

Denture identification using unique identification authority of India barcode

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Abstract

Over the years, various denture marking systems have been reported in the literature for personal identification. They have been broadly divided into surface marking and inclusion methods. In this technique, patient's unique identification number and barcode printed in the patient's Aadhaar card issued by Unique Identification Authority of India (UIDAI) are used as denture markers. This article describes a simple, quick, and economical method for identification of individual.

Key words: Bar code denture identification marking, denture label, denture marking system, human identification

Introduction

Denture identification systems are important for hospitalized patients, patients in long-term care facilities, old-age homes, for forensic identification purposes, and other social reasons.^[1-3] After major disasters such as earthquakes, fires, or floods, accurate and early identification of the dead and injured becomes of utmost importance. At times, the only identifiable remains are a victim's partial or complete dentures.^[4]


Our aging society, with the resultant growth in nursing home and hospital populations has increased the need for the easy identification of the prosthetic devices to be permanently labeled.^[4] Denture labeling is becoming more important each day as air travel and tourism are increasing.

Regulatory bodies have recommended that all the prosthesis to be marked with an identification system; therefore, several techniques have been used in private and commercial

laboratories to identify dentures.^[1] The importance of denture identification was brought into focus by Dr. Robert H. Griffiths during his tenure as a President of American Dental Association.^[5] Over the years, various methods of denture marking have been reported in the literature.^[1,3,4,6-9] These include surface marking and inclusion techniques using metal or non-metal materials, microlabels, and electronic chips. The majority of these techniques may be time-consuming, may not be esthetic, and do not permit the incorporation of a large amount of information. This article describes a simple, quick, and economical method for identification of individual.

Technique

1. Post fabrication of the denture, scan the patient's unique identification number and barcode printed in the patient's Aadhaar card issued by Unique Identification Authority of India (UIDAI). So there is no need to collect the patient's information and store it in the denture-embedded electronic storing device because the unique identification number and barcode carry information about the patient which is collected and centrally maintained by UIDAI a government regulatory body, so the accuracy of the data is trustworthy and also accessible from a remote location.
2. Minimize, print, and cut the unique identity number and barcode sheet in appropriate size.
3. Stick the sellotape on the front and back side of the printed paper which contains the unique identity number and barcode. By doing this, the printer toner is

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placed away from the monomer of denture base resin. Thus, the deterioration of legibility is reduced. Now the unique identification label is ready for denture identification technique.

4. In this technique, a slot of 1 mm deep is prepared on the finished surface of denture base, which was slightly wider than the size of the label. One drop of cyanoacrylate adhesive (Fevi Kwik, Pidilite Industries Ltd, Mumbai, India) is placed in slot to properly position the label.
5. Clear autopolymerizing acrylic resin (Dental Products of India, Mumbai, India) is mixed and placed in small amount over the label. The acrylic resin was trimmed and finished in the usual manner [Figures 1 and 2].
6. The denture is then inserted in the patient's mouth [Figures 3 and 4].

Discussion

Denture marking is accepted as a means of identifying recovered bodies of those killed in natural disaster,

accidents, and aviation disasters. It also helps in identifying an unconscious person as well as identifying misplaced dentures in geriatric institutions.^[10,11]

Denture marking is regulated by law only in Sweden and Iceland. In 1986, the "National Board of Health and Welfare" of Sweden, which is the supervising authority on the health sector in Sweden, legislated and made it mandatory for all dentists to comply with the following requirements: "The patient shall always be offered the opportunity to have his/her dentures marked with a personal number." In addition to the above, the dentist should always inform clearly and motivated the patient as to the benefits of the denture marking.^[12,13] In the USA, denture marking is mandatory in 21 states, whereas in New York state denture marking is performed only after request of the patient. Several states impose the obligation to mark dentures on long-term care facilities and denture marking is compulsory for the army.

Over the years, various methods of denture marking have been reported in the literature.^[1,3,4,6-9] These include surface



Figure 1: Unique barcode and number label placed within the maxillary denture



Figure 2: Unique barcode and number label placed within mandibular denture



Figure 3: Intraoral photograph of maxillary denture with unique barcode and number



Figure 4: Intraoral photograph of mandibular denture with unique barcode and number

marking and inclusion techniques using metal or non-metal materials, microlabels, and electronic chips. Automatic identification using barcodes incorporated into dentures has been developed.^[14] Barcode systems can contain large number of data.

The prepared label can be inserted into denture by pre-fabrication and post-fabrication techniques. In pre-fabrication technique, the label is inserted on the intaglio surface after trial closure of denture flasks. The intaglio surface is the area where least adjustment is done during denture insertion. The background of the label is clear and only the black markings of the label can be clearly seen even after relining of dentures, if required, at further appointments.^[1]

In post-fabrication technique, the label is inserted in a prepared site, which is located in the flattest portion on the cameo surfaces of the lingual flange of the mandibular denture and/or palate of the maxillary denture. These sites do not interfere with esthetics of the denture. Generally, these sites are acceptable for the patient. These areas are also not removed during post-insertion adjustments or routine relining procedures.^[4] Added advantage of this technique is that the identification label appears on the denture polished surface covered by a layer of clear acrylic resin thick enough to resist normal cleansing and even some surface loss if adjustment is required.^[2]

But the majority of these techniques may be time-consuming, may not be esthetic, and do not permit the incorporation of a large amount of information. In this technique, patient's unique identification number and barcode are used for denture identification. The unique identification number and barcode carry information about the patient, which are collected and centrally maintained by UIDAI a government regulatory body so the accuracy of the data is trustworthy and also accessible from a remote location. Aadhaar is a 12-digital individual identification number issued by the UIDAI on behalf of the Government of India. Each Aadhaar number will be unique to an individual and remain valid for life. The technique described in the article is a quick and easy technique.

Stevenson's technique of rubbing lead pencil or ink pen over fine grooves to make them more evident is not a permanent method and may fade after subsequent use of denture. It would require frequent remarking, possibly every 3-4 weeks. Advantage of this method is that, it can be used for short-term hospitalized patients.^[5] The technique described by Heath *et al.* is a temporary method and the denture has to be remarked and layers of sealant have to be reapplied on a regular basis which may depend on patient's use.^[15] Fiske's technique showed that the legibility of written material deteriorates as a result of interaction between acrylic resin monomer

and some inks.^[16] The technique reported by Berry *et al.* (1995) for identification of prosthetic devices with an alternate procedure using Triad gel (Triad VLC system, Dentsply International, Inc, York, PA) is the best regarding polymerization shrinkage, but requires expensive investment of material and curing chamber which may be not possible in every clinic.^[4]

One of the important criteria for any denture identification system is the protection of the label-ink or toner. It has to be protected from the monomer of the denture base resin, the high temperatures of denture processing, finishing and polishing of dentures, and wear of the dentures.^[1] In the suggested technique, the toner is properly covered in two sheets of sellotape. Thus, the longevity of the denture label is obtained. The procedure is easy to use and very cost effective, as it uses equipment that is available in any institution or office.

Summary and Conclusion

This article describes easy-to-use and very cost effective way of denture labeling. The equipments required are easily available in any institution, dental laboratory, or dental clinic. By this method, denture labeling could be done in existing prosthetic devices which were not labeled previously or it could be incorporated in newly constructed prosthesis. The procedure could be easily performed by dental auxiliary personnel, thereby reducing workload for the dentist.

Significance of bar coding

The prosthesis or any appliances such as spectacles, hearing aids, complete dentures or any prosthesis that offer space for barcoding them with individual's UIDAI would prove of valuable assistance in bio-identification of the individual.

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