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Case Report

A NEW METHOD FOR DENTURE IDENTIFICATION: REVEALING THE UNREVEALED –A CASE REPORT

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A B S T R A C T

Dental prosthesis having incorporated with identification devices plays an important role in the identification of victims at times of mishaps or in conditions of memory loss. Various denture marking systems were reported in the literature for personal identification over the years. Many latest techniques are available which are expensive, though Hi-Fi, may not be suitable for all dental practitioners to use. The method followed for identification should be that which is simple, practical and affordable by the patient. This article presents a case report where identification of the denture was made using a lead foil, a technique which is economical and affordable.

INTRODUCTION

Forensic odontology deals with investigation procedures related with the involvement of the oral and dental features in the act of crime. The contribution by Prosthodontics insuch investigation is highly significant as mainly related identification of victims by initial evaluation of the dental restorations or prosthesis[1]. Dental prosthesis having incorporated identification devices can be of greater importance in identifying the victims during or after the episode of mishaps especially in cases ofloss of memory, states of unconsciousness, being inadvertently misplaced on admission to a hospital, survived or dead victims in all those calamity. History has enough evidences like identification of the dead bodies of Adolf Hitler, General.

Jiza-Ul-Haque are the few examples. Inserting identification devices or marks in dentures while fabrication has been proved as an important evidence in forensic dentistry, although no standardized method is mentioned in literature so far. Identification systems are reportedare few and can be classified as either surface marking methods or inclusion of identify devices within prosthesis[2]. A simplified procedure which iswell-documented and having adequate utility i.e., incorporating denture marking devices for identification was used in this case.

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Case Report

A completely edentulous patient (Figure.1) reported to the Department Of Prosthodontics in the V.Y.W.S dental college and Hospital. While recording the case history it came to know that the patient lives in an old-age home and along with her lives many denture wearers. So for the convenient of the patient we planned for giving identification in the denture.

- Patient was educatedregarding the prosthesis and also was explained about the advantages of denture marking.
- Routine clinical steps while denture fabrication were performed and the denture was fabricated (Figure. 2).
- As a part of identification device, a tin foilwas inserted after the denture fabrication.
- The method selected in this case for denture identification was inclusion method using a tin foil (obtained from IOPA film).
- An acrylic block (size 40x10x3 mm) (Figure.3) was made and the name of patient was carved on it.
- The tin foil (Figure.4) was perfectly adapted to have the name engraved with perfection.
- At palatal slope region a space was created to insert the tin foil having the patients name engraved.
- This tin foil was then placed in the space so created and after proper orientation the space with inserted tin foil was closed by using a self-cure clear acrylic to match the sane surface of the portion.
- After a crylization of the clear acrylic the prosthesis was then finished and polished (Figure.5).

- The insertion procedure was carried out as routine step with adequate instructions regarding use and maintenance of the prosthesis.
- Routine follow up were carried out to ensure difficulty free use of the prosthesis.

DISCUSSION

The denture identification method has following advantages[3]

i. It provides easy way to identify the denture wearer in cases of amnesia or senility, loss of memory, psychiatric cases, homicide, suicide, victims of fire, explosion, floods, earthquake, plane crash, or war etc.
ii. A method of identification of the denture user in cases of lost and found.
iii. It is the rapid and better method other along with accuracy in identification of the victims.
iv. In the forensic laboratory, the experts will be able to easily find the details with ease to help in identification of the victim with the identification devices placed within the prosthesis.
v. Collection of general data for subsequent uses and also to ensure the correct denture delivery of the prosthesis to the proper patient.

Requirements

The prosthesis / restoration should have to fulfill the following considerations to use it as identification devices for the victim[4]

i. The strength of the prosthesis should be adequate to avoid fracture or breaking.
ii. Easy for incorporating in prosthesis and with less cost.
iii. The identification system should be simple and yet to reveal the identity with available resources.
iv. The device should be visible and shall have durability equal to that of restoration or prosthesis.
v. it should be biocompatible and also with the environmentwhere the prosthesis is being used.
vi. It should not affect the esthetic value of the prosthesis.
vii. It should have enough storage life and should have no effect of cleaning agent on its strength and colour.

Various Methods and Devices Used For Identification[5]

Surface methods	Inclusion methods
a.) Scribing or engraving method b.) Embossing method	a.) Denture Bar coding b.) Lenticular card method c.) ID band method d.) Paper Strip method e.) T bar method f.) Laser etching g.) Electronic Microchips h.) Photographic method i.) RFID Tags j.) Lead Foil

Surface methods

a) Scribing or engraving method: In this method letters or numbers are engraved on the denture surface with the help of a small round dental bur.
b) Embossing method: In this technique name and other particulars of the patient are scratched on the master cast. After processing it produces stamped or embossed letters on the impression surface of dentures.

Inclusion methods

- ***Denture Bar coding***: A bar code applicable to dentures consists of a machine-readable code of a series of bars and spaces printed in defined ratios.
- ***Lenticular card method***: In this technique a lenticular lens is used to produce images with an illusion of depth, morph, or the ability to change or move as the image is viewed from different angles.
- ***ID band method***: In this method stainless steel metal band containing an identifiable coding system representing patient details is placed in a shallow recess prepared in the denture base. The band is covered with clear acrylic resin, trimmed and finished in the usual manner.
- ***Paper Strip method***: It utilizes onion skin paper. The acrylic resin fitting surface situated adjacent palatally between the ridge and the center of the palate is moistened with monomer on a small brush. The strip of typed paper is laid on this surface and the paper is moistened with the monomer. Clear resin is then placed over the paper before final closure of the denture flask.
- ***T bar method***: A T-shaped clear PMMA resin bar is constructed by cutting baseplate wax and then is processed and finished in clear PMMA. An identification printed label (reduced in size, print-face inward) against the flat section of the bar is fixed. It is then surface polished to produce a clear window displaying the ID label.
- ***Laser etching***: Copper vapor laser is used to etch the non-impression surface of denture with patient's information.
- ***Electronic Microchips***: The patient's information is etched onto an electronic microchip measuring 5×5×0.6 mm.
- ***Photographic method***: In this technique patient's photograph is embedded in the denture with the help of clear acrylic resin.

1. ***RFID Tags***: The radio-frequency identification (RFID) system consisted of a data carrier, or tag, and an electronic handheld reader that energizes the transponder by means of an electromagnetic field emitted via the reader's antenna. It then receives the coded signal returned by the transponder and converts it into readable data.
2. ***Lead Foil***: A piece of lead foil from a used IOPA radiographic film is cut and patient's details are engraved with a sharp pointed pen or instrument and is embedded in the denture with the help of clear acrylic resin.

Figure1 Before treatment

Figure 2 Denture fabricated

Figure 3 Acrylic block with name engraved

Figure 4 Tin foil after adaptation on the acrylic block

Figure 5 Maxillary denture with denture identification

Figure 6 After treatment

Summary and Conclusion

The method described in this article is simple and can be used by operator with routine armamentarium available in any dental clinic and laboratory. The tin foil should have relevant details of the patient to ensure proper identification of the user. The disadvantage of this technique may be the seepage of excess monomer in case of self-cure resin, highly technique sensitive, development of air voids in the resin placed over the tin foil[6,7]. Proper maintenance with adopting manufacturer's instruction will minimize these problems. Better methods may be to insert the identification device during the packing stage of the denture[8]. The method described here is simple, manageable with routine working pattern with available equipment. No separate armamentarium is required. Yet it is considered as effective method of revealing identity of the patient using denture during crisis.

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