliance with satisfying occlusion, retention, stabilization, and tissue adaptation.

Patient was instructed to use the denture during the first 24 hours for oral cavity tissue adaptation. Control was performed after 24 hours (Figure 2, A-B) and a week following the insertion of the denture (Figure 3, C-D). At post 24 hours evaluation, the extraction wound had closed with the slight presence of

redness. A week after insertion, most wounded tissue had been fully healed and the presence of redness had been diminished. Patient was further instructed to gradually maintain the hygiene of denture, abutment teeth, and surrounding tissues.

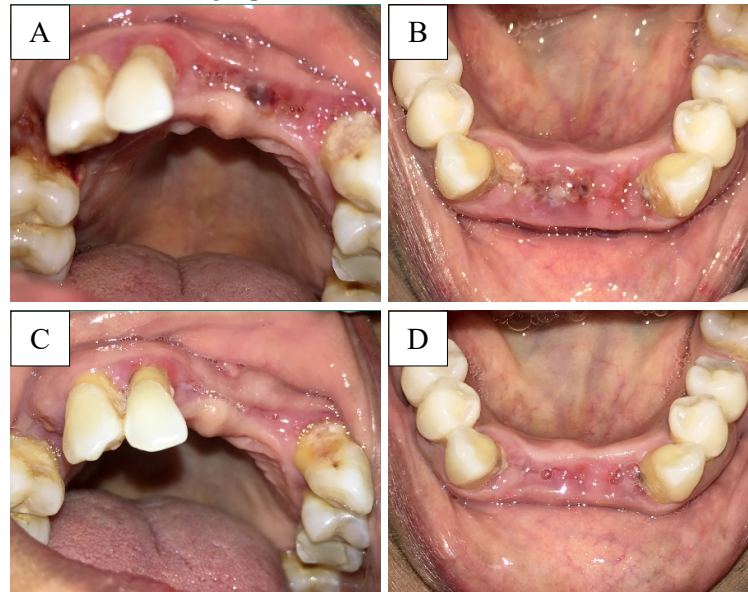


Figure 3. (A, B) Tissue condition post 24 hours of insertion, wound healing had been gradually covered with the presence of redness still persisted; (C, D) Tissue condition a week after insertion, tissue had been fully enfolded and the presence of redness had been diminished.

DISCUSSION

In this case report, immediate removable partial denture with acrylic material was selected as the treatment for edentulous condition in the upper and lower jaw. Immediate denture is a type of prosthetic appliance inserted immediately after tooth extraction.^{2,8} It is commonly applied on cases in which unhealthy teeth are indicated for extraction and replaced with denture.⁹ This treatment is not only shorten the treatment duration and clinical visit, it is also presented with several advantages such as maintenance of patient appearance, mastication, vertical dimension of occlusion, and maxillomandibular relation.^{6,10,11} The success of this treatment is determined by some factors, such as diagnosis, treatment planning, accurate surgical procedure, clinical and laboratory procedure, as well as patient motivation.^{12,13}

The case in this patient involves the extraction of tooth 11, 14, 21, 22, 31, 32, 41, 42 due to inadequate support of periodontal tissue and occurrence of level 3 tooth mobility. Patient was unwilling to experience any period of edentulous stage after extraction procedure because her profession demands high social performance. Hence, selecting immediate denture as the

treatment was mainly to maintain psychological and social function as if the patient had not lost any teeth, as well as to avoid any impediment that affects normal life style such as smiling, speech, eating, and socializing.² The result of denture insertion in this case confirms Yeung et al, 2020 study which reported that good immediate denture will provide good retention, support, stability and aesthetic.³ Post insertion, patient expressed a sense of well-being for the treatment because it had improved her appearance with no period of edentulism. Memon et al, 2016 in his case report mentioned that cases with the involvement of anterior teeth in which aesthetic become the main concern will be managed well with immediate denture because it provides a very satisfying aesthetical result.¹⁴

Denture should be used by patient during the first 24 hours after insertion without being removed. Removal on the first 24 hours of insertion carries the risk of denture not being fit when replaced.² Denture can protect the socket after tooth extraction.³ It may act as a matrix to control bleeding, protect the wound and prevent contamination. The good and perfect contours of the dentures can help accelerate wound healing. The denture will act as a bandage to protect the wound from

external trauma and prevent food or saliva from coming in direct contact with the wound. Blood clots that have formed can also be covered. In addition, the wound healing process will be much faster which also relieves pain and minimizes the alveolar bone resorption.^{13,15,16} In this case, the first control was carried out on the first 24 hours after insertion for denture removal and post-extraction tissue evaluation. The results show that there had been a wound closure process without any complaints of pain or complications after extraction, and convenient reinsertion after denture removal. Immediate denture can not only increase aesthetic value, but can also act as a therapeutic treatment.¹⁴ Radovic et al, 2016 reported that immediate denture has a good therapeutic role, because it provides better chewing ability after tooth extraction, so that it can maintain nutritional status.¹⁷

Immediate denture treatment procedure has been a challenge for dentists. Artificial tooth arrangement in immediate denture is a daunting process, because the trial insertion visit cannot be performed.^{1,2} Guidelines for dental alignment only refer to the remaining natural teeth.¹⁶ Such inaccessibility reduces control over esthetics and occlusion. This results in the risk of patient being completely dissatisfied with the aesthetics and comfort of the dentures. The dentist must explain to the patient about the limitations of this treatment. There are two solutions to overcome this concern, first by relining the denture when the tissue healing process has occurred, and secondly by considering the immediate denture which is designed as interim or transitional denture.² The immediate removable partial denture treatment provides good aesthetics and function. Patient was satisfied with the treatment because the results improved patient's appearance with no stage of edentulism.²

REFERENCES

1. Bansal P, Dhanyamol, Bansal P. Maxillary immediate denture : A case report. *Int J Med Heal Res.* 2018; 4(3): 148-150
2. Zarb G., Horbkik J, Eckert S. *Prosthodontic Treatment for Edentulous Patients: Complete Dentures and Implant-Supported Prosthesis. Thirteenth Edition.* St. Louis. Elsevier Mosby. 2013. p 112-118.
3. Yeung C, Leung KCM, Yu OY, Lam WYH, Wong AWY, Chu CH. Prosthodontic rehabilitation and follow-up using maxillary complete conventional immediate denture. *Clin Cosmet Investig Dent.* 2020;12:437-445.
4. Budi Santosa IK, Rostiny R, Djulaeha E. Improvement facial aesthetics with immediate denture treatment. *Indones J Dent Med.* 2018; 1(1):49-53.
5. Gooya A, Ejlali M, Adli AR. Fabricating an interim immediate partial denture in one appointment (modified jiffy denture). A clinical report. *J Prosthodont.* 2013; 22(4):330-333.
6. Lee JH. Fabricating an immediate denture for a medically compromised elderly patient. *J Prosthet Dent.* 2015; 113(4):277-281.
7. Rignon-Bret C, Hadida A, Aidan A, et al. Efficacy of bone substitute material in preserving volume when placing a maxillary immediate complete denture: Study protocol for the PANORAMIX randomized controlled trial. *Trials.* 2016; 17(1):1-12.
8. Driscoll CF, Golden WG. *Treating the Complete Denture Patient.* USA. John Wiley & Sons, Inc. 2020. p 239-241.
9. Fang JH, An X, Jeong SM, Choi BH. Digital immediate denture: A clinical report. *J Prosthet Dent.* 2018; 119: 698-701.
10. Zwiad AA. New clinical technique for fabrication immediate partial denture. *Dent Hypotheses.* 2013; 4(4):139-142.
11. Yankova M, Fetfova D. Fabrication of transitional immediate complete denture. *J Med Dent Pract.* 2016; 3(2):492-498.
12. Nayak D, Singhal R, Agarwa S, Hussain S, Javed B, Gupta S. Immediate Denture: A Review . *International Journal of Scientific Research.* 2020; 9(2): 44-47.
13. Bhat V, Balaji SS. Immediate Partial Denture Prosthesis - A Case Report. *NUJHS.* 2013; 3(4):120-124.
14. Memon S, Patel S, Bhatt NN. Reestablishing Esthetics With Extracted Teeth On A Mandibular Anterior Edentulous Area A Case Report. *NJIRM.* 2016; 7(4): 165-167.
15. Hasti K, Hasti A, Sharma R, Mitra A. Immediate denture- An important treatment modality. *Kerala Dent J.* 2016; 39:27-29.
16. Prajapati A, Sanyal PK, Vaswani SP. Case Study Inexpensive Solution To A Mutilated Dentition : Immediate Dentures. *IJCR.* 2016; 8(12):43109-43113.
17. Radović K, Obradović-djuričić K, Čairović A, Glišić M, Djuričić S. Prosthetic treatment after teeth extractions in patients with type 2 diabetes mellitus. *Srp Arh Celok Lek.* 2016;144(9-10):474-477.