



# Engraved fixed restorations and denture micro-labelling to facilitate identification through forensic dentistry

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Identification is an essential requirement of any medicolegal investigations, because a mistaken identity may pose a problem in delivering justice. The importance of placing identification marks on dentures has long been acknowledged by the dental profession. Because there is no international consensus about the methods of denture marking, we suggest newer methods for the same. A procedure for marking accurate identification markings on crowns and fixed partial dentures and denture micro-labelling with minimal cost is described in this article. Individuals who have been subjected to restorative procedures like fillings may be carrying their 'visiting cards' in their oral cavity. Practicing dentists can become valuable members of the dental identification process by using these techniques to mark dental restorations, which would be valuable in restoring their patients' identity.

Key words: denture identification; denture marking; denture micro-labelling; engraved fixed restorations; forensic dentistry.

'Everyone has a right to recognition everywhere as a person' – Article 6 of the United Nations Universal Declaration of Human Rights. Without a valid identity, one must consider the ensuing problems of death certification, the disposal of the deceased property, and the considerable time before relatives can claim the accrued money on insurance policies or make claim for compensation where negligence may be involved in traffic accidents.

Identity of the dead is also essential in deaths associated with fire, aircraft accident, explosions and other mass disasters, such as the recently struck killer harbour wave – 'Tsunami'. Identity becomes difficult in the mutilated remains or decomposed bodies. Various parameters like facial features, scars, tattoos, deformities, peculiarities, and personal belongings can assist in the identity of a person.

Identification is an essential requirement of any medicolegal investigations because a mistaken identity may pose a problem in delivering justice. Identity is the aggregate of characteristics by which an individual is recognized by others. Identification of the living person is mainly the concern of the police, and is raised in criminal courts in relation to assault, murder, rape, robbery, etc.

When all these parameters fail to identify a body, as in cases of 100% burns or putrefaction, the teeth and

the jaws, which appear to withstand a great deal of trauma than the rest of the body, can solve the difficulty. The teeth may be as unique as the fingerprints in identification and this aspect of dentistry is called as forensic dentistry.

One of the most important aspects of a person's dental record may well prove to be its potential value should the forensic dental identification of their remains become necessary. Practicing dentists can become valuable members of the dental identification process by developing and maintaining the standards of record keeping which would be valuable in restoring their patient's identity.<sup>[1]</sup>

The importance of placing identification marks on dentures has long been acknowledged by the dental profession. Given that one marked denture can help us identify the deceased, makes it an effort worthwhile.<sup>[2]</sup> Although the Swedish ID-Band was found to be of international standard and was also accepted by FDI, researches have shown that the metal band is not resistant to very high temperatures. Because there is no international consensus about the methods of denture marking, we suggest newer methods for the same.<sup>[3]</sup>

A procedure for marking accurate identification markings on crowns and fixed partial dentures and denture micro-labelling with minimal cost is described in this article.



## MATERIALS AND METHODS

Procedure for denture micro-labelling

This is done in three stages.

**Stage 1.** The patient's name, hospital number or any other detail is typed on an absorbent tissue paper. This tissue paper absorbs acrylic resin monomer. If the strip is too long, it can be reduced in size using a reducing copy machine. The strip is then cut and sized.

**Stage 2.** This strip is placed in the denture in such a place that any subsequent adjustments or breakage of the denture is highly unlikely. After the final trial packing of the denture, place the strip on the internal surface of the denture and saturate with acrylic resin monomer. Strip placed on the facial surfaces might be objectionable to the patient.

**Stage 3.** Sift clear acrylic resin polymer over the strip and wet with the monomer. Trial pack the denture again, open the flask, and ensure that the strip is completely covered with resin. When cured, the embedded name on the strip is readily visible. Close the flasks completely and the curing is done according to the manufacturer's instructions.

The denture with the micro-label is ready [Figures 1 and 2]. In cast partial dentures, the strip can be placed either on the lingual surface of lower denture or palatal surface of the upper denture. The rest of the procedure is the same [Figure 3].

Procedure for identifying porcelain-fused fixed partial dentures

Only initials can be carved in crowns and bridges due to the lack of available space.

Initials can be carved on the lingual surface of the anteriors and posteriors. Occlusal surface of the posteriors are not preferred because of possible occlusal adjustments. The opaque is removed in areas of carving.

After baking the opaque, dentin porcelain is applied. In this step, initials or letters can be carved with the brush. Stains can be applied for the carved initials. Then the enamel porcelain is applied and shaped with a soft brush. Thus, the initials are maintained.

Baking has to be done according to the manufacturer's

instructions. With the help of diamond points, the grooves of the carved initials can be defined properly. Transparent porcelain is applied carefully over the initials to fill the grooves and baked. Then the final glazing is done [Figure 4].

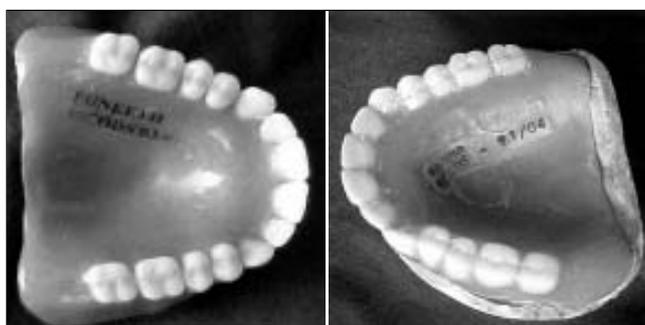
## DISCUSSION

Denture marking or labelling is a recent concept in either prosthetic or forensic dentistry and the forensic experts have urged its routine practice. The need for labelling is to confirm personal identification in victims of fire, mass disasters, etc. Various techniques like inserting a laminated label, usually containing the name of the individual or the hospital number, etc., or surface marking on the dentures can be used.

Persons who have been deceased for some time before discovery, and those found in water also present unpleasant and difficult visual identifications. Dental



**Figure 3:** Micro-labelled cast partial denture bearing the patient's name, institute name and the case number of the patient



**Figures 1 and 2:** Micro-labelled complete dentures bearing the patient's name, institute name and the case number of the patient



**Figure 4:** Engraved ceramic crown bearing the patient's initials





identifications have always played a key role in natural and manmade disaster situations and, in particular, the mass casualties normally associated with aviation disasters.<sup>[4],[5]</sup> Because of the lack of a comprehensive fingerprint database, dental identification continues to be crucial.

Individuals who have been subjected to restorative procedures such as fillings, may be carrying their 'visiting cards' in their oral cavity, because each restoration is unique for an individual, the material used, the skill of the dentist, and the changes seen after restoration offer a great help in identification.

The frequency of edentulousness has not changed in the present. The oral status of populations varies in different countries, and the wearing of complete dentures will be a fact for the foreseeable future. Hence, there is a need to address the issue of denture marking for social and legal reasons.<sup>[3]</sup> Practicing dentists can become valuable members of the dental identification process by using these techniques to mark dental restorations, which would be valuable in restoring their patients' identity. But the fact is contrary to the need. No practitioner labels his dentures regularly. Requirements for denture markers have been that they should be biologically inert, not expensive, and easy

to inscribe and retrieve after an accident.<sup>[2]</sup> There have been a number of requests from individuals and dental organizations over the years to insist that dental prostheses are labelled with the patient's name or a unique number.<sup>[2]</sup>

An easy and inexpensive method for denture marking has been proposed in this article. The markings are both clear and aesthetically acceptable. Routine marking of all dentures by these methods are advocated. The profession must be encouraged to routinely label all dentures.

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