

Denture Identification by Using Matrix Band and Laminated Printout

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Abstract

Many articles on denture marking have been published. Marking dentures has been well documented as a useful aid, if not an absolutely necessary means in the identification of the following: victims of fatal disasters, misplaced dentures in hospitals, nursing homes, and institutions, as well as patients who suffer from unconsciousness or psychiatric problems such as traumatic or senile loss of memory. In particular, misplaced or mistaken dentures in institutes and hospitals for the elderly can be a considerable problem. On this ground, denture identification systems are important for patients in these facilities.

Keywords: Denture identification; Inclusion methods; Matrix band.

Introduction

Denture marking is important for forensic and identification reasons in case patients need to be identified individually. Denture marking is accepted as a means of identifying recovered bodies of those killed in accidents, aviation disasters, and more recently terrorist attacks. It also helps in identifying an unconscious person as well as identifying misplaced dentures in geriatric institutions. Various recommendations have been made concerning the importance of denture identification.[1,2,3]

Labelling of all dentures is recommended by most international dental associations and forensic odontologists. In fact, in some countries and certain states of the USA, the labelling of dentures is regulated by legislation.[4,5] As part of the obligation of the

profession, a dental practitioner needs to maintain meticulous dental records of his patients. This would include documenting the identity of dentures.

The American Board of Forensic Odontology guidelines indicate that most dental identifications are based on restorations, caries, missing teeth and/or prosthetic devices.[6] The purpose of denture marking thereby not only assists in the return of a lost denture, but also it facilitates the identification of edentulous persons who are either living or deceased.

The standard requirements for denture markers are that they should be biologically inert when incorporated into the denture, inexpensive, easy and quick to apply, possible to retrieve after an accident, acid resistant and survive elevated temperatures.[7] The marking must also be esthetically acceptable, visible (readable) and durable without jeopardizing the strength of the prosthesis. In addition, the marking should be permanent and resistant to everyday cleansing and disinfecting agents. The recommended areas for marking therefore are the posterior regions of the lingual flange and the palate.[8]

In countries where unique identification

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numbers are given to each individual, dentures may be marked with that number to enable positive identification. Over the years, various methods of denture marking have been reported in the literature. However, there are two main methods in marking dentures, namely the surface method and the inclusion method.[9] This article describes a simple, cheap, and non-time consuming technique in which a matrix band, which is commonly and easily available is used and inserted into an existing denture by using a self cure acrylic resin.

Various Methods

Datta P, Sood S[4] in their review have classified denture labelling methods as:

1. Surface methods
2. Inclusion Methods

Surface Methods

Surface methods included surface engraving and surface embossing. In Surface engraving a round bur is used to write the details on the denture surface the main drawback of this technique was food collection in the engraved areas. Surface embossing was achieved by scribing on the master cast the details, the details of which will be embossed on the impression surface after the fabrication of the dentures, the drawback of this technique is continuous irritation and inflammation in the areas of embossing an possibility of various pathological conditions.[4,9]

Inclusion Methods

Inclusion methods include:

1. ID-Band
2. Paper strips
3. T-Bar
4. Laser etching
5. Electron microchips

6. Lenticular system
7. Denture barcoding
8. Photograph
9. Radio-frequency identification (RFID)-tags

To date, several surface marking and inclusion techniques have been reported in the literature.[10-23] However, a majority of these techniques are expensive, time consuming, and do not permit the incorporation of large amounts of information.

The barcode system[23] and microchip [21,22] permit storage of large amounts of information, but at the cost of a high price. Also both these systems need to have a handheld reader or computer to read the data.

The inclusion of radio-frequency identification (RFID)-tags within dentures is a cosmetic, effective labeling method permitting rapid and reliable identification of the wearer.[24] 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. Their RFID system consisted of a data carrier, or tag, and an electronic handheld reader that energizes the transponder by means of an electromagnetic field emitted via the reader's antenna. It then receives the coded signal returned by the transponder and converts it into readable data.[24,25] Unfortunately, RFIDs are not widely used due to the high cost of manufacture and data incorporation and may not be available in most dental set-ups.[26]

Lenticular cards and 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 is a multi-step process consisting of creating a lenticular image from at least two or more existing images, and combining it with a lenticular lens. Each image is sliced into strips, which are then interlaced with one or more of the other images. These are printed on the back of a synthetic paper and laminated on the lens. The most common

materials used for making lenticular images are Poly(vinyl chloride) (PVC), Amorphous Polyethylene Terephthalate (APET), acrylic, spectra, and Polyethylene Terephthalate Glycol (PETG). But this method too requires additional equipment for the process of fabrication.[1]

Technique

Step 1: Disinfect, clean, and dry the prosthesis before starting the incorporation process.(Fig 1)

Step 2: select a matrix band which is approximately 10 mm in length. Take a print out of the patient's identification number or

the case paper number.

Step 3: stick the trimmed printout on to the matrix band using a cellophane tape, then cut out the excess.(Fig 2)

Step 4: Cut a 0.5 mm depression slightly wider than the size of the identifier on the external posterior buccal surface of the maxillary denture using a carbide bur, roughen the denture surface with the carbide bur.(Fig 3)

Step 5: Incorporate the matrix band with the information and pepper clear, auto-polymerizing acrylic resin (Rapid Repair; asian acrylate, Mumbai). Process the denture in a pressurized container (Confident Dental

Fig 1. Finished dentures



Fig 2: Laminated Case Paper Number on to the Matrix Band with a Cellophane Tape



Fig 3: Matrix Band Placed in the Space Created for it



Fig 4: Finished Denture with the Matrix Band Incorporated in the Disto-Buccal Flange



Equipments Pvt. Ltd.; Bangalore, India) with warm water (100°F, 20psi) for 15 to 20 minutes.

Stage 6: Remove excess acrylic resin with an acrylic bur and finish and polish the denture, taking care not to touch the surface of the matrix band, to complete the procedure and. Repeat the procedure for the mandibular denture on the lingual surface of the flange.(Fig 4)

Discussion

In the present article, the method to include matrix band from the currently available denture marking methods in various ways was modified and used. The major advantage included making effective use of space. Text can be customised using the word processor program, to include name case paper number etc.

This technique does not require special glasses or devices to read the data. Also, in contrast to the barcode system and microchip, there is no need to have a computer or handheld reader to read the data.

As printout is laminated with first the cellophane tape and later by the autopolymerising acrylic thereby its durability and waterproofing is remarkable. Matrix band with the text is protected from the smudging of details by preventing the reaction of the monomer with the photocopier ink. It also does not interfere with the oral function, because of its small size.

Conclusion

A simple and cost-effective means of denture identification, based on the use of matrix band with laminated printout, is described here. This technique can be used for both complete and removable partial dentures.

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