

A New Technique for Producing Two Pieces Obturator: A Case Report

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Abstract: *Background:* hemimaxillectomy patient had functional and psychological problems. Prosthodontics rehabilitation with obturator has great role in restoring oral function and improve patient appearance. *Case description:* this case report represents a new technique of two pieces hallow obturator made of flexible material *Conclusion:* Simple new technique with available materials can provide retentive, light weight obturators.

Keywords: hemimaxillectomy, two pieces obturator, flexible material

1. Introduction

Obturator is a prosthesis used to close a congenital or acquired tissue opening, of the hard palate &/or contiguous alveolar structures. Prosthetic restoration of defect often includes use of a surgical obturator, interim obturator & definitive obturator[1]. The obturator in each phase of treatment serves to restore continuity of the hard palate and separate the nasal cavity and maxillary sinus from the oral cavity. Functional capabilities could be restored such as speech, oral food intake, and deglutition [2]. The obturator must be retentive and comfortable as much as possible. In order to achieve the obturator requirements thus the studies were worked on improvement the materials and designs [2], [3].

The prosthesis weight reduction could enhance retention hallow obturators[4]. There are two types of hallow obturator either two pieces[5], or one piece hallow obturator[3]. The problems with conventional heat cure acrylic obturators, their limited retention can't engage the undercut areas because of the rigidly of the material, as well as discomfort due to their relatively heavy weight.

The present report describes a new technique for producing an obturator fabricated from flexible material supporting the acrylic denture.

2. Case Report

A 60 years old patient came to the special health center of Karbalaa city suffering from difficulty in speech and swallowing with an old poorly fabricated removable upper denture with obturator that made of heat cure acrylic (figure1A) the old prostheses was uncomfortable because of poor retention. The patient gave a history of surgical removal of cancer invade the palate, maxillary sinus, resulted in loss all of his teeth except the upper right second premolar and second molar. The remaining teeth suffer from gum recession with slight mobility as shown in (figure1B).

3. Treatment Procedure

1) Impression was taking in one step to minimize the suffering of the patient by Impression compound

(Hoveman, Germany) with heavy body C-silicon impression material (Zhermack, Germany) in stock tray as shown in figure2A. The impression poured with stone(Zhermack, Germany) to obtain master cast (figure2 B).

- 2) With the aid of a vacuum devise (biostar, Germany), Fabrication of flexible obturator on the master cast. Then cut and finished the margins and try it in the patient's mouth, the preformed flexible bioplast used for mouth guard (Scheu Dental, Germany) (figure3).
- 3) Maxillomandibular relation includes recording vertical dimension and centric relation as conventional way with complete denture visits (figure4).
- 4) Tryin visit: teeth in wax were tried inside the patient's mouth to confirm maxillomandibular relation, as well as verifying the appearance (figure5).
- 5) The outer part of the prosthesis, which is the final denture fabricated from heat cure acrylic resin (Vertex, Netherland). Like in removable dentures construction that include flasking, deflasking, finishing and polishing. The design of the denture provide window for the remaining two teeth after blocking out for the undercuts without clasps (figure6).
- 6) The finished denture mechanically bounded to the flexible obturator with cold cure acrylic resin. By creating many pores in the flexible material and adjusted inside the patient's mouth (figure7).
- 7) Finished prosthesis in patient's mouth (figure 8).

Figures:

4. Discussion

Prosthodontics rehabilitation for patient with hemimaxillectomy has great role in concomitant with maxillofacial surgery [6]. In this report the technique was used two parts, hollow obturator and the acrylic denture. The hollow obturator made of bioplast flexible materials (polycarbonate) type which is a biocompatible material [7] used for night guard construction. Represented the inner part of the prostheses that engages the maxillary defect undercuts because of the flexibility of the material which is aid in retention. The light weight of the flexible material made the prostheses more comfortable to the patient. the problem of accurate fit to improve retention had

been studied by Patil and Patil in 2012,2017[8], [9]they use of a pre-shaped wax-bolus to maintain a predictable internal dimension of a hollow space during flasking procedure. The use of a vacuum preformed to fabricate the flexible obturator.

Abbreviated flasking steps and produce a device well adapted to the wall of maxillary defect without affecting the fabrication of the final denture.

The use of flexible material as an obturator was searched by Hou et al in 2012 [10] by using silicon based material as an obturator, that inflate with the aid of air pump devise through a valve in the palatal part of the obturator, after insertion into the patient's mouth. The procedure was somewhat complicated because of the use an extra devise (air pump)as compared to the technique used in this report. the primary role of prosthodontics is preserve what are present as well as replace what are missing [11]. The outer part of the prostheses that represents the denture made of heat cure acrylic. As conventional dentures restore the oral function and appearance by replacing the missing teeth and support the oral musculature[11]. The denture design replaces clasps with windows for the remaining periodontal weak teeth, so preserving these teeth from the harmful effect of the clasps [12].

Using available and low cost material like the prefabricated flexible material that attach to the final denture with cold cure acrylic, makes the future replacement of the inner part of the obturator more time saving and easy way without affecting the final denture.

5. Conclusion

This case revealed that simple available low cost materials can provide rapid solutions for complicated cases. Even in temporary way.

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