

Denture Marking Revisited

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ABSTRACT

Denture marking is accepted as a means of identifying dentures and persons in geriatric institutions or post mortem during massive calamities. Marking dentures has been considered as an important part of forensic dentistry. It is an arduous task to identify an edentulous individual who was involved in disaster, unless his dentures were uniquely marked. Identification is essential requirement of any medico- legal investigation because a wrong identity may pose a problem in delivering justice.¹ A number of labeling systems are available but majority of the methods are expensive, time consuming, and may not be suitable for all dental practitioners to use. The labeling systems can be broadly separated into either surface marking methods or inclusion systems. The value of labeling dentures is immense when a positive identity of an individual is required. This article describes briefly the various methods of denture labelling and a procedure for denture recognition.

KEYWORDS: Denture labeling, Forensic dentistry, Denture identification, Inclusion methods, Surface methods.

INTRODUCTION

In most of the cases, dental recognition is on the basis of caries, restorations and prosthetic devices. The importance of denture identification was brought into focus by Dr. Robert H. Griffiths during his tenure as a President of American Dental Association (Stevenson, 1987).² In 1835, the burnt body of the Countess of Salisbury was identified by her golden dentures and this was the first known case of identification by dentures.¹

Labeling of all dentures is recommended by most international dental associations and forensic odontologists. Identification of dentures provides vital clues in recognizing the denture-wearer and takes vital significance especially in a forensic scenario effectively bringing closure to the case. The purpose of denture marking thereby not only assists in the return of a lost denture, but also it helps in recognition of edentulous persons who are either living or dead.

A number of labeling systems are available and can be broadly separated into either surface marking methods or inclusion systems. The mark should be placed in a part of the denture without affecting the resistance of the denture, it will not be visible when the patient wears them, and it will be relatively protected in case of a fire. Therefore, the posterior regions of the lingual flange and palate are recommended.³

Majority of the methods are expensive, time consuming, and do not permit the incorporation of large amount of information. This article reviews various methods involved in labeling dentures.

METHODS IN MARKING DENTURES

SURFACE METHODS: In the surface marking method, the marks are located on one of the denture

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surface.

1. Engraving the denture: In this technique, letters, or numbers are engraved with a small round dental bur on the fitting surface of the maxillary complete denture (Figure 1). The first letter is the initial letter of the name and the second letter is the initial letter of the surname. This engraving can cause detrimental effects such as food debris getting lodged leading to bacterial infection.⁴

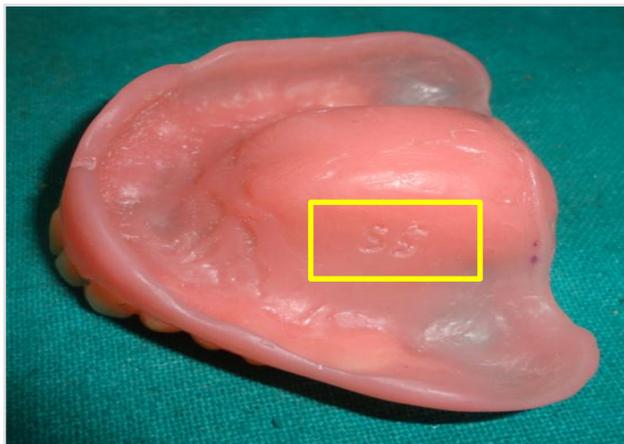


Fig 1: Initials of the patient engraved on the denture

2. Embossing: In this technique, embossed letters are made by scratching or engraving with a dental bur on the master cast. This produces embossed lettering on the fitting surface of the denture. But it has been associated with malignancy, possibly due to continued tissue irritation.

A better way is to cover the embossed marking on the denture framework with the denture base acrylic and process it to finished state so that it causes no irritation to the tissues. This is done by insertion of marked metal plate into the denture using an embossed plastic pattern prepared with a label marker.^{3,4}

3. Writing on the tissue surface of denture: In this technique, patient's identification details are written on the tissue-fitting surface of the finished denture surface with a fibre-tip pen (Figure 2). The mark is better protected against abrasion by at least two layers of varnish. The varnish used is made by dissolving 5 g of acrylic resin polymer in 20 ml of chloroform and has excellent resistance to abrasion, cleaning and disinfecting agents, and does not affect the strength of the denture.^{3,4}



Fig 2: An identification number is written on the tissue-fitting surface of the finished denture

INCLUSION METHODS: The inclusion methods are more permanent and the marks are made by using metallic or non-metallic materials, which are enclosed in the denture at the packing stage.

1. Computer-printer Denture Micro-labeling

System: In this technique, the patient's name, age, sex, and date of denture insertion was typed on a computer and then this information was printed on a transparency sheet. Cyanoacrylate adhesive was placed over the printed matter & a same size blank transparency sheet is placed over it to prevent the markings from the monomer of denture base resin. The micro label was then incorporated into denture by preparing a slot of 1 mm deep on the finished surface of denture base. Over the label, clear autopolymerising acrylic resin was mixed & placed in small increments. The denture was then removed & polished.^{2,5}

- Paper strips (onion skin paper) and stainless steel metal band can also be used for marking dentures instead of using transparency sheets.^{1,4}
- The Swedish ID-Band has now become the international standard among ID bands. It is resistant to very high temperatures, up to 1100°C, is inexpensive, requires no special instrumentation, radiopaque and aesthetically sound, however, a metal insert does cause weakening of the denture at the point of insertion.⁴

2.T-Bar: A T-shaped clear PMMA resin bar is used which acts as a convenient vehicle for embedding the label in the prosthesis with light-cured acrylic resin. This results in a finished surface which acts as a protective cover and ensures an extraordinarily clear window for viewing the label.⁶

3.Laser Etching: Here a copper vapor laser (CVL) is used that can etch a patient's identification into the metal surface of a partial denture. This method is not only expensive but also requires specialized equipment and technicians to perform the procedure.⁴

4.RFID –TAGS (Radio-frequency Identification): The RFID system consists of a data carrier, generally referred to as tag or transponder, and an electronic handheld reader. The information is stored in the chip itself, and the hand-held reader can obtain all data from the chip. They are preferred because of their small size (8.5×2.2 mm) and the large amount of denture user data that can be stored in them. RFIDs are not widely used due to the high cost of manufacture. Another disadvantage of the technique is that the tag is not fireproof.⁷

5.Lenticular System: Lenticular printing is a technology in which 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. Lenticular printing consisting of creating a lenticular image from at least two or more existing images, these images are then printed on the back of a synthetic paper and laminated on the lens. Lenticular images do not require special glasses or devices to read the data. The disadvantage of this technique is that the information can never be changed and it may not withstand a fire.⁸

6.Denture Barcoding: A bar code consists of a machine-readable code of a series of bars and spaces printed in defined ratios. Bar coding is done on a printed paper of 15 × 25 mm, which is further laminated and then incorporated in a maxillary complete denture. This provides accurate information and is unaffected by extremes of temperature and frequently used oral solutions. However, it requires expensive special equipments.⁹

7.Photograph: Patient's photograph embedded in clear acrylic denture base. Useful in the countries with low literacy rate where a photograph is the easiest method of identification.

DISCUSSION

Denture marking or labelling is not a new concept in either prosthetic or forensic odontology, and forensic odontologists have proposed its routine international practice for many years. Over the years, 2 methods of denture marking have been proposed: the surface marking method and the inclusion method. The surface method is easy to apply and relatively inexpensive. Skilled personnel are not necessary, but they wear off very easily and should be reapplied. The inclusion method is permanent and provides a more predictable result, but it could weaken the structure and create porosity. It is more expensive and is usually made by trained personnel in dental laboratories.

The Swedish identification band has been recognized to be of international standard accepted by FDI, however, researchers have shown that the metal band is vulnerable to extreme temperatures.¹⁰ Moreover; these methods require equipments not readily available in the dental laboratories. Legislation for denture marking exists only in Sweden and Iceland. In 1986, the recommendation issued by the National Board of Health and Welfare of Sweden stated that “the patients shall always be offered denture marking and be informed about the benefit. Denture marking is not permitted if the patient refuses it”.³

CONCLUSION

The reasons for not marking dentures were cost, lack of awareness of standards and recommendations, and a belief that it was of little importance. Since there is no international consensus, international collaboration is needed to solve the issue of denture marking for clinical and forensic purposes.

REFERENCES

1. Mohan J, Kumar CD, Simon P. “Denture marking” as an aid to forensic identification. The Journal of Indian Prosthodontic Society 2012; 12(3):131-136.

2. Sanyal PK, Badwaik P. Methods for Identification of Complete Dentures. *People's Journal of Scientific Research* 2011; 4(2):61-64.
3. Stavrianos C, Petalotis N, Metska M, Stavrianou I, Papadopoulos C. The Value of Identification Marking on Dentures. *Balk J Stom*, 2007; 11:212-216.
4. DattaP, Sood S. The various methods and benefits of denture labelling. *J Forensic Dent Sci.* 2010; 2(2): 53–58.
5. Ling BC. Computer-printer denture microlabeling system. *J Prosthet Dent* 1998; 79:363-4.
6. Ryan LD, Keller JB, Rogers DE, Schaeffer L. Clear acrylic resin T-bar used in denture identification. *J Prosthet Dent* 1993; 70:189-190.
7. Millet C, Jeannin C. Incorporation of microchips to facilitate denture identification by radio-frequency tagging. *J Prosthet Dent* 2004; 92:588-590.
8. Colvenkar SS. Lenticular card: A new method for denture identification. *Indian J Dent Res* 2010;21:112-114.
9. Nalawade SN, Lagdive SB, Gangadhar SA, Bhandari AJ. A simple and inexpensive bar-coding technique for denture identification. *J Forensic Dent Sci* 2011;3:92-94.
10. Bansal PK, Sharma A, Bhanot R. Denture labeling: A new approach. *Contemp Clin Dent.* 2011;2(2):76–78.

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