Section: Forensic Medicine

Original Research Article

THREE-YEAR PROFILE OF UNKNOWN BODIES BROUGHT TO A TERTIARY CARE HOSPITAL IN WESTERN MUMBAI: A RETROSPECTIVE STUDY

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ABSTRACT

Background: Identification is defined as the determination of the individuality of a person. Article 6 of the Universal Declaration of Human Rights states that "Everyone has the right to recognition everywhere as a person before the law." Hence, identification is crucial in both the living and the dead and must be established in both cases. The examination of an unknown body proves a challenge to forensic experts due to lack of proper identification. Identification of a body is a fundamental part of any autopsy examination following cause and manner of death. The objective of this study was to determine the demographic profile and pattern of deaths of all unidentified bodies brought for postmortem examination. **Materials and Methods:** A 3-year retrospective study was conducted at the postmortem centre of the Department of Forensic Medicine & Toxicology, Hinduhridaysamrat Balasaheb Thackeray Medical College and Dr. R.N. Cooper Municipal General Hospital, Mumbai, from 2021 to 2023. Data was obtained from inquest papers and postmortem reports. **Result:** A total of 4311 bodies were autopsied in the 3-year period under study. 134 bodies were unidentified (3.1%). Maximum cases belonged to the age group of 31-40 years. There was a male preponderance. Majority of the bodies were discovered in public places like railway tracks, roadsides and footpaths. The most common manner of death was accidental, with the cause of death being railway accident. **Conclusion:** The study highlights the profile of unidentified bodies and causes of death. It also emphasises the public health measures that should be taken, provides possible solutions, and defines the role of law enforcement in establishing the identity of the unidentified deceased.

INTRODUCTION

The challenge of unidentified human remains presents a significant challenge to forensic medicine and medicolegal systems worldwide.[1] In many jurisdictions unknown bodies account for a substantial proportion of autopsy caseloads. This necessitates resource-intensive and time-consuming identification processes and prolonged investigations. A sizeable portion of medico-legal autopsies involve unidentified corpses. These bodies predominantly belong to homeless street dwellers aged 31–45 years and with a marked male preponderance. The factors such as homelessness, migration and lack of known relatives further delay timely identification.[2] The aggregation of such cases puts considerable pressure on forensic facilities, and delays justice for families. Inability to identify the dead body also involves ethical concerns regarding the dignity of the deceased.[3]

Accurate identification of unknown bodies is foundational to both civil and criminal investigations, public health surveillance and human rights protections. Traditional methods such as fingerprint analysis, dental record comparison and visual are important. However, these methods cannot be used reliably in cases of decomposition, trauma or in absence of comparative records.[4] In recent years DNA profiling has emerged as the gold standard for establishing identity which is facilitated by centralized databases and standardized protocols. Anthropometric measurements and forensic odontology further complement molecular

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approaches especially when postmortem tissue is degraded. Nonetheless only a fraction of unidentified cases undergoes comprehensive evaluation.[5]

In the USA and UK, a person whose true identity is unknown or must be withheld for some reason is referred to as John Doe (male) or Jane Doe (female).[6] This extends to unknown or unidentified deceased as well. In India, the term "unknown or unidentified body" is used where there is no claimant. It is a daunting task to identify an unknown body.[7]

When a deceased is brought for post-mortem examination, the purpose includes determination of the cause of death, aid in the investigation and to identify the deceased.[8] It not only aids the law enforcement in criminal or suspicious deaths but is also a form of social and humanitarian justice. The family may not even be aware of the death. They are entitled to know what has happened to their missing loved ones as well as bury or cremate them. Identification is also required for statistical and legal purposes and to discharge legal claims in relation to property and debts.[9]

As per the National Crime Records Bureau 2015 data, Maharashtra ranked highest in the number of unidentified bodies found, with a total of 6185 bodies. The next state, Tamil Nadu, had 3739 bodies, which is almost half. In 2016, this number in Maharashtra had risen to 6268 unclaimed bodies.[10] More emphasis is paid to disaster victim identification in times of disasters; however, having a large number of unknowns is also a silent mass disaster.

MATERIALS AND METHODS

Our study was a descriptive retrospective study conducted during a 3-year period between 2021 to 2023 on all unknown or unidentified bodies brought to the postmortem centre attached to the medical college and tertiary care hospital. A total of 134 unknown or unidentified bodies were brought for autopsy. Data was taken from inquest papers, hospital records (wherever relevant), and postmortem reports

A predesigned pro-forma was prepared to gather the information to ensure uniformity for data collection. Each case file was reviewed to extract demographic estimates—age (by skeletal and dental assessment) and gender. The site of recovery (e.g., roadside, railway premises, water body) were recorded from inquest papers. Police inquest narratives were scrutinized for circumstances of discovery (accident, alleged foul play, natural demise).

All variables were entered into an Excel spreadsheet. Descriptive statistics (frequencies, percentages) were used to show age groups, gender distribution, place, manner and cause of death. Results were tabulated and visualized with bar charts and pie diagrams.

Inclusion Criteria

1. Bodies officially classified as unknown or unidentified at the time of autopsy.
2. Availability of both inquest papers and a full postmortem report.

Exclusion Criteria

1. Bodies that had positive identification prior to autopsy.
2. Missing or grossly incomplete inquest papers or postmortem reports.
3. Bodies disposed of without a formal postmortem examination.

RESULTS

The analysis of the year-wise distribution of unidentified deceased cases in the studied autopsies showed that the highest number were recorded in 2023 (38.81%), i.e., of the 52 total deceased cases identified among 1,584 autopsies. This was followed by 49 (36.57%) in 2022 from 1,391 autopsies and 33 (24.63%) in 2021 from 1,336 autopsies [Table 1].

Table 1: Total number of autopsies done during study period.

Year of study	Total no. of autopsies	No. of deceased	% (n=134)
2021	1336	33	24.63 %
2022	1391	49	36.57 %
2023	1584	52	38.81%
Total	4311	134	100.0 %

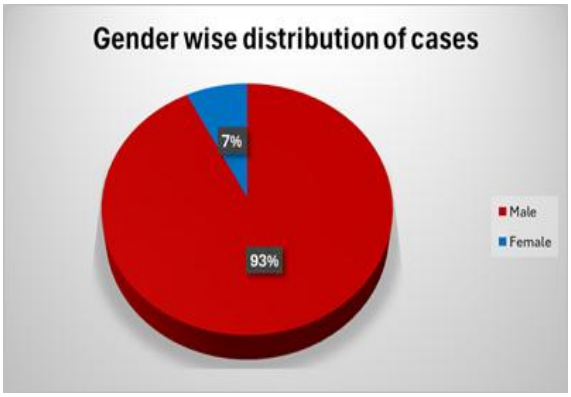

Figure 1: Gender Distribution of studied cases.

Out of the 134 deceased, it was seen that 124 (92.53%) were males and 10 (7.46%) were females. This shows that there were a greater number of unknown males than females [Figure 1].

The maximum number of cases were from the age group of 31-40 years (33.58%), followed by 41-50 years (19.40%) and 21-30 years (17.91%). The extremes of age groups, i.e., <10 years (2.98%) and >70 years (1.49%) had least number of cases [Table 2]

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Table 2: Age Distribution of studied cases.

Age group (in years)	No of cases	% (n=134)
< 1	3	2.24
1-10	1	0.75
11-20	5	3.73
21-30	24	17.91
31-40	45	33.58
41-50	26	19.40
51-60	19	14.18
61-70	9	6.72
71-80	1	0.75
>80	1	0.75
Total	134	100

The figure shows the places the body was found. Most of the deceased, i.e., 71 (52.99%), were brought from railway tracks, while 56 (41.79%) were found on the roadside and footpath. Only 4 (2.99%) had been admitted to the hospital at the time of death. Some unusual places included jungle, recovered from water body, and abandoned rail coach where 1 unidentified dead body was found (0.75% each) [Figure 2].

The table shows the various manners of death. The majority of cases i.e. 93 (69.40%), accidental in nature, while 39 (29.10%) were natural. There was only 1 case (0.75%) of homicide and suicide, respectively [Table 3].

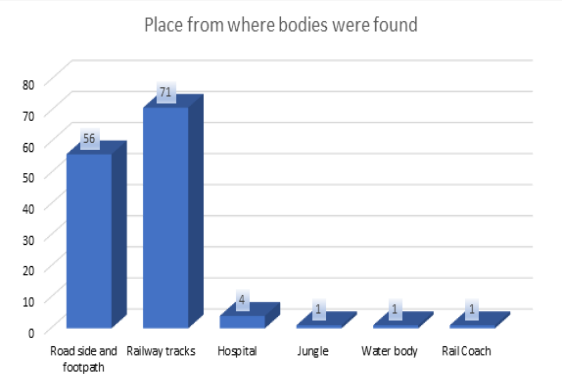

Figure 2: Places where unidentified bodies were found.

Table 3: Manner of death in studied cases.

Manner	No. of Cases	Percentage (%)
Natural	39	29.10
Accidental	93	69.40
Suicidal	1	0.75
Homicidal	1	0.75
Total	134	100.0

The table shows the distribution of cause of death as per the manner. It can be established from the table that pulmonary disease (61.54%) is one of the most common causes of natural deaths in unknown deceased, followed by cardiovascular disease (12.82%) and cerebrovascular accidents and septicaemia, with both (7.69%) having the same number. Railway accidents (76.34%) are some of the commonest causes of accidental deaths, followed by road traffic accidents (13.98%). Only one case of hanging in suicide and manual strangulation as a means of homicide was seen in unknown bodies [Table 4].

Table 4: Manner and Cause of Death in studied cases.

Manner & Cause	No. of cases	%
Natural		
B/L lobar pneumonia	1	2.56
Cardiovascular disease	5	12.82
Cerebrovascular accidents	3	7.69
Pulmonary Disease	24	61.54
Septicaemia	3	7.69
Stillborn	1	2.56
Non-viable foetus	1	2.56
No definite opinion	1	2.56
Accidental		
Blunt Trauma	2	2.15
Burns	1	1.08
Drowning	1	1.08
Fall from height	4	4.30
Railway accident	71	76.34
Road traffic accident	13	13.98
Opinion Reserved	1	1.08
Suicidal		
Hanging	1	100
Homicidal		
Manual strangulation	1	100

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DISCUSSION

The aim of this study was to understand the pattern of deaths in unknown/unidentified bodies. It is with a profound sense of responsibility that an autopsy surgeon has to deal with bodies. While the number 134 (3.10%) may seem like a small one, each represents a person who was born with his own identity and states his inherent right to maintain that identity in death as well. It is a small but important group of cases in an autopsy surgeon's career, wherein the absence of any proper history or background really tests his skills and expertise.

The gender distribution of unknown bodies is variably skewed, showing a more male preponderance. Almost 93% of the bodies were male as compared to only 7% female. This was a common finding in studies done in India and around the world.[11] This could be attributed chiefly to the prevalent patriarchal society, where the man is the main breadwinner as well as having the freedom to go wherever he wants. Females mainly are homemakers, whether parental or in-laws, and their freedom is questioned or absence enquired into. Males are also sometimes encouraged or forced to go off to far-off places for better opportunities for earning their livelihood. Mumbai, being a metropolitan city and the financial capital of India, attracts the labour workforce from all over India. Many a time, the family members back home are unaware about where the men are working. These poor social ties complicate the process of contacting next of kin or even identifying individuals suitably considered as next of kin. This is further hindered by the cost of travel to the forensic facility, which poorer families may not be able to afford, particularly when inter-provincial or state travel is required due to urban migration.[12] Hence, identification becomes a challenge, as the males may be from anywhere else in the country.

The most common age group of unknown bodies was from 31-40 years (33.58%) followed by 41-50 years (19.40%) and 21-30 years (17.91%). Even though the socio-economic status could not be determined for obvious reasons, it may be due to the fact that the three decadal groups are the most involved in the financial responsibility of the family and are the pillar of development in our society. This was similar to studies done in Chandigarh, Delhi, and Kolkata.[13-15] The extremes of age groups, i.e., <10 years (2.98%) and >70 years (1.49%) showed very few cases.

Most of the unknown deceased, i.e., 71 (52.99%) were brought from railway tracks, while 56 (41.79%) were found on the roadside and footpath. This may be in contrast to other studies which concluded that most of the unidentified bodies are from roadsides and footpaths.[16] This can be accounted for, as the rail is one of the lifelines of the city, and hence majority of the fatalities can be attributed to this. Only 4 (2.99%) had been admitted to the hospital at the time of death. There should be proper awareness about rail and road safety measures, and strict implementation should be done. Homelessness is another issue that is always overlooked by public health sectors. Efforts need to be taken by governing bodies to provide food, shelter, and some form of employment as well as programs to check their mental health, as psychiatric conditions are also a risk factor for non-identification. Some unusual places include jungle, recovered from water body, and abandoned rail coach (0.75% each).

Majority of the cases, i.e., 93 (69.40%) accidentals in nature while 39 (29.10%) were natural. There was only 1 case (0.75%) of homicide and suicide, respectively. This is similar to a study done by Pedada et al and Yadav A et al,[17,18] wherein a substantial number of individuals experience fatal injuries from trauma, followed by natural causes.

It can be established from the table that pulmonary disease (61.54%) is one of the most common causes of natural deaths in unknown deceased, followed by cardiovascular disease (12.82%) and cerebrovascular accidents and septicaemia, with both (7.69%) having the same number.

Railway accidents (76.34%) are some of the commonest causes of accidental deaths, followed by road traffic accidents (13.98%). Deaths by road traffic accidents or railway accidents were common in densely populated areas such as urban areas. The occurrence of motor vehicle accidents may have been exacerbated where there was a lack of law enforcement on the roads, as is common in India and developing countries.[19] The railway deaths also produce a separate set of challenges. There may be multiple injuries of varying ages. Sometimes, the magnitude of injuries is such that identification becomes a challenge. We have to also check if the injuries are antemortem or postmortem in order to rule out homicide. Only one case of hanging in suicide and manual strangulation as a means of homicide was seen in unknown bodies.

Currently, the most common sources of identification remain fingerprints and photographs. Hence, final identification is still based on visual identification. Direct comparison of the deceased with a photograph is the primary form of identification. However, in cases of mutilated, decomposed, or burnt bodies, it is necessary to resort to more scientific methods to prevent wrong identification. In January 2020, the National Crime Records Bureau launched a countrywide database for missing persons. Earlier such services were provided by the state citizens or police portal which consisted of photographs of the deceased as well as the place where they were found.[20] Railway police have also launched drastic measures of making posters of unknown deceased in hopes that frequent travellers may be able to identify someone.

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CONCLUSION

The study of unknown bodies has several implications across the medical, legal, and social domains.

- Improving overall identification practices, supporting law enforcement and family tracing efforts.
- Additional legislation for the management of unknown dead bodies other than the Anatomy Act of various states.
- Standard operating procedures to be followed by police personnel for identification of such bodies should be laid down. The police are required to take proper efforts for identification of bodies for at least 72 hours.
- Strengthening forensic infrastructure by upgrading fingerprinting and DNA analysis, particularly in urban areas, should be done on all bodies so that records will be there for identification of the deceased. On the part of the autopsy surgeon, proper samples should be appropriately preserved for DNA analysis against any claimant in the future.
- Boundary walls on both sides of the railway track wherever possible with fencing around the tracks to prevent illegal crossing and suicides. More efforts should be taken for proper implementation of road and railway safety measures including strict penalties for the offenders as it was seen in our study that the majority of the deceased were from this category
- To contribute to the ethical and humanitarian efforts by treating the unknown body with scientific rigour and dignity.

Unidentified bodies put serious pressure on medical and law enforcement owing to their legal and ethical obligations. It may be possible that many times some form of identification may be present on the body of the person, but sometimes only partial identification is possible. While the missing persons database is in place, more public awareness needs to be created to make the public aware about its existence so they can approach the appropriate police station to claim the body. The research study shows a diverse range of mortality across the varied manners of death. The government should also take sincere efforts to provide food, shelter, and employment to its citizens to reduce the number of beggars and homeless individuals. These individuals are generally absent from public health surveys and epidemiological studies, and hence, they fall through the cracks.

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