

Role of Unique Identification Number and Barcode of Aadhaar in Forensic Odontology

Dr. Puja Harie Priya M.S MDS¹, Dr. J. Brintha Jei MDS^{2*}, Dr. K. Murugesan MDS³

¹Senior Lecturer, Department of Prosthodontics, Ragas Dental College, Uthandi, Chennai, India

²Associate Professor, Department of Prosthodontics, SRM Dental College, Ramapuram, Chennai, India

³Professor, Department of Prosthodontics, SRM Dental College, Ramapuram, Chennai, India

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*Corresponding author: Dr. J. Brintha Jei

Abstract

Forensic science is an application of scientific knowledge and methodology to criminal investigation and legal problems. Forensic dentistry is the branch which comes under this forensic science that deals with proper handling, examination and evaluation of dental evidence that is presented in interest of justice. Here the dental knowledge is applied to criminal and civil laws. A prosthodontist play a major role in fabrication of prosthesis as identification tool for requirement of medico-legal investigation. This article describes about labelling a denture using Aadhaar card barcode and unique identification number which will be useful for investigation.

Keyword: Identification marking, Denture labelling, Aadhaar card.

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INTRODUCTION

Dr. Oscar Amoedo is the father of forensic odontology his work was established and published in year 1898 and in 1970 it was defined by Keiser-Neilson as a branch of forensic medicine that deals with the proper handling and examination of dental evidence with proper evaluation and presentation dental findings. Dental identification is most vital for any medico-legal investigation to deliver proper justice. American board of forensic odontology had given guidelines for dental identification based on prosthetic devices/missing teeth, caries and restorations [1]. A prosthodontist play a major role in fabrication of prosthesis which was used as identification tool for investigation. Denture marking or labelling is used for identifying a person in a geriatric institutions or post mortem during crimes, war and mass disasters [2, 3] and can also be used for patients who present with loss of memory and unconsciousness. In this case report bar coding method is used it is an automatic identification technology that allows the data to be collected rapidly and accurately of a person, company etc.

CASE REPORT

A patient named Mr. Subbiah of 65 years reported to department of prosthodontics with the chief

complaint of lost denture for past 3 months the patient was retired army personal and now works as security in bank. A detailed case history was taken and patient does not have any relevant medical history. His past dental history was he had extracted all his teeth one year back. On clinical examination patient had a normal residual ridge (Fig 1).

Since the patient had missed the denture, he was unable to remember the misplacing of his dentures and the patient also work as a security in bank if there was any incidence of crime like robbery or fire situations or any other way of disaster to be happened in bank the only way of identifying him would be identification marks on the denture. So we decided to use Bar code [4-8] in maxillary and unique identification Aadhaar number in mandibular complete dentures.

- Secondary impressions were made using zinc oxide eugenol.
- The maxillary and mandibular complete denture was fabricated in the conventional manner. The processed denture was retrieved from the flask, the excess trimming was done.
- The Aadhar card had the QR code and the Aadhaar number and the plan was to incorporate the QR code in the maxillary denture and the Aadhaar

number in the mandibular denture. On the polished surface in the palatal region of the maxillary denture 12mm×12mm square space with depth of 1.25mm was created. On the polished surface in the lingual region of the mandibular denture 5mm×15mm rectangular space with depth of 1.25 mm was created.

- This 2D QR code of the Aadhaar card contains information such as name, age, gender, address, phone number and security number with a code and the Aadhaar number also contain all these demographic data's.
- This QR code and Aadhaar number was made to size 1mm less of the space created in the denture and is printed in a photographic sheet which was then laminated (Fig 2) so that the oral fluid or the methyl acrylate liquid does not dissolve the sheet.
- The laminated sheet was placed in the space created and sealed using clear auto-polymerizing resin (Fig 3).
- Then the denture was finally polished and was inserted into patients mouth. The QR code was scanned using the mobile (Fig 4) which had the decoder its was observed that the code was deciphered.
- Then the code was transformed to text where all information provided in Aadhaar card regarding patient was displayed as text in the mobile. Patient was satisfied with the denture (Fig 5).
- Post-operative instruction regarding maintenance of denture was given.



Fig-3: Incorporated Aadhaar QR code in maxillary and unique identification number in mandibular denture

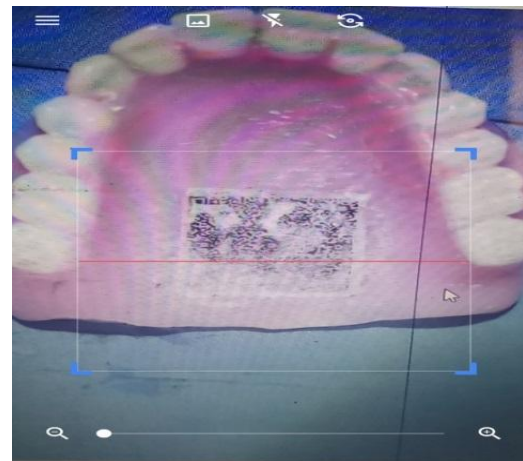


Fig-4: Scanning of Bar code using mobile phone



Fig-1: Intra oral view



Fig-5: Extra oral view of the patient

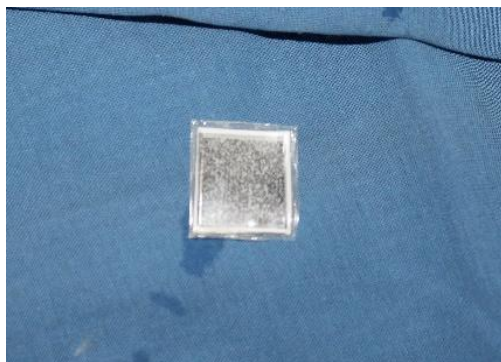


Fig-2: Laminated bar code

DISCUSSION

During recent decades the period of edentulism has been decreased due to awareness of oral health among the people and advancements in dentistry. Having in mind about the very limited data available as medical and dental records for forensic science. An idea of incorporating code and number in the denture was developed to have an easy track on a person. This method is very simple, budget friendly and does not require any difficult or special laboratory techniques for it to be incorporated. So there is a need for the legal and social investigations. American dental association in the year of 1982 has also uplifted the process of denture labelling in prosthesis. This kind of identification can

also be used for old age people who have lost their memory, in missing cases which would be more helpful. Richmond *et al.* stated few important requirements of bar code identification marker has it was placed in the maxillary or mandibular molar region palatally or lingually so that it would protect from heat by use of the tongue [9-12]. Rajendran *et al.* has done a study using a 2D bar code incorporated into maxillary denture and had used the software the decoder translated code into text having basic information of an individual [5-13]. There were many studies done by various authors which had many other identification techniques such as Radiographic Technique where Michael Reason *et al.* had Incorporated Lead foil Invisible. Denture Identification, Milward Shepherd *et al.* had used Automatic Identification of Dental Appliances, Hideo Matsumura *et al.* had Incorporated Cast Embossed Identification Plate into a Partial Denture Framework [14-16]. But all these methods had some or other drawbacks.

So this study was done using Aadhaar card's QR code and Aadhar number incorporated into the dentures this was a comfortable method of acquiring information about an individual during his or her presence or absence in an investigation.

CONCLUSION

In medicolegal issues and forensic investigations the identification marker like Aadhaar OR code and number play a major role as evidence in all kind of investigations. They are also used for elderly patient who have lost their denture by decreasing the anxiety, tension. Thus this method should become mandatory in order to avoid confusions, betterment of lifestyle and improve the speed of investigations.

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