

# An Assessment of Death Profile of Unknown Dead Bodies, Brought for Autopsy to the Department of Forensic Medicine and Toxicology in Government Medical College of Garhwal Region, Uttarakhand: A Retrospective Study

Mayank Kishore Chand<sup>1</sup>, Niranjan Kumar Gunjan<sup>2</sup>, Pankaj Sahu<sup>3</sup>

<sup>1,3</sup>Postgraduate Student, <sup>2</sup>Associate Professor and In-Charge of the department, Department of Forensic Medicine and Toxicology, VCSGGIMS & R Srikot, Srinagar, Uttarakhand.

**How to cite this article:** Mayank Kishore Chand, Niranjan Kumar Gunjan, Pankaj Sahu. An Assessment of Death Profile of Unknown Dead Bodies, Brought for Autopsy to the Department of Forensic Medicine and Toxicology in Government Medical College of Garhwal Region, Uttarakhand: A Retrospective Study. Medico Legal Update/ Volume 24 No. 2, April-June 2024.

## Abstract

**Background:** an unknown dead body always becomes a challenge to the Investigating officer and forensic expert. However, the problem of determining the identity gets aggravated and taxes for the experts, when the dead body is recovered in decomposed/ skeletonized and mutilated form.

**Materials and Methods:** A standard proforma was designed to collect the information to ensure consistency for the whole sample. All dead bodies that were brought as unidentified were included however identified dead bodies were excluded from the study.

**Results:** A total of 407 post-mortem examinations were conducted at the mortuary of the department during under study and amongst them, 56 cases (13.75%) were found unidentified. Of these unidentified cases, 69.64% (39 cases) were in decomposed and 30.35% (17 cases) were in fresh state. Unidentified cases comprised 80.35% males (45 cases) and 19.64% females (11 cases).

**Conclusion:** Unidentified dead bodies were only 13.75% of the total dead bodies coming to the autopsy in the mortuary of the Department of Forensic Medicine and Toxicology, VCSGGIMS & R, Srikot, Srinagar, Pauri Garhwal, UTTARAKHAND during the study period of 5 years.

**Keywords:** Drowning, Medico-legal Autopsy, Unidentified bodies, artefact .

## Introduction

Identification means establishing the

individuality of a person<sup>2</sup>. It is important for both civil and criminal cases. Identification is carried out in both living and dead persons<sup>2</sup>. Establishing the

---

**Corresponding Author:** Pankaj Sahu, Postgraduate Student, Department of Forensic Medicine and Toxicology, VCSGGIMS&R Srikot, Srinagar, Uttarakhand.

**Mobile:** 9354234261

**E-mail:** spankaj680@gmail.com

**Submission date:** January 25, 2024

**Revision date:** February 9, 2024

**Published date:** May 13, 2024

---

This is an Open Access journal, and articles are distributed under a Creative Commons license- CC BY-NC 4.0 DEED. This license permits the use, distribution, and reproduction of the work in any medium, provided that proper citation is given to the original work and its source. It allows for attribution, non-commercial use, and the creation of derivative work.

identity of an unknown dead body always becomes a challenge to the Investigating officer and forensic expert. However, when a deceased person is found in a decomposing, skeletonized, or disfigured state, the identification process becomes more challenging and time-consuming for the specialists.<sup>3</sup> This mutilation may be due to the criminal intention to destroy all traces of identity or by animals as a post-mortem artifact. Mass disasters like earthquakes, bomb explosions, railway accidents, air crashes, tsunamis, etc. are other common instances where dead bodies are found in decomposed/ mutilated states<sup>1, 4</sup>. In such cases establishing the identity and cause of death becomes a Herculin task. A study also carried out by Hirsch showed that without any underlying cause, death would not have occurred<sup>5</sup>. There are 5 legally defined manners of death namely natural deaths, suicidal deaths, homicidal deaths, accidental deaths, and undetermined deaths. The purpose of the study is to obtain a profile of unidentified dead bodies concerning their age, sex, percentage of dead bodies that remain unidentified, cause and manner of death and to identify the place from where maximum numbers of dead bodies are brought for autopsy. Information on the accuracy of cause and manner of death on medico-legal autopsy of unknown/unclaimed dead bodies and to raise the awareness of the law enforcement authorities that they have to be careful in making decisions in issuing judgment.

### Material and Methods

This is a record-based study including post-mortem reports of unknown/unclaimed dead bodies brought to the Department of Forensic Medicine & Toxicology in VCSGGIMS & R, Srikot, Srinagar, Pauri Garhwal, UTTARAKHAND. We examined all available files of inquest papers, and autopsy reports from 1st January 2018 to 31st December 2022.

A standard proforma was designed to collect the information to ensure consistency for the whole sample. All dead bodies that were brought as unidentified were included however identified dead bodies were excluded from the study. Permission was taken from the Department to use the data for publication.

### Results

A total 407 post-mortem examinations were conducted at the mortuary of the department during under study and amongst them 56 cases (13.75%) were found unidentified. Of these unidentified cases 69.64% (39 cases) were in decomposed and 30.35% (17 cases) were in fresh state. Unidentified cases comprised 80.35% males (45 cases) and 19.64% females (11 cases). (Table 1)

**Table 1: Sex-wise distribution of cases.**

S.No.	Year	Male	Female	Total
1	2018	8 (72.72%)	3 (27.27%)	11
2	2019	9 (90%)	1 (10%)	10
3	2020	8 (61.53%)	5 (38.46%)	13
4	2021	11 (91.66%)	1 (8.33%)	12
5	2022	9 (90%)	1 (10%)	10
	Total	45 (80.35%)	11 (19.64%)	56

The maximum number of cases belonged to the age group of 31-40 years (35.71%), followed by the age group of 21-30 years (19.64%). The least number of cases were in the age group of 11-20 years. (Table 2)

**Table 2: Age wise distribution of cases.**

S.No.	Age group	No. of cases
1	0-10 years	7 (12.5%)
2	11-20 years	0
3	21-30 years	11 (19.64%)
4	31-40 years	20 (35.71%)
5	41-50 years	8 (14.28%)
6	51-60 years	4 (7.14%)
7	61-70 years	4 (7.14%)
8	71-80 years	2 (3.57%)
	Total	56

Overall maximum number of cases were encountered in the month of September (16.04% cases), followed by July (14.28% cases), and the least number of cases encountered in January (1.78% cases). However, there was no such pattern in year-wise distribution, the maximum number of cases brought on September 2018 and July 2022 (Table 3)

**Table 3: Month-wise distribution**

S.No.	Month	2018	2019	2020	2021	2022	Total
1	January	1					1 (1.78%)
2	February	1		1	1		3 (5.35%)
3	March			1	3	3	7 (12.5%)
4	April		1	1	1		3 (5.35%)
5	May	1		1	2		4 (7.14%)
6	June		1	3		1	5 (8.92%)
7	July		2	1	1	4	8 (14.28%)
8	August		1	1	1		3 (5.35%)
9	September	4	2	1	1	1	9 (16.07%)
10	October	2		2	1		5 (8.92%)
11	November	1	1		1		3 (5.35%)
12	December	1	2	1		1	5 (8.92%)

The maximum number of unidentified cases that were brought for autopsy was recovered from River (71.42%), followed by Hospital deaths (14.28%). (Table 4).

**Table 4: Area-wise distribution of cases from where dead bodies were recovered**

S.No.	Dead body recovered from	No. of cases
1	RIVER	40 (71.42%)
2	ROAD SIDE	5 (8.92%)
3	HOSPITAL	8 (14.28%)
4	GARBAGE	2 (3.57%)
5	BURRIED	1 (1.78%)

Opinion regarding the cause of death was given at the time of autopsy in 51.78% of cases while in the remaining 48.21% of cases, additional investigation was required. Viscera has been preserved in 57.14% of cases and sent for chemical analysis, and histopathology in 5.35% of cases.

**Table 5: Cause of death-wise distribution of cases**

S.No.	Cause of death	Number of cases
1	Natural Disease	6 (10.71%)
2	Drowning	12 (21.42%)
3	Strangulation	1 (1.78%)
4	Head injury	8 (14.28%)
5	Polytrauma	2 (3.57%)
6	Opinion reserved	27 (48.21%)

**Table 6: Showing the manner of death**

S.No.	Manner of death	Number of cases
1	NATURAL	6 (10.71%)
2	ACCIDENTAL	18 (32.14%)
3	SUICIDAL	0
4	HOMICIDAL	1 (1.78%)
5	UNKNOWN	31 (55.35%)

The majority of the opinions regarding the cause of death in these cases was given as 'drowning' (21.42%) followed by head injury (14.28%), death due to nature disease (10.71%), poly-trauma (5.57%), and least number of strangulation (1.78%) (Table 5). Regarding manner of death in these cases is presented in Table number 6.

To determine the individuality of the dead body, the investigating officer completed his formalities regarding photographs and publication of notices in newspapers in all the cases. Preservation of sternum/tooth/scalp hairs for DNA analysis in 71.42% of cases.

## Discussion

Uttarakhand state also called as the "Dev Bhumi" or the "Land of Gods" and is in northern part of India. This state receives large number of pilgrim's during the March to October since it is a very important for Hindu pilgrimage Char Dhaam Yatra as well as Sikh pilgrimage. Srinagar is a tehsil in Pauri Garhwal district which is a gate way for all

religious sites. Many Himalayan rivers drain into the Alaknanda River which passes through Srinagar. Being a hill state and home to many beautiful hill stations, it also attracts large number of tourists. Its situation make it prone to many natural disasters like cloudburst, floods, earth quack etc. As on 17<sup>th</sup> June 2013, Mandakini & Alaknanda valley of Garhwal received a heavy downpour and the cloudburst resulted in flash flood which was further intensified by the outburst of Besoka Lake, thus caused a huge devastation <sup>6,7</sup>. Determination of death profile of unknown dead bodies becomes a huge task for the autopsy doctor at that time. In our study total of 407 dead bodies was brought to the department for autopsy during the period 1st January 2021 to 31st December 2022 and among them 13.75% were identified as unidentified. However, studies conducted in New Delhi (16%) and Kolkata (24.5%) showed more number of unidentified deaths<sup>8,9</sup>. Since both cities are metropolitan and therefore the residing population is larger. Significantly only 3% of unidentified deaths <sup>10</sup> and a study conducted at Ahmedabad showed 7.43% unidentified deaths <sup>11</sup>. Among these unidentified bodies decomposition had started in 69.64% of cases and in 30.35% of cases dead bodies were in a fresh state. Males were predominant accounting for 80.35%, outnumbered females were 19.64% and these findings were consistent with similar findings observed in a study in Maharashtra <sup>12</sup>. As far as age is concerned, in the present study age group of 31-40 years was most affected and accounted for 35.71% of the total unidentified dead bodies. The study conducted at New Delhi (31-50 years), Chandigarh (21-50 years), Kolkata (31-45 years), Villupuram, Tamilnadu (51-70 years) and Ahmedabad (31.73%) showed somewhat similar findings (8,10,11). In the present study, the maximum number of deaths was observed in September (16.07%) followed by July (14.28%) months of the rainy season because many natural disasters happen during this period. The study conducted at Chandigarh exhibited more deaths in the winter season <sup>10</sup>. About 71.42% of cases were recovered from river followed by 14.28% of cases of hospital deaths. In 48.21% of cases as far as possible an attempt is made to give a definite opinion, when this is not possible "opinion reserved" is mentioned in the report as regards the cause of death, and Viscera was sent for chemical

analysis in 57.14% cases and histopathology in 5.35% of cases. Drowning accounts for 21.42 % of total unidentified deaths as the cause of death in the present study, followed by head injury in 14.28% of total cases. The study conducted at Ahmedabad had 20.19% coronary artery disease as a cause of death <sup>11</sup>. However, Kumar et al and Gitanjali noted 47.1% and 26.93% of deaths due to trauma respectively<sup>10, 13</sup>. As regards to facilitate the process of identification of the victim Sternum/ Tooth/ Scalp hairs were preserved for DNA analysis again at the request of the police officials.

### Conclusion

Unidentified dead bodies were only 13.75% of the total dead bodies coming to the autopsy in the mortuary of the Department of Forensic Medicine and Toxicology, VCSGIMS & R, Srikot, Srinagar, Pauri Garhwal, UTTARAKHAND during the study period of 5 years. The highest number of cases belong to the middle age group (31-40 years), the maximum number of deaths reported in the rainy season of the year. The cause was given as 'Opinion reserved' (48.21%) followed by Drowning (21.42%). Unidentified death cases pose challenges to the Investigating officer as well as the autopsy surgeon. As regards identification by the police personnel's request to preserve pieces of bone/ tooth/hairs etc. for DNA profiling. It is desired that the police personnel should take appropriate photos of the deceased, and clothing and upload them with the description of the deceased. Dental records and whole radiography may be useful for establishing the identity, which may reveal any old fracture or implant.

There is an urgent need to form a separate portal for unidentified death registration at the National level and their site should be easily visible and user-friendly. With the little effect on both sites by the doctors and investigating officers in many cases surprisingly, a large amount of information can be obtained even in the presence of the highly decomposed body.

Such information becomes a great advantage for the doctors and investigating officers to establish the identity and form an opinion about the cause and manner of death in unidentified cases.

**Financial support and sponsorship:** Nil

**Conflicts of interest:** There are no conflicts of interest

**Ethical Clearance:** Obtained from Institutional Ethical Committee. Certificate number- MC/IEC/2022-23/81 dated: 8th July 2023.

### References

1. Kumar A, Tyagi A, Aggarwal NK. Sex determination by morphology of talus bone. *Journal of Forensic Medicine and Toxicology*. 2008;25(1):54-7.
2. Vij K. *Textbook of forensic medicine and toxicology: principles and practice*, 5/e. Elsevier India; 2011.
3. Kumar A, Kumar GA, Tyagi A, Aggar NK. Sex determination using discriminant function analysis in adult talus and calcaneum bones. *International Journal of Medical Toxicology & Legal Medicine*. 2009;12(1):4-12.
4. Reddy DK. *The essentials of forensic medicine and toxicology*. 2019 Jul 25.
5. Hirsch CS. *Determining causes and mechanisms of death: Death certification*. Chicago, College of American Pathologists. 1984.
6. Sati VP. Extreme weather related disasters: a case study of two flashfloods hit areas of Badrinath and Kedarnath Valleys, Uttarakhand Himalaya, India. *Journal of Earth Science and Engineering*. 2013 Aug 1;3(8):562.
7. Prasad SV. Tourism practices and approaches for its development in the Uttarakhand Himalaya, India. *Journal of Tourism Challenges and Trends*. 2013;6(1):97-111.
8. Chattopadhyay S, Shee B, Sukul B. Unidentified bodies in autopsy—A disaster in disguise. *Egyptian Journal of Forensic Sciences*. 2013 Dec 1;3(4):112-5.
9. Yadav A, Kumar A, Swain R, Gupta SK. Five-year study of unidentified/unclaimed and unknown deaths brought for medicolegal autopsy at Premier Hospital in New Delhi, India. *Medicine, Science and the Law*. 2017 Jan;57(1):33-8.
10. Kumar A, Chavali KH, Harish D, Singh A. Pattern of cause of death in unknown dead bodies: a one year prospective study.
11. Patel DS, Vaghela AC, Shaikh MM, Prajapati P, Shah K. Profile of unidentified dead bodies brought to Mortuary, Civil Hospital, Ahmedabad. *Journal of Forensic Medicine and Toxicology*. 2016;33(2):98-102.
12. Job C. Determination of cause of death in decomposed bodies—a regional study. *J Indian Acad Forensic Med*. 2009;31(1):11-7.
13. Khoo LS, Lai PS, Siew SF, Ibrahim MA. Management of unidentified and unclaimed bodies: a comparison of model from four countries in the Asia Pacific Region. *Forensic Science, Medicine and Pathology*. 2023 Jul 31:1-6.