

Original Article

To Assess the Knowledge and Attitude toward Forensic Odontology among Dentists in Chennai City

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ABSTRACT

Aim: To assess the knowledge and attitude toward forensic odontology dentists in Chennai City.

Objectives: To evaluate knowledge about forensic odontology among general dental practitioners.

Materials and Methods: A study was conducted among 200 general dental practitioners. A questionnaire was distributed among them.

Background: Forensic odontology includes the proper handling, examination, and evaluation of evidence related to dental findings which can be used for personal identification. It is dependent on the detailed knowledge of the teeth and jaws which is only possessed by a dentist. The survey was conducted with the aim to assess the awareness of forensic odontology in Chennai.

Results: Many of the general dental practitioners had a basic knowledge about forensic odontology, but only 27% knew about Indian Association of Forensic Odontology. Sixty-nine percent of them were not confident about giving an opinion for a forensic case. Sixty-three percent of them knew about cheiloscopy. Many of them did not know the importance of identifying child abuse as a dentist. Sixty-nine percent of them said they would inform the parents if they identified a child abuse case. Nineteen percent of them did not maintain dental records and among the remaining only 30% maintained complete dental records. None of them had any formal training related to forensic odontology. Two percent of them only knew about the forensic courses available in India. Most of them felt that our country has very limited resources for forensic odontology.

Conclusion: Forensic odontology has an important role in the recognition of person. Forensic odontology requires interdisciplinary knowledge of dental science. This survey shows that general dental practitioners in Chennai have inadequate knowledge and interest in forensic odontology.

KEY WORDS: Forensic awareness, forensic odontology, forensis

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INTRODUCTION

The word forensic is derived from Latin word “forensis” which means public. Forensic science refers to the area of endeavor that can be used in a judicial setting and accepted by the court and general scientific community to separate truth from untruth.^[1] Forensic odontology is the branch of dentistry which deals with the proper handling and examination of dental evidence and with the proper evaluation and presentation of dental findings.^[2] It is one of the important branches of forensic science, as dental tissues are the strongest tissues in the human body and therefore their characteristics remain unchanged even in extreme environments.^[3] The teeth can often survive long periods of immersion under water, burial under soil, fire, and exposure to biological agents in the natural environment. Thus, the importance of forensic odontology is increasing year by year.^[4] The survey was conducted with the aim to assess the knowledge and attitude toward forensic odontology in Chennai City.

MATERIALS AND METHODS

The study sample included 200 general dental practitioners in various parts of Chennai City.

A questionnaire was prepared which comprises 15 questions related to:

1. Basic knowledge related to forensic odontology and the awareness of available resources in India
2. Other questions included the importance of maintaining dental records, significance of bite marks, child abuse, age estimation, and witness in court.

RESULTS

Many of the general dental practitioners had a basic knowledge about forensic odontology, but only 27% knew about Indian

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Questionnaire

Respected Sir/Madam,

I am a student of Saveetha Dental College doing my bachelor of dental surgery and presently doing a study on "To assess the knowledge and attitude toward forensic odontology among dentists in Chennai City"

I request you to kindly fill the questionnaire and assure that data generated shall be kept confidential

Name: Dr. (optional)

Gender:

Age:

Qualification: BDS/MDS

1. What is the full form of IAFO?
 - a. International Academy of Forensic Odontology
 - b. Indian Association of Forensic Odontology
 - c. Indian Academy of Forensic Odontology
2. Study of lip prints is called?
 - a. Lipology
 - b. Cheiloscopy
 - c. Liposcopy
 - d. Dermatoglyphics
3. Teeth which are found in skeletal remains provide information of
 - a. Genetic origin
 - b. Sex
 - c. Age
 - d. All the above
4. Which is mostly used to determine the age of a person from skeletal remains with teeth?
 - a. Secondary dentin deposition
 - b. DNA
 - c. Cementum annulations
 - d. Enamel translucency
5. As a dentist do you know any role of forensic odontology in mass disaster?
 - a. Yes
 - b. No
6. How confident are you in giving an opinion on forensic odontology?
 - a. Very confident
 - b. Confident
 - c. Not confident
 - d. No idea
7. What would you do if you identify child abuse?
 - a. Inform police
 - b. Inform parents
 - c. Inform NGO's
 - d. Take no actions
8. Which is the most common sight of injury a dentist can identify in case of abuse?
 - a. Mucosa
 - b. Lips
 - c. Tongue
 - d. Bruises or scarring in corners of mouth
9. Do you maintain dental records?
 - a. Yes
 - b. No
10. What are the records you maintain?
 - a. Photographs
 - b. Radiographs
 - c. Personal data
 - d. Casts
 - e. All the above
 - f. None
11. Do you know the significance of bite mark patterns of teeth?
 - a. Yes

Contd...

Contd...

- b. No
- 12. Are you aware that you can testify as an expert witness in the court to present forensic dental evidence?
 - a. Yes
 - b. No
- 13. Do you know the name of any formal forensics courses in India?
 - a. Yes
 - b. No
- 14. Have you had any formal training related to forensic dentistry?
 - a. Yes
 - b. No
- 15. Do you feel our country has very limited resources for forensic science?
 - a. Yes
 - b. No

Association of Forensic Odontology (IAFO). Sixty-nine percent of them were not confident about giving an opinion for a forensic case [Table 1]. Sixty-three percent of them knew about cheiloscopy. Many of them did not know the importance of identifying child abuse as a dentist. Sixty-nine percent of them said they would inform the parents if they identified a child abuse case. Nineteen percent of them did not maintain dental records and among the remaining only 30% maintained complete dental records. None of them had any formal training related to forensic odontology. Two percent of them only knew about the forensic courses available in India. Most of them felt that our country has very limited resources for forensic odontology [Figure 1].

DISCUSSION

According to the survey, the knowledge about forensic odontology among the dental professionals practicing in Chennai City is increased, but the attitude toward learning about it is very meager. Availability of exposure in practical application is very less when compared to that of needs both in the private and Government Institutions.

In the year 2000 in India, the IAFO was formed by few dentists.^[3] According to the survey, most of the dentists in Chennai did not have any idea about it. The mission of this association is “to provide to its members educational seminars, to disseminate useful information related to all the disciplines of the forensic sciences, and to encourage the highest ethical standards in the collection, preservation, and examination of odonto-stomatological evidence. It is also to establish a platform for the dental fraternity to exchange mutually their knowledge, skill, professionalism, and expertise in the field of Forensic Odontology.”

More than half of the respondents knew about the study of lip prints. Cheiloscopy is the study of lip prints. In forensic identification, lip print patterns can guide us to important information and helps in person’s identification. Like the fingerprints used in human identification, the grooves present on human lips (Sulci labiorum) are unique to each person and can be used to determine identity.^[5]

For identification of the deceased person, teeth which are found in skeletal remains can provide information about genetic origin, sex, and age. Molecular biology such as DNA

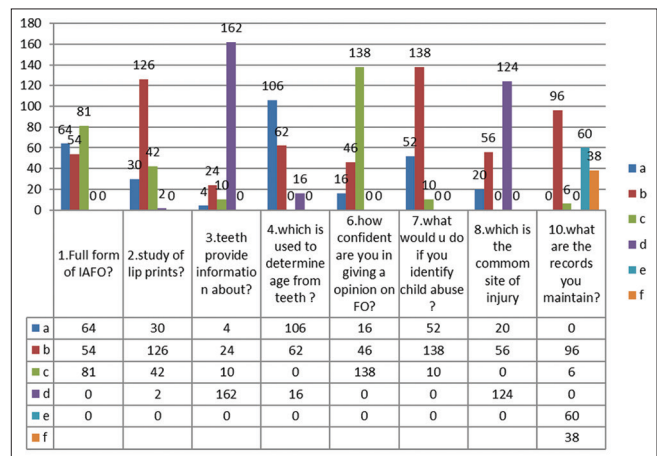


Figure 1: Graph depicting the responses of Multiple choice questions of dentist towards forensic odontology

Table 1: Response to the questions in percentage

| Question number | Question | Yes (%) | No (%) |
|-----------------|-----------------------------------------------------------------------------------------------------------|---------|--------|
| 5 | As a dentist do you know any role of forensic odontology in mass disaster? | 64 | 36 |
| 9 | Do you maintain dental records? | 81 | 19 |
| 11 | Do you know the significance of bite mark patterns of teeth? | 63 | 37 |
| 12 | Are you aware that you can testify as an expert witness in the court to present forensic dental evidence? | 71 | 29 |
| 13 | Do you know the name of any formal forensics courses in India? | 2 | 98 |
| 14 | Have you had any formal training related to forensic dentistry? | 0 | 100 |
| 15 | Do you feel our country has very limited resources for forensic science? | 100 | 0 |

analysis can help ascertaining the gender of the cadaver from the tooth remains. DNA can be extracted from the pulp tissue, dentin, cement, periodontal ligament, and alveolar bone.^[6] The hard tissues of the teeth are resistant to environmental actions such as incineration, immersion, trauma, or decomposition. In such cases, pulp tissue can be used as a source of DNA.^[7]

Age of a person can be estimated from the teeth, based on certain findings related to hard dental tissue changes that progress with advancing age: Occlusal wear, secondary and tertiary dentin layers, cement thickness, the extent of root resorption, the length of the root transparency, and the height of gingival attachment.^[8] Eighty-one percent of the respondents said that the mostly used method for determination of age is secondary dentin deposition.

Cases of child abuse, which are greatly growing in number in day-to-day life, should be detected as soon as possible. Dental health professionals have to be alert about a variety of physical and behavioral indicators to identify suspected child abuse. If the dentist suspects physical abuse with a young patient, then he or she should have another dental staff member witness the injuries and assist in their documentation and should inform the police.^[9] Dentists must be aware that they are required to report suspected cases of abuse and neglect to social service or law enforcement agencies. Sixty-nine percent of the respondents said that they would only inform parents.

The most important role of practicing dentists in dental identification process is by developing and maintaining standards of record-keeping, which would be valuable in restoring their patients,^[10] 19% of them did not maintain dental records and among the remaining only 30% maintained complete dental records. Poor quality of records maintained indicates that the dentists in Chennai are not prepared for any kind of forensic and medicolegal need if it arises.

Most of the respondents knew the importance of the significance of bite marks. A bite mark may be defined as a mark having occurred as a result of either a physical alteration in a medium caused by the contact of teeth, or a representative pattern left in an object or tissue by the dental structures of an animal or human.^[11]

All the respondents felt that there are very limited resources in India.

Specialization in forensic odontology has been possible in several countries around the world, but while the Dental Council of India has included this as a subject in the BDS. Course Regulations (2007), a postgraduate course is yet to be started. It was first proposed at the dental council of India's (DCI's) general body meeting (GBM) in Goa in December 2009, and in his inaugural address to the participants, the demand was endorsed by the then Government of Goa's Chief Secretary Shri Sanjay Kumar Srivastava.^[11] None

of the respondents had any formal training in forensic odontology.^[12]

CONCLUSION

Use of forensic dentistry is, however, not yet a reality in India. Efforts are required by individual dentists interested and capable of contributing to the specialty, as well as organizations such as the IAFO. This survey shows that general dental practitioners in Chennai have inadequate knowledge and interest in forensic odontology.

This condition, however, could be improved if necessary steps are taken to make forensic odontology a part of our course. In addition, periodic conferences and seminars if conducted would help the dental practitioners and students enrich their knowledge about forensic odontology.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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