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CASE REPORT

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WIDENING THE HORIZON OF FORENSIC DENTISTRY

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ABSTRACT

Denture labelling is not a new concept in either prosthetic or forensic dentistry and its routine practice has been urged by forensic dentists internationally for many years. Prosthodontists are playing very important role in forensic dentistry as they are concerned with fabrication of various prosthesis which can serve as an important tool for identification. The main objective of this article is to discuss the various methods available for denture marking along with three case reports.

Key words: Denture labelling, Denture identification and Denture markings.

INTRODUCTION

Forensic dentistry is one of the most innovative and upcoming branch of dentistry. Till date, its prime use was restricted to cases of mass disasters like earthquakes, plane crashes, etc which limits its practical utility.[1] But now in this current social scenario as more and more teenagers are getting accessed to cyber world, there is sudden rise in the number of youngsters getting involved in serious crimes and also the crime rates. This increase in crime has led to the usage of forensic dentistry in medico legal investigations.[2] A number of commercial methods for labelling of dentures are available and attention should be paid to offer patients an esthetically suitable denture marking system that is inexpensive and permanent.

Denture Labelling Methods

Denture labelling methods are of two types: Surface marking method and method of inclusion.

Surface Marking Methods

- 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.[3]

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. Denture bar coding can be used with crown and bridge restorations and can survive temperatures above 600°C, which can be encountered in plane crashes. It gives exact information in every situation regardless of whether fire or water is involved but requires expensive special equipments.[4]

Computer-Printed Denture Microlabeling System: The identification label bearing the patient's details was computer generated and placed in slot in the denture followed by saturated clear resin polymer applied to seal it & cured.[5]

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***T-Bar*:** A T-shaped clear PMMA resin bar is constructed in clear PMMA and identification printed label (reduced in size, print-face inward) is fixed against the flat section of the bar. The thickness of the block is reduced so as to place it in the groove made in the denture.[6]

Electron microchips: The patient's information is etched onto a chip measuring 5×5×0.6 mm. The incorporated chip performs well under high temperatures (600°C), has excellent acid resistance, is radio-opaque and bonds well with acrylic resin.[7]

Photograph: The use of the patient's photograph embedded in clear acrylic denture base as a marker is particularly useful in the countries with low literacy rate where a photograph is the easiest method of identification.[8]

Lead Paper Label And Radiographs: Using a lead foil paper found in the intra-oral x-ray film to type the patient's data with any manual ribbon typewriter. During the trial closure stage, the flask is reopened and identification label is incorporated. When a periapical radiograph of the denture is taken, the patient's details would appear clearly in it.[7]

CASE REPORT 1

A 45 year old male patient reported to our department with a chief complaint of difficulty in chewing food due to his missing teeth in the upper and lower arches since 1 year. His history revealed that he was a complete denture wearer since 6 months but was dissatisfied with the previous one. On having a conversation with the patient, it was analysed that he was an elite class personality and demanded of special denture which could be differentiated from other dentures. So, it was decided to fabricate a maxillary and mandibular complete denture by using inclusion of Electron microchips.

Technique:

- The denture was flasked in a normal way to trial closure.
- The cellophene packing sheet was removed followed by removal of pink acrylic from the palatal aspect of the maxillary denture.
- A layer of cold mold seal was applied on this surface.
- Then, a layer of clear heat cure acrylic resin was applied on the palatal surface of the maxillary denture.
- A chip (san disk) measuring 5x5x0.6mm containing patient's information in it was embedded in this layer of clear acrylic resin.
- Then the pink heat cure acrylic resin was placed over this clear acrylic resin layer and the flasks were closed and tightened.
- Polymerization of the denture was done in the conventional manner followed by deflasking, trimming and polishing of the denture.
- A reader was connected to transfer details to computer. (Figure 1)

Figure 1

CASE REPORT 2

A 70 –year old male patient reported to our department with a chief complaint of inability to chew food. His history revealed that he was edentulous since 5 years and was wearing complete denture since last 2 years which he misplaced recently. So, it was decided to fabricate a maxillary and mandibular complete denture by using dental labelling technique - Lead Foil technique.

Technique :

1) A piece of lead foil was cut into the desired size (approx. 2.5 and 3.5 cm of length and 1.5 cm width.) With a small round end bur, the patient's name and OPD number was engraved on the foil. Excess foil was trimmed with a pair of sharp scissors to make the nameplate as small as possible.

2) Complete denture trial was done in a routine manner and then laboratory procedures were initated.

3) The trial denture was sealed to the master cast and flasking was done followed by dewaxing.

4) Small amount of heat cure acrylic resin was mixed and placed in the posterior mid palatal region of maxilla.

5) Lead foil carrying the patient's detail was placed in the specified areas and again covered with the acrylic resin. The idea was to sandwich the lead foil in layers of acrylic. The acrylic resin was lightly chip blowed 2 to 3 times with the blow torch and care was taken not to overheat or burn the acrylic resin. This was done to prevent the shifting of the acrylic and lead foil during trial closures.

6) Mixed pink heat cure acrylic was packed into the mold in the dough stage and trial closures were done till no flash appeared.

7) Bench curing and polymerization of the dentures was done followed by deflasking, trimming and polishing of the dentures to a good finish.

8) An IOPA radiograph was taken of the area where the lead foil was placed which revealed the complete detail of the patient. (Figure 2)

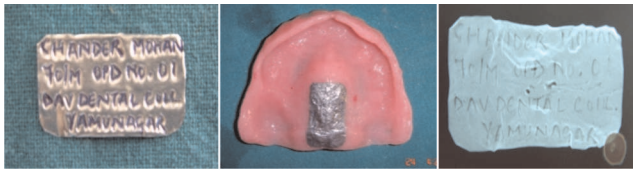

Figure 2

CASE REPORT 3

A 60 –year old male patient reported to our department with a chief complaint of missing teeth in the upper and lower arches since 3 years. His history revealed that he was under depression since 4 years and was on medication for the same. Due to these medications, it was his tendency to forget things. So, it was decided to fabricate a maxillary and mandibular complete denture by using dental labelling technique – Paper Strip Method.

Technique:

- The denture was flasked in a conventional manner to trial closure using cellophane sheet.
- This sheet was removed followed by removal of pink acrylic from the distolingual aspect of the mandibular denture and distopalatal aspect of maxillary denture.
- A layer of cold mold seal was applied on the surface.
- Then a layer of properly mixed and kneaded clear heat cure acrylic resin was applied on the surface in which a strip of typed paper with the patient's name was embedded after moistening it with monomer.
- Then the pink heat cure acrylic resin was replaced over this clear acrylic resin layer and the flasks were closed and tightened.
- Polymerization of the denture was done in the conventional manner followed by deflasking, trimming and polishing of the denture. (Figure 3)

Figure 3

DISCUSSION

As denture labelling helps in identifying the individuality of a person, so it is the duty of the dentist to inform the patient about the positive benefits of it and motivate the patient for the same. Some requirements which should be fulfilled while using denture marking techniques as suggested by Kruger – Monson[10] include that the technique must be easily accomplished, should be efficient, durable and visible, the strength of the prosthesis must not be compromised and the markings must withstand fire and humidity. In addition, the identification label should be radiopaque.[9] Of the various techniques available for denture markings, we have used lead foil technique, paper strip method and inclusion of electron microchips. The lead foil used in

the technique is thin and heat resistant and does not hamper the strength of denture. The paper strip method allows for easy identification of the patient's denture and is the most inexpensive method. In this modern era, using of higher technology like inclusion of electron microchips in the dentures is advantageous as they perform well under high temperatures, are radiopaque and bond well with acrylic resin. These methods reveal personal identification of an individual which is an indispensable requirement for forensic and medico-legal investigations.

CONCLUSION

The value of labelling dentures is immense when a positive identity of an individual is required and to maintain legal records. There is a need to offer patients an esthetically suitable denture marking system that is inexpensive and permanent. Hence, an appropriate framework within dental education is required to ensure that both student dentists and student dental technologists are exposed to denture marking methodologies.

REFERENCES

1. Lamb DJ. A simple method for permanent identification of dentures. J Prosthet Dent 1992; 67(6):894.
2. Ling BC. Computer-printer denture microlabeling system. J Prosthet Dent 1998; 79(3):363-64.
3. Stavrianos CH, Petalotis N, Metska M, Stavrianou I, Papadopoulos CH. The value of identification marking on dentures. Balk J Stom 2007;11:212–216.
4. Aguloglu S, Zortuk M, Beydemi K. Denture barcoding: a new horizon.Br Dent Journal 2009;206(11):589-590.
5. Thomas CJ. The role of the denture in identification: A review. J Forensic Odontostomatol 1984;2:13–16.
6. Ryan LD, Keller JB, Rogers DE, Schaeffer L. Clear acrylic resin T-bar used in denture identification. J Prosthet Dent 1993;70(2):189–190.
7. Richmond R, Pretty IA. Contemporary methods of labeling dental prostheses—A review of the literature. J Forensic Sci. 2006; 51(5):1120–1126.
8. Anehosur GV, Acharya AB, Nadiger RK.Usefulness of patient photograph as a marker for identifying denture-wearers in India Gerodontology 2010;27:272–277.
9. McEntee MI, Campell T. Personal identification using dental prostheses. J prosthet Dent 1979;41(4):377-380.

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