



ORIGINAL RESEARCH

Prevalence of using Forensic Odontology in Crime Investigation in Identification of Individuals – A Retrospective Study in Pondicherry City, India

Senthil M¹, Deepan kumar², Ramu C³

ABSTRACT: *Background of Study:* Forensic dentistry, which is also referred to as forensic odontology, is a dental field that deals with the correct management, examination, evaluation and presentation of dental evidence in criminal or civil legal proceedings in the interest of justice. *Aim of the Study:* To identify the prevalence of usage of forensic odontology findings in solving crime investigation & identifying individuals in Pondicherry city, India. *Methodology:* A retrospective study was done during the month of April 2012. Out of 32 police stations in Pondicherry, 3 police stations were selected using simple random sampling. The FIR and forensic reports were retrieved for the 3 years (2009-2011) in these police stations. The individual case files were examined and data like FIR number, age, sex, type of crime and type of forensic report were retrieved. *Result:* A total of 450 forensic reports were examined. The majority of death reports belonged to males (85.8%). No case had used forensic odontology method to solve the crime. About 34.5 % of total forensic reports has unknown individual and unknown reason for death. *Conclusion:* Forensic odontology is not being used to solve crimes in Pondicherry city, India.

Key words: forensic, odontology, crime Investigation, prevalence, identification, individuals

Forensic odontology is a field of dentistry concerned with the correct management, examination, evaluation and presentation of dental evidence in criminal or civil legal proceedings in the interest of justice^[1]. It is used for human identification by using finger printing/ lip printing, physical anthropologic examination of bones and teeth, serologic & genetic (DNA) comparison, ante-mortem / post-mortem dentition comparisons and bite mark analysis^[2, 3, 4, 5]. Thus it aids the police and judicial system in the evaluation of crime or disaster.

This is an interdisciplinary field involving the expertise of both forensic dentists and the legal / crime departments. It is well recognized in other countries, but in India the acceptance is slow^[6]. Neither the investigating officer nor the forensic experts seem to be aware of forensic dentistry and the vital role a dentist can play in the crime investigations. Such a situation has raised doubts regarding the scope and future of forensic dentistry career.

Therefore the online databases were searched to critically assess the effective usage of forensic dentistry in crime investigations. Based on the available data, this study was planned. The aim of the study was to identify

the prevalence of usage of Forensic Odontology findings in crime investigation in Pondicherry City, India.

MATERIAL AND METHODS

A Cross Sectional retrospective study was done during the month of April 2012. In Pondicherry, there are 32 prime police stations. Using simple random sampling technique, 3 police stations were selected.

A prior permission was obtained from Senior Superintendent of Police, Pondicherry city, to carry out the retrospective study in these 3 police stations. The Inspectors of these police stations were requested to retrieve the crime investigation files for the past 3 years (2009-2011). The Inspectors were asked to retrieve the crime investigation files (CIF) which is marked with Indian Penal code (IPC) no. 302 for murder, 307 for attempt murder, 376 for rape and Cr.Pc 174 for unknown/known death or brought dead^[7]. These IPC's are found to be most relevant to forensic odontology which can help the investigators.

The retrieved individual case files were examined. Datum like FIR number, age, sex, type of crime and type of forensic report were recorded. In each forensic report in the crime file, data pertaining to forensic odontology

Received : 19.12.12

Accepted : 31.12.12

were also identified and recorded.

The collected datum was entered in Microsoft Excel sheet. Distribution of age, sex, type of crime, type of forensic report & prevalence of forensic odontology findings were calculated using SPSS15 for Windows.

RESULT

A total of 450 crime investigation files (CIF) were retrieved from the 3 police stations and the analysis are as follows:

1. Distribution of Sex: In this study 85.8% of the CIF belongs to male and remaining 14.2% of CIF belongs to females (Fig-1).

2. Distribution of Police Station: In this study 38.7% of CIF were reported from Odiyansalai police station followed by Grand bazaar (32.7%) & Orleanpet (28.7%) (Fig-2).

3. Type of Death & Crime:: 16.2% of CIF reports that the type of death is suicide by hanging, followed by accident (12.7%). Most of CIF are closed as unknown unnatural (13.8%), unknown natural (20.7%), known unnatural (10.0%) and known natural (20%) (Fig-3). This states that either the person is not identified or the reason for death is not identified in 40-45 percentage of CIF.

4. Type of Forensic Report: 23.1% of the CIF forensic report states that reason for death to be severe illness followed by asphyxia (22%) & alcohol intoxication, liver & renal disease (20.4%). Other types of forensic reports in CIF are cardiac disease, lung diseases, organ phosphorous poison, unknown poison, septicemia, shock and head injury (Fig-4). This reveals that all 450 forensic reports did not take oral or dental finding into consideration.

DISCUSSION

This cross sectional retrospective study is the first of its kind that is being reported. This study reveals that the prevalence of using forensic odontology in crime investigations is nil in Pondicherry, India.

It also reveals that 40% of the death and crime has been reported as unknown reason for death and 35% of the death due to crime has been reported as unknown person.

It was observed that, out of 450 CIF, 150 CIF have been reported as unidentified persons or unknown causes.

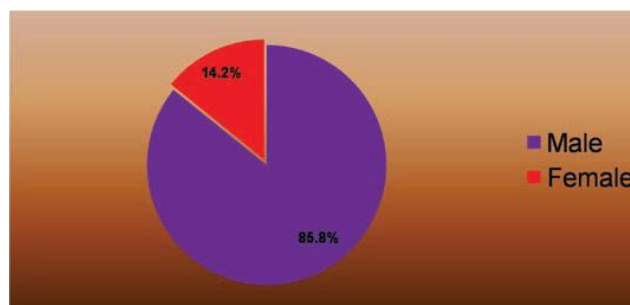


Fig 1: Pie chart showing the distribution of sex

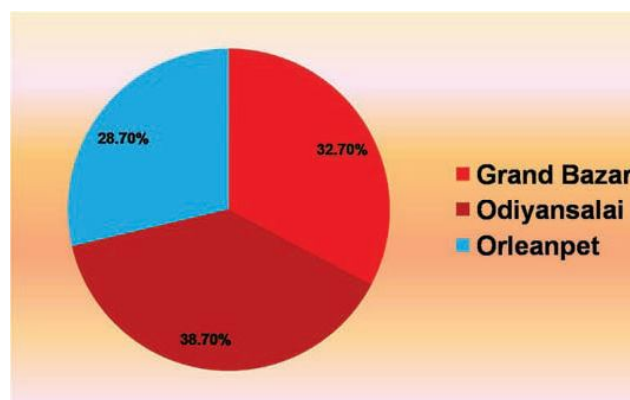


Fig 1: Pie chart showing the distribution of police stations

These cases could have been solved with help of forensic odontology if they had proper ante-mortem and post-mortem records if they had proper ante-mortem and post-mortem records. When the concerned authorities were approached for retrieving the crime investigation file (CIF) from the police stations, they seemed to be unaware of forensic Odontology usage in crime investigations.

CONCLUSION

1. The prevalence of using forensic odontology findings in crime investigation is nil in Pondicherry
2. 35-40 % of the crime cases are closed as unidentified person
3. Thus it is recommended that concerned authorities be sensitized about the need and use of forensic Odontology in their crime investigation.

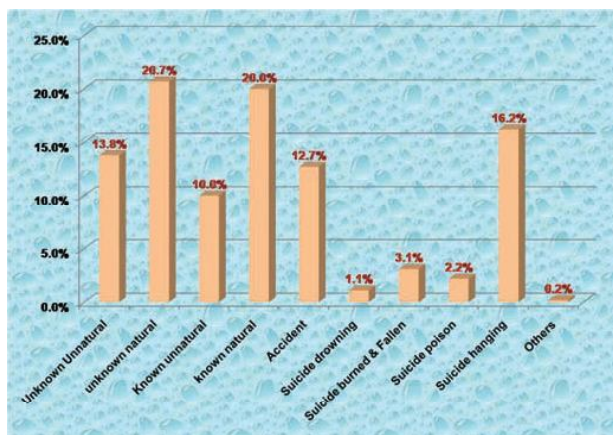


Fig 3: Graph showing the type of death and crime

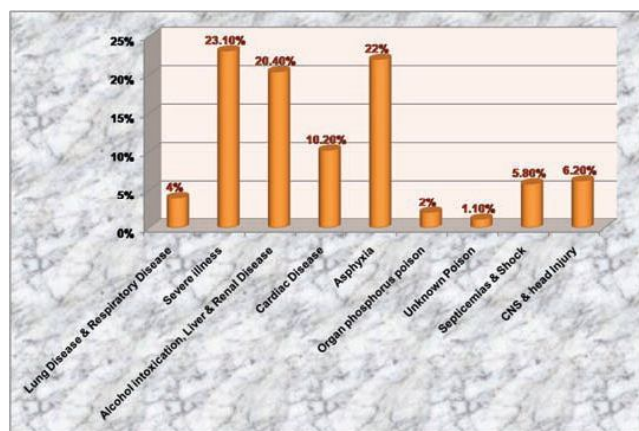


Fig 3: Graph showing the type of Forensic report

4. It is essential to creating a political lobby to include forensic odontologist in crime investigating teams in all private, state and central government agencies.

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Address for correspondence:

Dr. Senthil M
Department of Public Health Dentistry
Indira Gandhi Institute of Dental Sciences
Sri Balaji Vidyapeeth University
Pilliyarkuppam
Pondicherry – 607402
Ph.9486365954
E-mail.phdigids@gmail.com

Authors:

¹Reader ²Intern ³Junior Lecturer
Department of Public Health Dentistry
IGIDS, SBV, Puducherry

How to cite this article:

Senthil M , Deepan kumar, Ramu C. Prevalence of using forensic odontology in crime investigation in identification of individuals – A retrospective study in Pondicherry city, India. Journal of Scientific Dentistry 2012;2(2):19-21.

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