



WHY TO MEMORIZE WHEN YOU CAN KEEP IT IN YOUR DENTURES.

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ABSTRACT

Identifying unknown or missing people by using denture marking is a successful method of identification in forensic investigation. It is also useful for patients residing in hospitals and community homes where dentures could be misplaced, particularly during cleaning by personnel where there is a chance of loss or mix-up.

The importance of placing identification marks on dentures has long been acknowledged by the dental profession, although no standard method has been developed. Majority of surface marking and inclusion methods are expensive, time consuming, and do not permit incorporation of large amount of information. This article presents a new and easy technique for incorporating large amount of information into the denture by using QR code. It also explains about the importance of keeping medical information into the denture other than mere forensic investigation.

KEYWORDS : Denture labeling, Qr code, forensic dentistry**Introduction**

Identification is an essential requirement of any medico legal investigations because a mistaken identity may pose a problem in delivering justice¹. The value of natural teeth (and associated oral tissues) to forensic dentistry is evidenced many times over in the dental literature. The edentulous patient on the other hand presents a more perplexing problem as far as determination of identity is concerned². The marking of dental prostheses provides an opportunity to give the anonymous / stereotype denture the uniqueness inherent to the natural dentition.

It enables the identification and return of lost or misplaced dentures, which is essential in institutions such as hospitals and residential care homes^{3,4}.

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 temperatures⁵. 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. Various methods have been used for denture identification in the past. A new and simple technique to include large amount of data in denture is by using qr coding.

Material and Method:

A QR-code or Quick response code consists of black squares arranged in a square grid on a white background. Various types of software are available that can facilitate encoding of patient's information and generate a corresponding QR code. With the help of appropriate software, the encoded information can be retrieved by scanning the code with any smart phone. The QR code was made using a qr code generator (<http://www.qr-code-generator.com/>). The basic patient details were entered in it including the name, opd no phone number, and the operator's name. (fig1)

This was then printed on a plain white sheet in 1cm X 1cm size. After printing the code is covered with a cellophane tape so that it does not get damaged during the denture processing.

It is then scanned with a mobile phone to check its scannability. It was now ready to be inserted in the denture.

After try in, the waxed up dentures are sealed to the master cast using additional wax. Later the pattern is invested in the dental flask and dewaxed.

Mix a small amount of heat cure clear acrylic resin .put this mix over the palatal of the maxillary denture and posterolateral region of the mandibular denture.

Now place the qr code over it.(fig 2).

Measured powder-liquid mixture of heat cure denture base resin material should be mixed and packed into the flask at the dough consistency [Fig.3].

Remove the flash.

Bench cure and polymerize the denture according to the manufacturer's instructions.

7. Deflask, trim and polish the denture to complete the procedure [Fig 4]

After the finishing and polishing of denture the qr code is again scanned and checked. (fig.5)



Fig.1- Uploading patient information to generate QR Code.



Fig.2- Clear acrylic (heat cure) and QR code placed in the mold after dewaxing (mandibular and maxillary)



Fig.3 Packing of denture in conventional manner (mandibular and maxillary)



Fig.4. Processed denture after finishing and polishing with QR Code included in it (mandibular and maxillary).



Fig.5 QR Code in denture being scanned using Smart phone.

Discussion

Over the years, various methods of denture marking have been reported in the literature^{6,7,8,9,10,11,12}. These include surface marking and inclusion techniques using metal or nonmetal materials, microlabels, and electronic chips. Automatic identification using barcodes incorporated into dentures has been developed¹³. Barcode systems can contain large number of data. 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. The present technique allows us to incorporate a large amount of data in the form of text V card URL pdf files etc. the method of retrieval of data is also very simple with the scanner being a smart phone which in today's world is almost universal. A major proportion of the elderly are partially or totally dependent on others, and suffering from health problems with a sense of neglect by their family members¹⁴.

Incorporating the peculiar data of the patient not only helps in finding the dentures in old age homes but also to keep the important information regarding the patient very handy. The past medical history, drug history and drug allergy, name of family physician if included in dentures, the geriatric patients need not memorize all this data which is mostly difficult with advancing age.

Conclusion

Denture marking is not routinely practiced due to various reasons like cost, time consumption, lack of awareness etc. The value of denture labeling is huge whenever identity of a person is required.

Hence, an appropriate framework within dental education is

required for both student dentists and student dental technologists.

The above method is simple and inexpensive with least armamentarium involved. This can be easily brought into practice with a little effort and care. The medical history of the patient if included in denture, the geriatric patient need not remember it.

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