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# Subject Area : Forensic Medicine COMPARATIVE EVALUATION OF POSTMORTEM COMPUTED TOMOGRAPHY AND TRADITIONAL AUTOPSY IN MEDICO-LEGAL CASES: A PROSPECTIVE OBSERVATIONAL STUDY AT AIIMS, NEW DELHI

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ARTICLE INFO	ABSTRACT					
Article History: Received 11 <sup>th</sup> March 2024 Received in revised form 20 <sup>th</sup> March, 2024 Accepted 13 <sup>th</sup> April, 2025 Published online 28 <sup>th</sup> April, 2025	Introduction: Traditional autopsy, the cornerstone of forensic investigations, faces cultural opposition in countries like India, where religious and spiritual beliefs often conflict with invasive post-mortem procedures. This study evaluates the efficacy of post-mortem computed tomography (PMCT) as a non-invasive alternative to traditional autopsy in India, assessing its potential to reconcile scientific investigation with cultural sensitivity. Materials & Methods: A retrospective					
Key words:	observational study was conducted at the Department of Forensic Medicine and Toxicology, AIIMS, New Delhi, on 100 medico-legal cases. The study compared findings from PMCT and					
postmortem CT, traditional autopsy, forensic pathology, medicolegal death, virtual autopsy, India, trauma, imaging.	traditional autopsy, including histopathological examinations, across various causes of death. <b>Results:</b> Revealed that PMCT excelled in detecting bony injuries, intracranial hemorrhage, and lung pathologies, while traditional autopsy was more effective in identifying abdominal visceral pathologies, coronary calcifications, and soft tissue injuries. Statistical analysis showed a high degree of agreement between the two methods in traumatic deaths, but also highlighted significant differences, especially in abdominal and coronary pathology detection. <b>Conclusion:</b> The study underscores the complementary role of PMCT in forensic pathology, enhancing the accuracy and non-invasive nature of death investigations. The findings support the integration of PMCT into the Indian medico-legal system, offering a promising path towards more respectful, efficient, and culturally sensitive autopsy practices.					
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# **INTRODUCTION**

Traditional autopsy, a longstanding cornerstone of medicolegal investigations, involves classical techniques such as chinto-pubis incision, opening of the three primary body cavities, and examination of internal organs. These practices, largely unchanged over the past two to three centuries, have been complemented by histopathological examinations to ascertain the cause and manner of death. However, advancements in medical technology have significantly transformed diagnostic and therapeutic practices across healthcare, and forensic medicine is no exception<sup>1</sup>. In recent decades, numerous

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Senior Resident, Department of Forensic Medicine and Toxicology, All India Institute of Medical Sciences, New Delhi, India scientific innovations in fields such as histopathology, biochemistry, microbiology, molecular biology, and toxicology have been integrated into forensic pathology, enhancing both accuracy and efficiency. The concept of virtual autopsy, while gaining global traction, is yet to be fully embraced in India. This hesitancy is partly due to skepticism within the medicolegal community where traditional autopsy methods have long been regarded as the gold standard. There is a pressing need for scientific studies to demonstrate the efficacy and reliability of virtual autopsies in the Indian context. The current study, which aimed to conduct a comparative assessment of postmortem CT scans and traditional autopsy findings, is among the first in an Indian context. By evaluating the advantages and limitations of these modern imaging techniques and incorporating their findings into autopsy reports, this study seeks to establish the role of digital imaging in the forensic field, ultimately promoting a more dignified and scientifically rigorous

approach to managing the deceased<sup>2</sup>. This study has the potential to pave the way for "no-scalpel" autopsies in India, a critical development for a country with a vast and diverse population. In the face of mounting societal pressures and the growing demand for non-invasive alternatives, a virtual autopsy could be key to reconciling scientific necessity with cultural sensitivity in the Indian medicolegal system<sup>3</sup>.

# MATERIALS AND METHODOLOGY

This prospective observational study was conducted in the Department of Forensic Medicine and Toxicology of AIIMS, New Delhi. The study population consisted of patients undergoing medicolegal autopsies, including cases of traumatic, natural, asphyxial, and unnatural death. Ethical approval was obtained from the Institutional Ethics Committee (IECPG 398/27.06.2019, RT-07/27.06.2019). All patients presented to the Department of Forensic Medicine and Toxicology, AIIMS, New Delhi, and were included in the postmortem examination during the study period. Relevant historical data were collected from the relatives of the deceased and the Investigating Officer (IO), focusing on events immediately preceding death, including sociodemographic details and mental health status. A comprehensive family history, encompassing the medical history and details of death, was also documented. In instances where crime scene photographs were available, they were procured from the Investigating Officer. The body was identified by the relatives and the Investigating Officer prior to the commencement of the autopsy. Relatives were informed of the nature of the study and its potential future use for medicolegal purposes. Computed Tomography (CT) Examination: Following consent acquisition, the body was transferred to the CT scan unit within the department. Postmortem computed tomography (PMCT) was performed using a 16-slice Canon Aquilion Lightning CT scanner. The imaging parameters included a tube voltage of 120 kVp and a slice collimation of 128×0.6 mm. Multiplanar reconstruction (MPR) and three-dimensional volume rendering technique (VRT) images were generated for various body regions including the head, neck, thorax, and abdomen. The slice thickness was set at 1.0 mm with a 0.6 mm increment. The CT scan report was preserved for analysis and reviewed by a radiologist blinded to the autopsy results. This was followed by traditional autopsy, as per the standard protocol. Histopathological Examination: Tissue samples were collected from relevant organs, such as the heart and lungs, for histopathological examination, particularly in cases of sudden death. The tissues were preserved in 10% neutral buffered formalin and fixed for 3-5 days. Following fixation, gross examination and measurements were performed and thin tissue sections (0.4 cm) were prepared from areas with injuries and normal tissues. The samples were processed in an automated tissue processor and underwent dehydration, clearing, and infiltration. Paraffin-embedded tissues were sectioned using a microtome, stained with Hematoxylin and Eosin (H&E), and examined under a microscope.

# RESULTS

This study, conducted within the Department of Forensic Medicine and Toxicology at AIIMS, New Delhi, examined 100 medicolegal autopsy cases categorized as traumatic, natural, asphyxial, and unnatural deaths. This paper presents an overview of the findings and significance of integrating postmortem computed tomography (PMCT) into forensic investigations.

#### Demographics of the Study Population (Table 1 a & b)

Sex distribution: Males constituted the majority of the study population, representing 76% of the total cases. Age Distribution: The affected age group was 20–29 years (32%), followed by 30–39 years (22%). Age and Gender Analysis: Within age subgroups, males were more frequently victims, except in the group under 20 years, where the male-to-female ratio was equal.

Table 1a: Age groups						
Age groups (Years)	Number of cases (percentage					
Less than 20	8 (8%)					
20 to 29	32 (32%)					
30 to 39	22 (22%)					
40 to 49	18 (18%)					
50 to 59	12 (12%)					
60 and above	8 (8%)					
Total	100 (100%)					

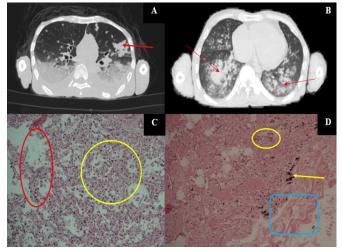


Figure 1: Death due to Pulmonary tuberculosis - (A) & (B) Axial section of thorax lung window showing cavitation (red arrow), C- section of lung showing Compact alveoli with reduced alveolar spaces (yellow circle) and Normal alveoli (Red circle)-H& E stain 20x, D- section of lung showing Edematous visceral pleura (blue rectangle), loss of alveolar spaces and many scattered Hemosiderin laden macrophages (yellow circle) and carbon particle (yellow arrow) - H& E stain 20x

Table 1 b: Gender distribution				
Gender	Number of cases (Percentage)			
Male	76 (%)			
Female	24 (%)			
Total	100 (100%)			

Traumatic death (36%) was the most prevalent cause of death in this study. The specific causes within this category are as follows: Road Traffic Accidents (RTAs) were the most common, with victims predominantly being two-wheeler riders and pedestrians.

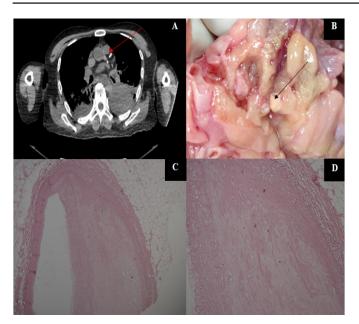


Figure 2: Death due to Atherosclerosis; A- Axial section of thorax showing coronary artery calcification (red arrow) in soft tissue window, B- autopsy image showing fully occluding coronary artery (black arrow), C & D- section of Left anterior descending artery showing atherosclerosis - H& E stain 4x & 10x respectively.

#### Distribution of Deaths (Table 2)

Falls from heights ranked second, followed by railway accidents and blunt trauma (Fig.1). Natural Deaths (28%): This category primarily included lung pathologies (Fig. 2), followed by sudden cardiac death (Fig. 3) and brain pathologies (Fig. 4). Asphyxial Deaths (26%): The predominant cause of death in this category is hanging. Unnatural Deaths (10%) included firearm injuries (Fig. 5), poisoning, and stabbing, with firearm injuries being the most common.

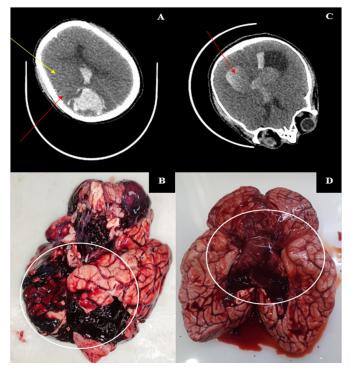


Figure 3: Death due to spontaneous Intracranial bleed; A-Axial section of brain showing Intraventricular bleed (red arrow) and parenchymal bleed (yellow arrow) in brain window, B- autopsy image showing intracranial bleed (white circle), C- Axial section of brain showing pineal gland tumor (red arrow) in brain window & D- autopsy image showing pineal gland tumor (white circle)

#### Identification of key injuries and pathologies (Table 3)

Road Traffic Accidents: The most common injuries in RTAs were head injuries, followed by rib fractures. Falls from Height: In cases, pelvic and rib fractures were common. Asphyxial Deaths: No significant fractures were observed in either the virtual or traditional autopsies for cases such as hanging. Histopathological Findings: In cases of lung and heart pathology, the findings were consistent with those in the existing literature, validating the role of histopathology in supplementing PMCT.

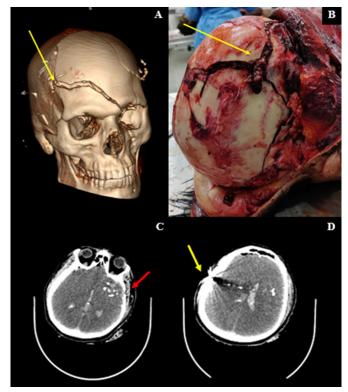


Figure 4: Death to Firearm injury; A- VRT image and B - autopsy image showing bullet entry wound (yellow arrow) with fracture of Fronto-temporoparietal bone with orbital bone fracture in a case of, C - Axial section of skull – Brain window showing Bullet entry (red arrow) and D - exit (yellow arrow) with trajectory path.

Table 2. Types of Cases							
Type of Cases	Number of cases (Percentage)						
Traumatic	36 (36%)						
Asphyxial	26 (26%)						
Natural	28 (28%)						
Firearm	4 (4%)						
Poisoning	4 (4%)						
Stab Injury	2 (2%)						
Total	100 (100%)						

Post-mortality computed tomography (PMCT) demonstrated a strong correlation with traditional autopsy for the detection of bony injuries, including skull fractures and intracranial hemorrhages, with a p-value of 0. In the thoracic cavity, traditional autopsy revealed positive findings in 26 cases, whereas PMCT identified positive findings in 32 cases (p =0.000). This suggests that PMCT may be more effective than traditional autopsy in detecting thoracic injuries, although both methods offer complementary insights.

Table 3. Pathologies identified during conventional autopsy and PMCT by different observers											
Observation modal- ity	Skull Fracture/s		Intracranial hemorrhage/s	Blunt Injury Chest		Lung pathologies		Abdominal visceral pathologies		Coronary calcifications	
Conventional Autopsy	18		30		26	42		30		12	
РМСТ		18	30		32	50		16		8	
Table 4: Summary of statistical analyses (PMCT versus Traditional Autopsy)											
Pathology		Agree	ement Difference		Pearson Chi-square		p-value M		Mor	ore Detected By	
Skull Fractures		Perfect agreement			100.0	00	0.0	000	Both methods (equal)		
Intracranial Hemorrh	nage	Perfect agreement			100.0	100.000		0.000 Both		methods (equal)	
Thoracic Cavity Inju	ries	Statistically significant difference			74.60	662 0.0		000	РМСТ		
Coronary Calcificati	ons	Statistically significant difference			32.682		0.000		Traditional Autopsy		
Lung Pathologies	8	Statistically significant difference			72.412		0.000			РМСТ	
Abdominal Visceral Pa gies	tholo-	Statistically significant difference			44.44	44	0.0	000	Tradi	tional Autopsy	

A significant difference was noted in the detection of visceral abdominal pathology, with traditional autopsy identifying 30 cases compared with 16 cases identified by PMCT, yielding a p-value of 0.000. This indicates that PMCT may be less effective than traditional autopsies in detecting abdominal visceral pathologies. In terms of coronary calcifications, traditional autopsy identified 12 cases, while PMCT identified only eight cases, with a statistically significant discrepancy (p = 0.000), suggesting that PMCT may be less effective in detecting coronary calcifications.

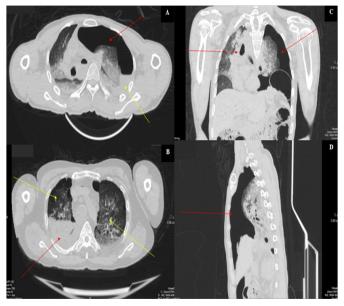


Figure 5: Death due to traumatic tension pneumothorax; A- Axial section of Lungs showing left side pneumothorax (red arrow) and hemothorax (yellow arrow), B- Lung window showing right sided pleural effusion (red arrow) and consolidation changes in bilateral lungs (yellow arrow), C- Coronal section & D- Sagittal section both showing Tension pneumothorax (red arrow)

Traditional autopsy identified lung pathologies in 42 cases, whereas PMCT identified lung issues in 50 cases (p = 0.000), indicating that PMCT was superior in detecting lung pathologies in this sample. Similar to digital radiography, PMCT was less effective in detecting soft tissue injuries (e.g.,

neck, pelvic soft tissue, and limb injuries) than traditional autopsy, which showed a statistically significant difference (p = 0.000). (Table 4)

# DISCUSSION

In India, the medicolegal system is challenged by a substantial number of autopsies, many of which may be unnecessary or nonessential. The implementation of virtual autopsies can significantly transform this landscape. This method not only honors the religious and cultural sensitivities of families but also offers a precise, reproducible, and non-invasive means of determining the cause of death. By integrating modern imaging technologies with a more empathetic approach to postmortem procedures, virtual autopsies provide an opportunity to reconcile scientific advancement with cultural respect. This study indicates that post-mortem computed tomography (PMCT) is a valuable tool in forensic investigations, offering notable advantages in identifying bony injuries and specific internal pathologies such as pulmonary diseases and intracranial hemorrhages. However, these imaging techniques are less effective in detecting soft tissue injuries and certain visceral pathologies (e.g., abdominal and coronary injuries) that are better visualized through traditional autopsies. PMCT provides more detailed information regarding fractures, cerebral pathologies, thoracic cavities, and lung pathologies. Traditional autopsies remain crucial for identifying soft tissue injuries and internal organ pathologies, underscoring the complementary nature of combining imaging and conventional methods for comprehensive forensic evaluations. These findings suggest that virtual autopsy methods, such as PMCT, could be adopted as adjuncts to traditional autopsy, enhancing the capacity to conduct non-invasive post-mortem investigations while preserving the dignity of the deceased. Globally, traumatic deaths (such as road traffic accidents, firearm injuries, falls, and asphyxiations) and homicides/ suicides (firearm injuries, falls from heights, hanging, and poisoning) are the most frequent causes of death, necessitating autopsies. In India alone, there were approximately 151,000 road traffic fatalities in 2019, making road traffic accidents

(RTAs) a primary cause of death in the medicolegal context, contributing to the high demand for forensic investigations, including both traditional autopsies and advanced imaging techniques such as PMCT. PMCT offers more comprehensive data for detecting both bony injuries and internal hemorrhages, air embolisms, lung pathologies, and foreign bodies (metallic or otherwise). PMCT is a non-invasive imaging technique that can complement or, in some cases, replace traditional autopsy in cases of trauma, lung pathology, and natural brain pathologies. Bullet trajectories in firearm injuries and the detection of spinal fractures, rib fractures, and pelvic injuries are areas where PMCT demonstrates superior results compared with traditional autopsies.

Britt M. Blokker et al. (2018) reported a 92% concordance between minimally invasive autopsy (MIA) and conventional autopsy in determining the cause of death, which is consistent with our study's finding of a 91% agreement. Furthermore, our research demonstrated 97% agreement with conventional autopsy and 96% agreement with MIA, corroborating the reliability of minimally invasive autopsy methods, such as post-mortem computed tomography (PMCT), in forensic investigations. Gil Graziana et al. emphasized PMCT's efficacy in detecting skull fractures, subarachnoid hemorrhages, and bullet trajectories, areas where PMCT surpasses traditional autopsy. Similarly, our study found PMCT to be highly effective in cases of trauma and lung pathologies, supporting this perspective. Shiori Kasahara et al. identified that PMCT could not ascertain the cause of death in 38% of cases, a limitation also observed in our study, where PMCT failed to determine the cause of death in 30% of cases, particularly in asphyxial deaths and myocardial infarctions. This highlights the necessity of using PMCT in conjunction with traditional autopsies for comprehensive diagnosis. Wataru Gonoi et al. found CT imaging beneficial for pneumothorax and calcific findings but less effective for diagnosing cardiac diseases. Our study confirmed the superior ability of PMCT to identify lung pathologies and fractures, while conventional autopsy remains more adept at detecting cardiac pathologies such as sudden cardiac death. In drowning cases, PMCT proved particularly useful, as demonstrated by Jian et al., who found that CT thorax was effective in identifying lung changes that are characteristic of drowning. Our study also suggests that PMCT could aid in drowning diagnosis, with lung volume ratios in PMCT being higher than those in sudden cardiac death (CAD). In cases of hanging or ligature strangulation, neck injuries (such as hematomas and fractures of the cervical vertebrae) may be overlooked on PMCT, especially when they are subtle or complex. Studies by Maiese et al. and Wijetunga et al. found that PMCT might miss certain neck injuries (e.g., hangman fractures). Similarly, our study found moderate agreement in hanging deaths between traditional autopsy and PMCT, where soft tissue injuries were more readily visualized during autopsy. Our results support the findings of Legrand et al. that PMCT and traditional autopsy showed high agreement in detecting head and neck fractures, with a kappa value of 0.95. However, PMCT may miss some skull base fractures and brain contusions, which are easily detected during autopsy.

Postmortem computed tomography (PMCT) is an invaluable tool for visualizing bony injuries in cases of traumatic death and firearm-related incidents. It is particularly effective in detecting rib fractures, pelvic fractures, and head injuries resulting from road traffic accidents and falls. In firearm

injuries, PMCT is instrumental in identifying bullet trajectories, which are critical for forensic investigation. In cases of natural death, PMCT has proven useful in identifying brain and lung pathologies such as pneumonia and tuberculosis. However, it is less effective for visualizing cardiac pathologies, especially those associated with sudden cardiac death. In certain instances of sudden cardiac death, PMCT has revealed calcifications in the coronary arteries, providing valuable information that can guide autopsy surgeons during dissection. In asphyxial deaths, particularly those involving hanging, PMCT did not reveal fractures or significant injuries, which is consistent with the general finding that asphyxial deaths typically do not exhibit bony fractures. This aligns with other studies, indicating that PMCT is less effective in cases of hanging and ligature strangulation. Traditional autopsy remains the most effective method for detecting subtle soft-tissue injuries in asphyxial deaths. In firearm-related deaths, the PMCT has provided crucial insights into bullet trajectories, which are essential for determining the circumstances of death. However, PMCT is not always capable of detecting specific cardiac pathologies, which may be critical for understanding the cause of certain unnatural deaths.

# CONCLUSION

This study was conducted at AIIMS, New Delhi, comparing post-mortem CT (PMCT) findings with traditional autopsies in 100 medico-legal cases, including traumatic, natural, asphyxial, and unnatural deaths. The study found that males aged 20-29 years were most affected by traumatic deaths, with road traffic accidents being the leading cause. PMCT showed a strong correlation with traditional autopsy in detecting bony injuries, including skull fractures and intracranial hemorrhage. However, traditional autopsies are more effective in identifying soft tissue injuries and visceral pathologies. PMCT is superior for detecting lung and thoracic injuries. This study suggests that PMCT is a valuable adjunct to traditional autopsy, particularly in traumatic deaths, firearms, and unnatural deaths. However, it has limitations in detecting soft tissue pathologies and asphyxial deaths. Histopathology remains crucial for confirming the cause of death in cases of sudden cardiac death or lung disease. The study concludes that PMCT is a promising tool in forensic investigations but should be used as a complementary method rather than a standalone replacement for traditional autopsy.

## Ethics Approval and consent to participate

The ethical clearance was given by the AIIMS institutional ethics committee vide IECPG 398/27.06.2019, RT-07/27.06.2019. Consent for participation was obtained from the first-degree relatives (Legal Heir) of all subjects before participation.

#### **Consent for publication**

Consent for publication was obtained from the first-degree relatives (Legal Heir) of all subjects before participation.

#### Availability of Data and materials.

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

## **Competing interests**

The authors declare that they have no competing interests

## Funding

No funding was received for this study.

#### Authors' contributions

Dr. Balaji D: Conceptualization, Methodology, Formal Analysis, Validation, Writing-Original Draft, Visualization. Dr.
Kulbhushan Prasad: Visualization, Validation, Resources, Supervision. Dr. Abhishek Yadav: Resources, Supervision.
Dr Amar Ranjan: Visualization, Validation. Dr. Sudhir K Gupta: Resources, Supervision.

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# References

- Dirnhofer R, Jackowski C, Vock P, Potter K, Thali MJ. VIRTOPSY: Minimally Invasive, Imagingguided Virtual Autopsy. RadioGraphics. 2006 Sep;26(5):1305–33. Available from: http://dx.doi. org/10.1148/rg.265065001.
- Roberts IS, Benamore RE, Benbow EW, Lee SH, Harris JN, Jackson A, Mallett S, Patankar T, Peebles C, Roobottom C, Traill ZC. Postmortem imaging as an alternative to autopsy in the diagnosis of adult deaths: A validation study. Lancet. 2012 Jan 14; 379(9811):136-42. doi: 10.1016/S0140-6736(11)61483-9. Epub 2011 Nov 21. PMID: 22112684; PMCID: PMC3262166.
- Cirielli V, Cima L, Bortolotti F, Narayanasamy M, Scarpelli M, Danzi O, et al. Virtual autopsy as a screening test before traditional autopsy: Verona experience in 25 cases. J Pathol Inform. 2018; 9(1):28. Available from: http://dx.doi.org/10.4103/ jpi.jpi\_23\_18.
- Blokker BM, Weustink AC, Wagensveld IM, von der Thüsen JH, Pezzato A, Dammers R, et al. Conventional Autopsy versus minimally invasive autopsy with Post-mortemMRI, CT, and CT-guided biopsy: Comparison of diagnostic performance. Radiology. 2018 Dec; 289(3):658–67. Available from: http://dx.doi.org/10.1148/radiol.2018180924.
- 5. Graziani G, Tal S, Adelman A, Kugel C, Bdolah-

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Abram T, Krispin A. Usefulness of unenhanced ppost-mortemcomputed tomography – Findings in ppost-mortemnon-contrast computed tomography of the head, neck and spine compared to traditional medicolegal autopsy. Journal of Forensic and Legal Medicine.2018Apr; 55:105–11. Available from: http://dx.doi.org/10.1016/j.jflm.2018.02.022.

- Kasahara S, Makino Y, Hayakawa M, Yajima D, Ito H, Iwase H. Diagnosable and non-diagnosable causes of death by post-mortem computed tomography: A review of 339 forensic cases. Legal Medicine. 2012 Sep; 14(5):239–45. Available from: http://dx.doi. org/10.1016/j.legalmed.2012.03.007.
- Gonoi W, Watanabe Y, Shirota G, Abe H, Okuma H, Shintani-Domoto Y, et al. Pulmonary post-mortem computed tomography of bacterial pneumonia and pulmonary edema in patients following nontraumatic in-hospital death. Legal Medicine. 2020 Jul;45:101716. Available from: http://dx.doi. org/10.1016/j.legalmed.2020.101716.
- Jian J, Wan L, Shao Y, Zou D, Huang P, Wang Z, et al. Post-mortem computed tomography for the diagnosis of drowning: A feasibility study. Forensic Science Research. 2019 Feb 23;6(2):152–8. Available from: http://dx.doi.org/10.1080/20961790.2018.1557386.
- Maiese A, Gitto L, dell'Aquila M, Bolino G. When hidden features become evident, PMCT is useful in strangulation-related death. Legal Medicine. 2014 Nov;16(6):364–6. Available from: http://dx.doi. org/10.1016/j.legalmed.2014.06.009.
- Wijetunga C, O'Donnell C, So TY, Varma D, Cameron P, Burke M, et al. Injury detection in traumatic death: PPost-mortality computed tomography vs. Open Autopsy. Forensic Imaging. 2020 Mar;20:100349. Available from: http://dx.doi.org/10.1016/j. jofri.2019.100349.
- 11. Legrand L, Delabarde T, Souillard-Scemama R, Sec I, Plu I, Laborie J-M, et al. Comparison between post-mortem computed tomography and autopsy for the detection of traumatic head injuries. Journal of Neuroradiology. 2020 Feb;47(1):5–12
- 12. Available from: http://dx.doi.org/10.1016/j. neurad.2019.03.008.

Balaji et al. (2025) Comparative Evaluation of Postmortem Computed Tomography and Traditional Autopsy in Medico-Legal Cases: A Prospective Observational Study at AIIMS, New Delhi, International Journal of Current Advanced Research, 14(04), pp.137-142.