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Denture Marking For Forensic Identification Using Aadhar Number : A Case Report

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ABSTRACT

Labeled dentures are important in identifying the owners in case of an accident, loss of memory, states of unconsciousness, being inadvertently misplaced in hospital admitted patients or, in identifying the bodies of those who have died in a calamity. Identification through labeled dentures plays a key role in forensic scenario. Marking dentures is an important part in forensic dentistry, although there is no standardized method is followed. Over the years, many denture marking systems have been reported in the literature for personal identification. In this technique, patient's unique identification number printed in the patient's Aadhaar card issued by Unique Identification Authority of India (UIDAI) is used as denture markers. This article describes a simple, practical and affordable, post-fabrication paper-based marking system and more importantly, emphasizing on the advantages of using the unique identification number for identification of person.

Keywords : Aadhar Card, Labeling , Engraving Method, Embossing Method, Bar Code.

I. INTRODUCTION

The importance in identification of dentures was brought into focus by Dr. Robert H. Griffiths during his tenure as a President of American Dental Association.[1] The identification of the victims in natural calamities and accidental deaths is very difficult task and the early identification is of prime importance. Dental identification plays an important role in identifying victims of mass disasters such as fire, drowning and accidents. There are many ways of identifying the bodies by the forensic experts in which the dentists in general and prosthodontists in particular plays an important role by identifying the victims with their natural teeth, caries teeth, restorations on the teeth like fillings or dental prostheses including crowns, partial, or complete dentures, bridges and implants The forensic experts also utilize palatal Rugoscopy and DNA analysis as an aid for identification purpose. All these will become easy when the antemortem records are available i.e., documentation of patient details or the prosthodontic work should be labeled marked.[2]

The council on prosthetic services and dental laboratory relations given some standards to denture marking:[3]

They are:

1. It must be easy, quick and inexpensive to apply.
2. The identification system must be efficient.
3. The marking must be visible and durable.
4. The identification must withstand humidity and fire.
5. The identification mark should be cosmetically acceptable.
6. The identification mark should be biologically inert
7. Possible to retrieve after an accident
8. Acid resistant /resistant to every day cleaning and disinfecting agents.
9. The strength of the prosthesis must not be jeopardised.

The advantages of having denture labelled/marked are: [4]

a. To identify an unknown denture wearer in cases involving amnesia or senility, loss of memory, psychiatric cases, homicide, and suicide, victims of fire, explosion, floods, earthquake, plane crash, or war.

b. In cases of a denture lost and the same was found, then the denture can be returned to the owner.
c. A rapid and accurate method of identifying unknown victims compared to finger printing.
d. Dental technicians will easily identify a denture, if it is marked / labelled.
e. To ensure the correct denture delivery to the respective patient.

Classification

- Broadly classified into:
  - ✓ Surface marking methods
  - ✓ Inclusion methods

Surface marking methods

a) Scribing or Engraving method,
b) Embossing method
c) Writing on the tissue- surface or the polished surface.

Inclusion methods

(a). ID-Band
(b). Paper strips
(c). T-Bar
(d). Laser Etching
(e). Electron Microchips
(f). Radio-Frequency Identification (RFID)-tags
(g). Lenticular System
(h). Denture Bar coding
(i). Photographs.

II. METHODS AND MATERIAL

Case report:

- After the denture fabrication , scan the patient's unique identification number 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.
- Minimize, print, laminate and cut the unique identity number sheet in appropriate size.(Fig. 1)

Figure 1. Laminated unique identification number

- The most suitable site are in
  - ➢ mandibular denture - lingual flange.
  - ➢ maxillary denture - posteriolaterally in the palate or, if sufficient space exists, buccal to the tuberosity.

- Position the laminated label in 1 mm depth recess, created on the palatal surface of the complete denture, which was slightly wider than the size of the label.(Fig 2) One drop of cyanoacrylate adhesive is placed in slot to properly position the label.

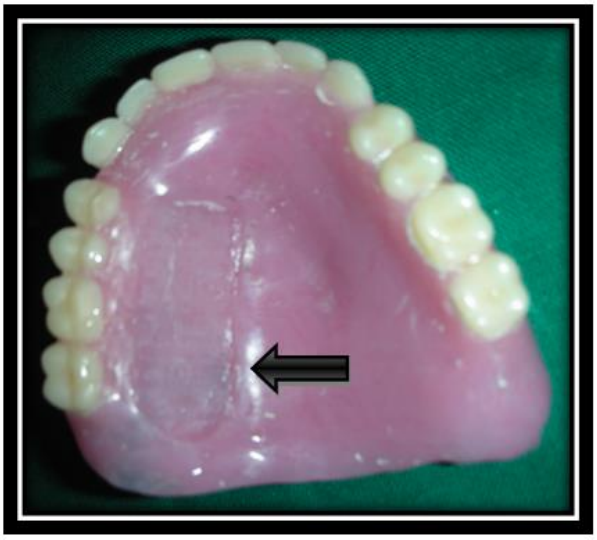

Figure 2. A recess of 1mm depth created on the palatal surface

- The finished surface of denture, fill the recess with clear autopolymerizing resin before trimming and polishing in a conventional manner.(Fig 3)

Figure 3. Finished dentures with labels.

Figure 4. Intra oral pictures with labeled dentures

III. RESULTS AND DISCUSSION

The role of Prosthodontics in the field of forensic dentistry can be discussed related to the 'unidentified victims' by 3 ways.[2]

(1).Dentulous victims,

(2)Edentulous with the prostheses, including marked prostheses and unmarked prostheses,

(3)Edentulous without any prosthesis.

Dentulous victims

If the unidentified victims are dentulous, then the general dentist/prosthodontists can identify by examing teeth, missing teeth, caries, restorations such as fillings, onlays, and inlays, crowns, bridge work, and implants. There is documented evidence available in history, which supports this. For example, during the US revolutionary War, Paul Revere a dentist, identified war casualties by their bridge work. The body of Charles the Bold was identified by the absence of a lower tooth.[5]

The guidelines of American Board of Forensic Odontology also supporting the same. Dental Implants can be used as source of victim identification in forensic dentistry.[6]

Edentulous victims with prostheses

The victims with prostheses are marked/labeled

Comparatively it is easy to identify this situation. There are many methods available, but unfortunately no single method is universally accepted one, though the surface method comparatively easy to apply, inexpensive but worn off very easily. Whereas the inclusion methods were more permanent method and provides positive results, but it may lead to porosities in the denture and in turn may weaken the denture. When all the other methods fail to reveal the positive identity of the victim, then the labeled dentures can be trust worthy. The recommended areas for marking the dentures are the posterior regions of the lingual flange of lower denture and the palatal region of upper denture.[4]

Victims with unmarked prostheses

In this type of condition, it is difficult but by applying some methods, it is possible to identify the victims, like the retrieved dentures can be poured and casts can be obtained and compare with the "old casts of victims either from their treated dentist/prosthodontists or from the laboratories from where those dentures were processed". The difficulty lies with this situation is that "the antemortem records" should be preserved. One more method of identification is by DNA analysis. DNA recovered from saliva, and saliva stains attached to materials such as stamps, cigarette butts, and human skin can be used as sources for DNA analysis.[7]

Edentulous without any prosthesis

If the victim is edentulous and without prostheses, then it was really difficult situation for the expert to identify the victim. After a disaster, from an unidentified edentulous victim, a palatal rugae pattern is one of the best and relatively obtainable morphological features, and pattern can be taken from the hard palate.[2]

Denture labelling is following in few countries in the world, like Sweden ,Scotland, UK, 21states in U.S and Australia. In Sweden legislated authority is supervising the denture marking. In US the social security number of the individual is marked.[8]

In the 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.[8]

Added advantage of this current 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.

IV. CONCLUSION

It is very 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 are not labeled previously or it could be incorporated in newly constructed prosthesis. By using the unique identification number 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. The identification of unknown or missing persons by means of denture marking is a very successful method of identification in forensic investigation.11 The importance of denture marking should be emphasized by all law-enforcing authorities and should be promoted among all the dentists, towards making it a compulsory routine dental procedure throughout the world. The dentist should always inform clearly and motivated the patient as to the benefits of the denture marking. The denture marking should not be inserted if the patient refuses.

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