

Role of prosthodontist in forensic odontology. A literature review

Sunil Kumar Mishra, Harsh Mahajan, Rupal Sakorikar, Anoop Jain¹

Department of Maxillofacial Prosthodontics and Implantology, Rishiraj College of Dental Sciences and Research Centre, Bhopal, Madhya Pradesh, 'HKE'S S Nijalingappa Institute of Dental Sciences and Research, Gulbarga, Karnataka, India

Address for correspondence:

Dr. Sunil Kumar Mishra, Department of Maxillofacial Prosthodontics and Implantology, Rishiraj College of Dental Sciences and Research Centre, Bhopal - 462 036, Madhya Pradesh, India. E-mail: drsunilmishra19@gmail.com

Abstract

Dental identification assumes a primary role in the identification of remains when postmortem changes, traumatic tissue injury, or lack of a fingerprint record invalidate the use of visual or fingerprint methods. The most common role of the forensic dentist is the identification of deceased individuals. Forensic identification based on assessment of prosthodontic appliances is assuming greater significance, as labeling of dentures and other prosthetic appliance could provide vital clues for patient identification. Various recommendations have been made concerning the importance of denture identification. This paper presents a review of available literature highlighting the fact that how a prosthodontist can play a key role in identification of a deceased individual if trained to do so.

Key words: Dental implant, denture marking, forensic odontology, palatal rugoscopy, prosthodontics

Introduction


Forensic odontology is the forensic science that is concerned with dental evidence. It is a relatively new science that utilizes the dentist's knowledge to serve the judicial system. Human identification relies heavily on the quality of dental records.^[1] Forensic odontology, as a science, did not appear before 1897 when Dr. Oscar Amoedo wrote his doctoral thesis entitled "L'Art Dentaire en Medecine Legale" describing the utility of dentistry in forensic medicine with particular emphasis on identification.^[2] Dental identification plays a key role in natural and man-made disaster particularly aviation disaster.^[3-6] The most common role of the forensic dentist is the identification of deceased individuals.^[7] Dental structures are the hardest and most resilient tissues of the human body.^[8] Teeth on exposure to

postmortem influences will survive longer than other body tissues as the materials used to restore damaged teeth are extremely resistant to physical, chemical, and biological destruction.^[9] Forensic identification based on assessment of prosthodontic appliances is assuming greater significance, as labeling of dentures and other prosthetic appliance could provide vital clues for patient identification.^[10]

Harvey defined forensic dentistry as that branch of forensic medicine, which in the interest of justice, deals with the proper handling in examination of dental evidence with the proper evaluation and presentation of dental findings.^[11,12] The professionals and members concerned with forensic science are trained at an international level to positively and accurately identify the individual who has gone missing or is lost or deceased or victimized. The digital orthopantomogram of every citizen can be stored in the chip of the national identification card of the citizen along with other information. The same could be retrieved and analyzed when necessary using the required software.^[13]

History

There were historical evidences of identification of individuals based on assessment of prosthodontic

| Access this article online | |
|---|---|
| Website: www.jfds.org | Quick Response Code  |
| DOI: 10.4103/0975-1475.137045 | |

appliances. During the US Revolutionary War in 1775, Paul Revere, a young dentist, identified war casualties by bridgework.^[19] In 1835, a gold denture helped in identifying the burnt body of Countess of Salisbury. After the Second World War, 819 of the 3000 of the unidentified dead soldiers were denture wearers. But unfortunately, only nine persons of those who wore dentures could be identified.^[14] Dr. Goerge Parkman, a professor in Harvard university, was killed by Dr. J W Webster in November 1849. The body was completely burnt but identified by charred fragment of a tooth fused to gold by Dr. N C Keep, who had made a removable partial denture for Dr. Parkman. In April 1968, a badly mutilated body was found on the railway line at Mt. Kuringai near Sydney was identified by upper acrylic denture bearing a name inscribed on it.^[9] Identification of European tourists in tsunami are done by gold inlay, crown, bridge work, and dental implants.^[15]

Dental Identification

A prosthodontist can employ various methods and techniques available in literature; few were enumerated below, and can play an important role in forensic identification. There are various process and system employed for identification and prosthodontist can become part of this team and render there services in a better way.

Comparative Dental Identification

The central dogma of dental identification is that postmortem dental remains can be compared with antemortem dental records to confirm identity.^[8] For dental identification to be successful, antemortem data need to be available. This relies heavily on dental professionals recording and keeping dental notes, radiographs, study models, clinical photographs, etc. Postmortem data are recovered characteristics from an unknown body.^[1]

The Intelligent Dental Identification System

Incorporates the design and development of dental records, dental database, and identification models. From the ability of data structure analysis, Intelligent Dental Identification System (IDIS) can integrate all important dental data necessary for identification purposes.^[16]

Disaster Victim Identification process

This consists of four main steps, that is, body tagging and bagging, finger printing, forensic pathology, and forensic dentistry. Forensic dentistry team was divided into two parts, that is, dental examination and dental radiology. Prosthodontist can play a key role in forensic dentistry team.^[17]

DNA Identification

Methods of human identification that are acknowledged as scientific are fingerprint, DNA, dental, and medical characteristics.^[18] Because of the resistant nature of dental tissues to environmental assaults, such as incineration, immersion, trauma, mutilation, and decomposition, teeth represent an excellent source of DNA material.^[19] When conventional dental identification methods fail, this biological material can provide the necessary link to prove identity.^[20] DNA identification is expensive, technically demanding, and logistically difficult to implement on large scale.^[21] In case of the tsunami in Thailand, it proved to be a relatively unimportant method of identification. DNA identification should not be considered as a first live method of identification, but rather should only be implemented when physical, fingerprint, and dental methods have been unsuccessful.^[22]

Photographic Superimposition

When examining whether a denture left at investigation scene belongs to an unknown set of skeletal remains is more troublesome. To demonstrate identity between a complete denture and a skull is difficult since the morphological characteristics of the denture base, including the arrangement of the artificial teeth, have to be compared with those of the surfaces of the jawbones, which cannot be observed from the outside. In cases like this, superimposition and X-ray computed tomography are effective for establishing proof of identity.^[23]

Palatal Rugae in Identification

Authors have described the use of palatal rugae patterns rendered on dental casts to compare with found remains. Positive identifications have resulted from this technique.^[24] The pattern of these rugae is considered unique to an individual and can be used as reliable method in postmortem cases. The anatomical position of the rugae inside the mouth surrounded by cheeks, lips, tongue, buccal pad of fat, teeth, and bone keeps them well-protected from trauma and high temperatures. Thus, they can be used reliably as a reference landmark during forensic identification.^[25] Palatal rugae have been equated with fingers and are unique to an individual.^[26] It can be of special interest in edentulous cases and also in certain conditions where finger prints cannot be taken, such as burnt bodies or where bodies have undergone severe decomposition. By the identification of the rugal pattern a prosthodontist may identify the bearer of upper denture.^[27]

Denture Labeling and its Important in Forensic Dentistry

Marking dentures has been well documented as a useful aid 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.^[28-32] More often denture may be found close to the scene where body is found and chances of identification of edentulous person wearing denture are less difficult in comparison to those in a dentate patient. Hence denture labeling is very important.^[3,33,34] In Australia, the Nursing Home Standards require that dentures of residents be “discreetly labeled” and marking of all dentures is recommended by the Australian Dental Association.^[35] Denture marking is regulated by law only in Sweden and Iceland.^[36] In US, denture marking is mandatory but in New York dentures are marked only if patient requires it. Although no legislation has been approved pertaining to this matter, it is a social and an ethical obligation on the part of the practicing dental surgeon to do so. There have been a number of requests from individuals and dental organizations over the years to insist that dental prostheses are labeled with the patient’s name or a unique number.^[32] Unlabeled dentures have been recovered from patients and then fitted to casts retained by the treating dentist or laboratory, and this has been an accepted method of identification.^[37]

In the recent Highland Towers Condominium disaster at Ulu Kelang, Selangor there were five edentulous victims wearing dentures. The investigating forensic odontologist did not find any of their dentures having any form of identifying markings, thereby frustrating the dental victim identification team from making any conclusive identification.^[38] The authors in a study propose that the denture should be labeled and include the country code prefixed before the identity card number. In countries where no identity cards are issued to their citizens, then the driving license number, social security number or the income tax file number is the recommended identifying number to be employed.^[39] It has been observed in numerous incinerated bodies the lower lingual posterior, and the upper palatal posterior portions of the dentures are usually spared. These sites become the choice of areas for the marking.^[38,40,41] Denture marking should also not be restricted to acrylic dentures only but also be extended to those made from cobalt-chromium. Cobalt-chromium appliances resist melting even in some cases of incinerated remains. Identifying markings can also be incorporated in orthodontic appliances, maxillo-facial reconstructive prostheses, crowns, and bridges.^[39]

A survey undertaken to determine the extent of the practice of denture marking in South Australia, the methods in use, and the attitudes of dentists, dental technicians, and institutions to it. The results indicated that 24.5% of all practitioners providing removable prostheses to their patients include an identifying label as part of the service

on some occasions. This included 19.9% of general dental practitioners, 25% of specialist prosthodontists, 57.1% of practitioners with training in forensic odontology, and 43.5% of clinical dental technicians. No practitioner labeled dentures routinely. Reasons cited for not labeling dentures included cost, lack of awareness of standards, and recommendations and a belief that it was of little importance.^[35]

Denture labeling was evaluated in an Indian sample. The results are in contrast to European studies wherein the majority of patients agreed to denture marking, indicating patient background (e.g., education level) may affect perception to denture marking.^[42]

Methods of Denture Labeling

Regulatory bodies have recommended that all prostheses be marked with an identification system^[40] and several techniques have been described to identify dentures.^[43-54] Few methods enumerated for marking of dentures are presented in [Table 1].

Identification of Dental Implants

Nonvisual identification of victims utilizes DNA, fingerprint, and dental comparison as primary scientific identifiers. In incidents where a victim has been incinerated, there may be loss of fingerprint detail and denaturing of DNA. Although extremely durable, tooth loss will also occur with extreme temperatures and the characteristics of recovered dental implants, if any, may be the only physical identifying data available.^[59] The physical properties of high corrosion resistance, high structural strength, and high melting point, suggest the retention of intact implants following most physical assaults.^[60]

Berketa *et al.*^[61] done a study to determine what changes occur following cremation to bone-supported dental implants placed within mandibles of sheep. A selection of dental implants was photographed and radiographed. They were then surgically placed in sheep mandibles and the entire sheep heads cremated in a commercial cremator. Following retrieval and reirradiating of the implants, image subtraction evaluation of the radiographs was recorded. Photography within the retrieved implants revealed the batch number within the Straumann™ implant was still visible, which could significantly add weight to the identification of deceased persons.

Berketa *et al.*^[60] did a study to ascertain if the batch number was still identifiable following intense heat exposure in a furnace. The information regarding batch number was laser etched within the chamber of their implant. The result indicated that there was an intact identifiable batch number on removal of the abutment.

Table 1: Methods of denture labeling

| Method | Procedure | Advantage/disadvantage |
|--|--|---|
| Engraving This system involves marking the models during fabrication, so that denture carries the marked information. ^[53,54] | A label-maker is used to prepare an embossed plastic pattern, which in turn is used to insert a marked metal plate in to a denture framework. The use of small tape makes it possible to include more than 6 letters on one lingual flange. ^[52] | The technique is simple and facilitates incorporation of a stable and fireproof label in the denture base material |
| Scribing/disking This method involves marking of the denture after it has been fabricated. One method is to write one's name on the base of the denture with a waterproof marker or a graphite pencil after abrading the denture surface. ^[14] Other method is printing personal identification labels directly on the surfaces of dentures without any removal of the denture base resin. ^[10] | Personal identification details were input into a computer where using an image editing software program the letters were reversed and printed on paper. Then, methyl methacrylate monomer was applied on the area of the specimen plate where the mark would be located. The paper with the mark was pressed on the specimen plate and the binder resin that adhered to the paper melted in the methyl methacrylate monomer on the denture surface. In this manner, identification details borne by the toner on the paper were transcribed to the surface of the denture. ^[10] | The advantages of this method are large numbers of letters could be included in the personal identification label without space constraint; and mechanical strength of denture would not be adversely affected |
| Inclusion Placement of metallic, nonmetallic labels or microchips upon which the name and service number is inscribed on to the denture. Various methods of inclusion are present in literature | Computer-printer denture microlabeling system A micro label procedure uses a transparency film with name and other information of the patient incorporated onto it. Chemically treat printed transparency film with 100% cyanoacrylic acid esters adhesive solution before incorporating into a denture. Incorporate the label into the denture during the packing stage. The label can then be coated with a thin layer of autopolymerized clear acrylic resin. ^[49] Stainless steel tape method This method is quick and reliable over a long period. Patient's identification details are inscribed on to the plate. Stainless steel tape is to be position posteriolaterally in the maxillary denture and at lingual flange in the mandibular denture. After inserting the stainless steel tape it is covered with clear acrylic. ^[50] Lenticular card It is a technology in which the lenticular lens is used to produce images with an illusion of depth, morphology or the ability to change or move as the image is viewed from different angles. Lenticular printing is a multistep 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 than interlaced with one or more of the other images. These are printed on the back of a synthetic paper and laminated on the lens. ^[55] Bar coding Automatic identification using barcodes incorporated into dentures has been developed. Barcode systems can contain large amounts of data. However, the scanning of barcodes may be difficult due to the opacity of the acrylic resin, and for this reason the use of clear acrylic resin is recommended with this system. ^[56,57] Incorporation of microchips Radio Frequency Identification (RFID) is a method of identifying by using radio waves. It consists of a data carrier, referred to as tag and a reader with an antenna. Tag consists of a microchip with patient's information. Reader reads the information contained in the tag. First, program the tag by connecting to the computer then incorporate the programmed tag into the channel on the external posterior buccal surface of the denture. Place clear acrylic resin over the tag to recountour the denture. ^[58] | Advantages of this method are it is easy to use, cost-effective, the background of the label is clear and only the black images of the characters of the label can be clearly seen. It has minimal esthetic impact on the patient Disadvantage is it cannot withstand fire Advantages of this method are it uses equipment readily available in any dental laboratory, not a time consuming process and easy to use. This technique can be used for both complete and removable partial dentures. Disadvantage of this technique arise when relining becomes necessary Advantage of this technique is, it is durable and waterproof. It also does not interfere with the oral function, because of its small size The disadvantage of this technique is that the information can never been changed., The procedure can be used only after the denture is processed, as covering the lens surface with acrylic resin during denture processing will not allow the information to be seen clearly. It may not withstand a fire The advantages of this method are large numbers of data can be stored Disadvantage of this method is the curvature of the denture may cause distortion of the barcode, making it unreadable. Also, barcode technology may present practical obstacles for denture prostheses Advantages are it is esthetically acceptable, it does not interfere with oral function and its data can be modified at any time. Disadvantages are the tag is not fireproof and it is an expensive technique |

As the implants are machine made, they lack the individualization required for their use as identifiers of the deceased. If the companies constructing implants place individual serial numbers rather than batch numbers on these implants then the potential exists for a new approach to be established for the identification of the deceased.^[60]

Conclusion

The unique nature of our dental anatomy and the placement of custom restorations ensure accuracy when the techniques are correctly employed. Forensic dentistry plays a major role in identification of those individuals who are not identified visually or by other means. Denture marking or labeling is not a new concept in either prosthetic or forensic dentistry, and its routine practice has been urged by forensic dentists internationally for many years. The supervising authority on the health sector should make denture marking mandatory and as a prosthodontists, we request our colleagues, other dental specialist, and general dental practitioners that it is the professional and ethical duty of ours to do so.

References

- Al-Ahmad SH. Forensic Odontology. *Smile Dent J* 2009;4:22-4
- Bernstein M. Forensic odontology. In: Eckert WG, editor. *Introduction to Forensic Sciences*. 2nd ed. Boca Raton, FL: CRS Press; 1997. p. 304-51.
- Brannon RB, Kessler HP. Problems in mass disaster dental identification: A retrospective review. *J Forensic Sci* 1999;44:123-7.
- Alexander CJ, Foote GA. Radiology in forensic identification: The Mt. Erebus disaster. *Australas Radiol* 1998;42:321-6.
- Chapenoire S, Schuliar Y, Corvisier JM. Rapid, efficient dental identification of 92% of 13 train passengers carbonized during a collision with a petrol tanker. *Am J Forensic Med Pathol* 1998;19:352-5.
- Clark DH. An analysis of the value of forensic odontology in ten mass disasters. *Int Dent J* 1994;44:241-50.
- Jones DG. Odontology often is final piece to grim puzzle. *J Calif Dent Assoc* 1998;26:650-1.
- Sweet D, DiZinno JA. Personal identification through dental evidence tooth fragments to DNA. *J Calif Dent Assoc* 1996;24:35-42.
- Gosavi S, Gosavi S. Forensic odontology: A Prosthodontic view. *J Forensic Dent Sci* 2012;4:38-41.
- Takahashi F, Koji T, Morita O. A new method for denture identification. *Dent Mater J* 2008;27:278-83.
- Keiser-Neilsen S. Forensic odontology. *Int Dent J* 1968;18:668-83.
- Harvey W. *Dental identification and forensic odontology*. London: Henry Kimpton Publisher; 1776. p. 2.
- Nagesh K. Relevance of forensic odontology in the world today. *J Forensic Dent Sci* 2012;4:1.
- MacEntee MI, Campbell T. Personal identification using dental prostheses. *J Prosthet Dent* 1979;41:377-80.
- Lau G, Tan WF, Tan PH. After the Indian ocean tsunami: Singapore's contribution to the international disaster victim identification effect in Thailand. *Ann Acad Med Singapore* 2005;34:341-51.
- Chomdej T, Pankowa W, Choychumroon S. Intelligent Dental Identification System (IDIS) in forensic medicine. *Forensic Sci Int* 2006;158:27-38.
- Rai B, Anand SC. Role of forensic odontology in Tsunami disasters. *Internet J Forensic Sci* 2007;2:1-5.
- Interpol. Disaster victim identification. Available from: <http://www.interpol.int/Public/DisasterVictim/default.asp>. [Last accessed on 2013 Sept 17].
- Schwartz TR, Schwartz EA, Mieszerski L, McNally L, Kobilinsky L. Characterization of deoxyribonucleic acid (DNA) obtained from teeth subjected to various environmental conditions. *J Forensic Sci* 1991;36:979-90.
- Sweet D, Hildebrand D. Recovery of DNA from human teeth by cryogenic grinding. *J Forensic Sci* 1998;43:1199-202.
- Technical working group for mass fatality forensic identification, mass fatality incidents: A guide for human forensic identification. Washington (DC): Office of justice programs, United States department of justice. June 2005. Available from: <http://www.ncjrs.org/pdffile1/nij/199758.pdf>. [Last accessed on 2013 Sept 17].
- Hirsch C, Brondolo T, Butcher B. Report to HE Dr. Surachai, Minister of Public Health, Thailand, and Dr. William Aldis, WHO representative to Thailand World Health Organization. Assessment of victim identification operations: Thailand tsunami disaster. New York: City of New York office of Chief Medical Examiner; 2005. p. 11.
- Minaguchi K, Hanaoka Y, Kiriya T, Yamamoto K, Kuroyanagi K. Personal identification of a skull by a complete denture-application of superimposition and X-ray computed tomography analysis. *Nihon Hoigaku Zasshi* 1994;48:282-8.
- Thomas CJ, van Wyk CW. The palatal rugae in identification. *J Forensic Odontostomatol* 1988;6:21-7.
- Caldasa IM, Magalhaesbcd T, Afonso A. Establishing identity using cheiloscopia and palatoscopia. *Forensic Sci Int* 2007;165:1-9.
- Lysell L. Plicae palatinae transversae and papilla incisiva in man: A morphologic and genetic study. *Acta Odontol Scand* 1955;13 Suppl 18:5-137.
- Goswami R, Garg R, Jolly R. Role of prosthodontics in forensic odontology. *Int J Clin Dent Sci* 2011;2:85-9.
- Shimoyama K, Ogawa N, Umino M, Nagao M, Odagiri K. The need for a denture marking system in geriatric institutions. *J Gerodontology* 1992;7:8-13.
- Cunningham M, Hoad-Reddick G. Attitudes to identification of dentures: The patients' perspective. *Quintessence Int* 1993;24:267-70.
- Borrman H, Thomas CJ, Engstrom EU. Denture marking. Clinical and technical aspects. *J Forensic Odontostomatol* 1995;13:14-7.
- Kanai H, Kasahara H, Ohta S, Koshiha K, Hosaka K, Watanabe T, *et al.* Denture identification for the disabled elderly. Effect of name marking on removable denture. *J Gerodontology* 1996;11:18-24.
- Borrman H, DiZinno JA, Wasen J, Rene N. On denture marking. *J Forensic Odontostomatol* 1999;17:20-6.
- Skinner M, Alempijevic D, Stanojevic A. In absence of dental records, do we need forensic odontologist at mass grave site? *Forensic Sci Int* 2010;201:22-6.
- Pretty IA. Forensic dentistry: 1. Identification of human remains. *Dent Update* 2007;34:621-2.
- Alexander PM, Taylor JA, Szuster FS, Brown KA. An assessment of attitudes to, and extent of, the practice of denture marking in South Australia. *Aust Dent J* 1998;43:337-41.
- American academy of forensic sciences. Available from: <http://www.aafs.org> [Last accessed on 2013 Sept 17]
- Jacob RF, Shalla CL. Postmortem identification of the edentulous deceased: Denture tissue surface anatomy. *J Forensic Sci* 1987;32:698-702.
- Alhabshi SF, Nambiar P. The contribution of forensic odontology in the Highland Towers condominium disaster. *Ann Dent Univ Malaya* 1995;2:25-8.

39. Ling BC, Nambiar P. Denture marking for the Malaysian population *Ann Dent Univ Malaya* 1996;3:43-5.
40. McGivney J. Marking of removable dentures. In: Averill DC, editor. *Manual of Forensic Odontology*. 2nd ed. USA: American Society of Forensic Science; 1991. p. 62-6.
41. Harvey W. Identity by teeth and the marking of dentures. *Br Dent J* 1966;121:334-40.
42. Acharya AB, Anehosur GV, Kanchi PP, Naik MG, Nadiger RK. Perceptions and preferences on denture marking in an Indian sample. *Gerodontology* 2012;29:117-24.
43. Toolson LB, Taylor TD. Method for denture identification. *J Prosthet Dent* 1989;61:114-5.
44. Ling BC. A white character denture labeling technique. *J Prosthet Dent* 199;69:545.
45. Coss P, Wolfaardt JF. Denture identification system. *J Prosthet Dent* 1995;74:551-2.
46. Ibrahim WM. Denture microlabeling technique. *J Prosthet Dent* 1996;76:104.
47. Ryan LD, Keller JB, Rogers DE, Schaeffer L. Clear acrylic resin T-bar used in denture identification. *J Prosthet Dent* 1993;70:189-90.
48. Berry FA, Logan GI, Plata R, Riegel R. A post fabrication technique for identification of prosthetic devices. *J Prosthet Dent* 1995;73:341-3.
49. Ling BC. Computer-printer denture microlabeling system. *J Prosthet Dent* 1998;79:363-4.
50. Reeson MG. A simple and inexpensive inclusion technique for denture identification. *J Prosthet Dent* 2001;86:441-2.
51. Rajan M, Julian R. A new method of marking dentures using microchips. *J Forensic Odontostomatol* 2002;20:1-5.
52. Matsumura H, Shimoe S. Incorporation of a cast, embossed identification plate into a partial denture framework. *J Prosthet Dent* 2002;88:215-7.
53. Stevenson RB. Marking dentures for identification. *J Prosthet Dent* 1987;58:255.
54. Dimashkieh MR, Al-Shammery AR. Engraved fixed restorations to facilitate identification in forensic dentistry *J Prosthet Dent* 1993;69:533-5.
55. Colvenkar SS. Lenticular card: A new method for denture identification. *Indian J Dent Res* 2010;21:112-4.
56. Milward PJ, Shephard JP. Automatic identification of dental appliances. *Br Dent J* 1997;182:171-4.
57. Aguloglu S, Zortuk M, Beydemir K. Denture bar-coding: a new horizon. *Br Dent J* 2009;206:589-90.
58. Millet C, Jeannin C. Incorporation of microchips to facilitate denture identification by radio frequency tagging. *J Prosthet Dent* 2004;92:588-90.
59. Berketa J, James H, Marino V. Dental implant changes following incineration. *Forensic Sci Int*. 2011; 207:50-4.
60. Berketa J, James H, Marino V. Survival of batch numbers within dental implants following incineration as an aid to identification. *J Forensic Odontostomatol* 2010; 28:1-4.
61. Berketa J, James H, Marino V. A pilot study in the recovery and recognition of non- osseointegrated dental implants following cremation. *J Forensic Odontostomatol* 2011;29:38-44.

How to cite this article: Mishra SK, Mahajan H, Sakorikar R, Jain A. Role of prosthodontist in forensic odontology. A literature review. *J Forensic Dent Sci* 2014;6:154-9.

Source of Support: Nil, **Conflict of Interest:** None declared

Staying in touch with the journal

1) Table of Contents (TOC) email alert

Receive an email alert containing the TOC when a new complete issue of the journal is made available online. To register for TOC alerts go to www.jfds.org/signup.asp.

2) RSS feeds

Really Simple Syndication (RSS) helps you to get alerts on new publication right on your desktop without going to the journal's website. You need a software (e.g. RSSReader, Feed Demon, FeedReader, My Yahoo!, NewsGator and NewzCrawler) to get advantage of this tool. RSS feeds can also be read through FireFox or Microsoft Outlook 2007. Once any of these small (and mostly free) software is installed, add www.jfds.org/rssfeed.asp as one of the feeds.