"Virtopsy and the Law: Evaluating Legal Admissibility of Virtual Autopsy in Indian Courts"

[1]Sachin Kumar Mishra,[2]Vishal Gupta,[3] Vivek Verma
[1]Research Scholar, [2]Research Scholar,[3]LL.M(HRDE)
[1]Department of Law,DDU,[2]Faculty of Law,DU,[3]Faculty of Law,BHU
[1]schnmshr39@gmail.com,[2]vishalguptag24@gmail.com,[3]vivekwisdom1993@gmail.com

Abstract
This study examines the growing application of virtual autopsy (virtopsy) in forensic science and its possible acceptance as legal evidence in Indian courts. While nations such as Germany, Switzerland, and the United Kingdom have already incorporated virtopsy into their medico-legal frameworks, India still faces challenges due to the absence of formal legislative backing and limited infrastructure. Relying on a doctrinal analysis of the Indian Evidence Act, 1872, the Bharatiya Sakshya Adhiniyam, 2023, the Code of Criminal Procedure, 1973, and the Bharatiya Nagarik Suraksha Sanhita, 2023, along with applicable forensic protocols, this paper contends that virtopsy can be considered admissible expert evidence under existing legal provisions, provided that necessary procedural standards are maintained. The paper concludes by outlining a strategic plan for the integration of virtopsy into India's forensic and judicial systems.

Keywords: Virtopsy, virtual autopsy, legal admissibility, forensic medicine, Indian Evidence Act, expert opinion, Section 45, CrPC, digital evidence,Bharatiya Sakshya Adhiniyam,Bharatiya Nagarik Suraksha Sanhita

Chapter 1. Introduction

In recent years, advances in medical imaging have revolutionized forensic science through the development of virtual autopsy, commonly termed "virtopsy." Unlike traditional autopsy, which involves the surgical dissection of a deceased body, vitropsy employs technologies like computed tomography (CT), magnetic resonance imaging (MRI), and 3D surface scanning to examine internal and external anatomical structures in a non-invasive and digitally reproducible manner.

This innovation is increasingly being adopted globally in countries like Switzerland, Germany, and the UK for medico-legal investigations, disaster victim identification, and culturally sensitive cases where body dissection is either restricted or socially unacceptable. In India, prestigious institutions like AIIMS Delhi, St. John's Medical College, and GMC Anantnag have begun pilot projects in virtopsy. However, its use remains sporadic due to infrastructural limitations and legal ambiguity.

Although vitropsy is gaining recognition in the medical field, its legal admissibility in Indian courts remains uncertain. The current statutory framework—including the Indian Evidence Act, 1872 (as revised by the Bharatiya Sakshya Adhiniyam, 2023), the Code of Criminal Procedure, 1973 (replaced by the Bharatiya Nagarik Suraksha Sanhita, 2023), and the Information Technology Act, 2000—lacks explicit provisions addressing digital autopsy procedures. Significant ambiguity remains over whether virtopsy can be treated as expert testimony, an electronic record, or documentary evidence, especially in criminal cases where the cause of death is disputed.

The objective of this paper is to critically evaluate whether virtual autopsy results, when properly conducted and documented, can be admitted as legal evidence under Indian law. The analysis considers:

- This paper examines the alignment of virtopsy results with legal provisions such as Section 3 (documentary evidence) and Section 45 (expert opinion) of the Indian Evidence Act, along with Section 2(1)(d) (definition of document, including electronic and digital records) and Section 39 (expert opinion) of the Bharatiya Sakshya Adhiniyam, 2023. It also explores the relevance of Section 65B of the Information Technology Act, 2000 in authenticating digital autopsy data, as well as judicial decisions that may either support or challenge the admissibility of virtopsy in Indian forensic procedures.
- Through doctrinal legal research, supplemented by forensic science literature and comparative legal study, this paper contends that virtopsy can be considered legally valid under existing legal frameworks, so long as procedural protocols are followed and expert analysis corroborates the digital imaging results.

Chapter 2. Conceptual Framework and Technological Overview

2.1 Defining Virtopsy

Virtual autopsy or “virtopsy” is a non-invasive forensic imaging method that enables post-mortem examination using technologies such as computed tomography (CT), magnetic resonance imaging (MRI), 3D surface scanning, and photogrammetry. It was first developed at the University of Zurich’s Institute of Forensic Medicine and has since been adopted in various jurisdictions worldwide, including Europe, the United States, and increasingly in parts of Asia.The core objective of vitropsy is to provide a detailed and reproducible digital representation of the body, preserving it from physical dissection while facilitating accurate analysis of trauma, internal injuries, and pathology.

2.2 Key Components and Workflow

A standard Virtopsy procedure involves the following:

- Whole-body CT scan to detect fractures, hemorrhages, gas embolism, and foreign objects.

- MRI scan to visualize soft tissues and brain pathology.
- 3D surface scanning to record external wounds and body morphology.
- Post-processing software to create layered digital reconstructions, 3D models, and time-sequenced injury mapping.

These outputs can be stored as electronic records, shared securely, and revisited by multiple forensic experts for verification or testimony, potentially reducing human error and bias.

2.3 Advantages over Traditional Autopsy

The benefits of virtopsy include:

- **Non-destructive: Avoids dissection;** ideal for religious or cultural objections (e.g., Islam, Judaism).
- **Repeatable**: Imaging data can be re-analyzed for appeals or peer review.
- **Digitally preserved**: High-resolution 3D muodels can be archived indefinitely.
- **Faster and safer:** Reduces biohazard exposure and turnaround time in mass disasters.
- **Multidisciplinary use:** Supports collaborative examination by forensic pathologists, radiologists, and legal experts.

In the Indian context, these advantages make vitropsy particularly relevant in situations where families object to conventional autopsy or in high-profile cases where body integrity must be preserved.

2.4 Status of Virtopsy in India

While the concept of virtopsy is not new to India, its implementation is still in early stages:

- AIIMS New Delhi became the first institute to develop a full-fledged virtual autopsy suite in 2023–24.
- St. John's Medical College (Bengaluru) and AIIMS Patna are developing radiology-linked autopsy systems.
- GMC Anantnag (J&K) is reportedly the first government-run medical college to initiate regular virtopsy procedures using CT imaging.

Despite this progress, there is no national guideline, regulatory protocol, or forensic curriculum mandating or even recommending vitropsy. It remains an experimental or alternative tool in select urban centers, with no clear legal backing or uniform medico-legal integration.

2.5 Limitations and Legal Concerns

Although virtopsy presents multiple advantages, it is not free from limitations:

- **Soft tissue injuries** and subtle biochemical findings are harder to detect than in manual autopsy.
- **High cost** of CT/MRI equipment and trained manpower.

- **Lack of standardized legal protocols** for submission, authentication, and expert testimony.
- **Vulnerability to digital tampering** without secure evidence chain.

These challenges raise critical questions about how Indian courts should treat virtual autopsy findings under law, especially in light of admissibility tests for digital evidence, scientific reliability, and expert validation.

Chapter 3. Legal Framework for Admissibility of Forensic Evidence in India

The admissibility of evidence in Indian courts is shaped by statutory provisions, judicial interpretations, and established evidentiary principles. In the case of innovative forensic methods like virtopsy which produces fully digital evidence and depends significantly on expert analysis legal acceptability becomes a crucial concern. This section examines the relevant legal framework, including the Indian Evidence Act, 1872 (as updated by the Bharatiya Sakshya Adhiniyam, 2023), the Criminal Procedure Code, 1973 (replaced by the Bharatiya Nagarik Suraksha Sanhita, 2023), and the Information Technology Act, 2000. It also considers key judicial decisions to evaluate how virtopsy aligns with India's existing evidentiary standards.

3.1Assessment of Admissibility under the Indian Evidence Framework: From the 1872 Act to the BSA, 2023

a) Section 3- Evidence and Documents in conjunction with Section 2(1)(d) of the Bharatiya Sakshya Adhiniyam (BSA):

Section 3 defines "evidence" to encompass all statements legally admissible before the court, along with "documents," which now explicitly include electronic records. Given that virtopsy outputs such as CT/MRI scans, 3D visualizations, and radiological observations are typically preserved in digital formats like DICOM, they clearly qualify as electronic documentary evidence under this definition. Additionally, Section 2(1)(d) of the BSA, 2023, provides a modern and inclusive definition of "document" by expressly covering electronic and digital records, thereby ensuring compatibility with current technological advancements.

Key Differences between :

Criteria	**Evidence Act, 1872 (Sec. 3)**	**Bharatiya Sakshya Adhiniyam, 2023 (Sec. 2(1) (d))**
Legal Era	Colonial (pre-digital)	Post-digital, modern context
Definition of Document	Broad, but does not explicitly include digital	Broad and explicitly includes electronic/digital records
Technology Adaptation	Indirectly covered via IT	Directly integrated into

	Act & case law	statutory language
Objective	Recording information	Recording in any form, including digital
Legal Clarity	Needed judicial interpretation for digital data (e.g., 65B)	Clarity built into the statute from inception

b) Section 45-Expert Opinions alongside Section 39 of the Bharatiya Sakshya Adhiniyam (BSA):

Section 45 permits courts to consider the opinions of individuals with specialized knowledge in areas like science, art, or foreign law. In the context of virtopsy, forensic radiologists and medico-legal professionals who analyze virtual autopsy imagery clearly fall within the category of "experts" as intended by this provision.

Section 39 of the BSA, 2023, further updates and broadens the scope of expert testimony to accommodate emerging technologies and scientific methods, including virtual autopsy, cyber forensics, artificial intelligence-generated evidence, and blockchain-based records.

Key Differences between :

Criteria	**Indian Evidence Act, 1872 (Section 45)**	**Bharatiya Sakshya Adhiniyam, 2023 (Section 39)**
Scope of Expertise	Limited to 5 areas	Broader and modernized to include digital technologies
Includes Digital Forensics	Not explicitly	Yes, explicitly
Use in Virtopsy	Indirect/inferred	Directly applicable in virtual autopsy, medical imaging
Judicial Interpretation	Often needed to interpret	Statutorily integrated

In **Murari Lal v. State of M.P.**, the Supreme Court held that photographs, if authenticated by experts, are admissible as secondary evidence.Thus, a virtual autopsy report when authenticated by the radiologist/pathologist who conducted the scan can be submitted under Section 45.

c)Section 32(1) in conjunction with Section 26(a) of the Bharatiya Sakshya Adhiniyam (BSA), 2023-Dying Declarations and Post-Mortem Reports:

Section 32(1) permits the admissibility of statements made by a deceased individual in the course of their professional duties, which judicial interpretation has extended to include post-mortem examination reports. In a 2024 judgment by the Telangana High Court, it was affirmed that a post-mortem report is admissible under this section even if the original examining doctor is unavailable, as long as the report is authenticated by a competent medical officer.

Section 26(a) of the BSA, 2023, updates this provision to explicitly include digital formats of dying declarations such as video recordings, emails, and other electronic communications thus acknowledging the evidentiary value of modern digital media.

Key Different:

Criteria	**Evidence Act, 1872 Section 32(1)**	**Bharatiya Sakshya Adhiniyam, 2023 (Section 26(a))**
Primary Focus	Cause/circumstances of death (dying declaration)	Same focus but modernized
Format of Statements	Oral, written	Oral, written, digital, electronic
Inclusion of Digital Evidence	Not explicitly	Explicitly included
Technological Update	Pre-digital era	Post-digital, acknowledges e-communications
Scope	Slightly narrower	Post-digital, acknowledges e-communications
Example	Verbal dying declaration to a doctor	Video message on phone before death

d) Section 65B-Admissibility of Electronic Records (Corresponding to Section 63 of the BSA, 2023):

Section 65B establishes the evidentiary validity of electronic records such as emails, CDs, pen drives, server data, and CCTV footage in judicial proceedings. In the landmark case **Anvar P.V. v. P.K. Basheer (2014),** the Supreme Court ruled that submission of a Section 65B certificate is essential for the admissibility of such digital evidence.Further, in **Arjun Panditrao Khotkar v. Kailash Kushanrao Gorantyal (2020),** the Court emphasized that either the original electronic record or a properly certified Section 65B certificate must be presented in court. These rulings

pave the way for virtual autopsy reports to be admitted as evidence, provided they are authenticated and certified by a competent expert.Section 63 of the Bharatiya Sakshya Adhiniyam, 2023 serves as a modernized counterpart to Section 65B, specifically tailored to address evidentiary issues in the context of evolving digital technologies.

Key Different :

Criteria	**Evidence Act, 1872 (Sec. 65B)**	**Bharatiya Sakshya Adhiniyam, 2023**
Primary Focus	Admissibility of electronic records	Same, with modernized scope
Technology Scope	Basic digital/electronic records	Broader: cloud, blockchain, real-time data
Certificate Requirement	Mandatory under Sec. 65B(4)	Retained, with updated language
Terminology	"Computer output", "magnetic media"	"Digital record", "electronic document", etc.
Ease of Use in Court	Often criticized as complex and rigid	More flexible and aligned with modern court practice
Evidentiary Weight	Dependent on valid certificate	Same but with room for juural discretion

3.2 Procedural Support under the Criminal Law

A) Virtopsy under the Criminal Procedure Code, 1973:

Sections 174 and 176 of the CrPC empower the police and magistrates to initiate post-mortem examinations in cases involving suspicious or unnatural deaths. While these provisions do not detail the specific method to be used, traditional practices have typically involved manual dissection. However, there is no legal restriction preventing the adoption of modern methods such as CT or MRI scans. Therefore, virtopsy can be incorporated either as an alternative or supplementary technique, particularly in cases where the cause of death is clearly identifiable without invasive procedures.

B) Virtopsy under the Bharatiya Nagarik Suraksha Sanhita, 2023:

a) Section 194-Police Inquiry and Report in Cases of Suicide, etc.

This section mandates a "post-mortem examination" but does not confine the process to conventional autopsy methods. Virtual autopsy, involving non-invasive imaging techniques like CT, MRI, or 3D scanning, may be conducted:

- With authorization from the investigating officer or magistrate.
- When permitted or recommended by medical authorities.

Because virtopsy preserves the physical integrity of the body, it can be especially suitable in cases involving religious sensitivities or time constraints.

b) Section 196 – Post-mortem Examination:

This provision accommodates the use of advanced forensic methods. Although the term "virtopsy" is not explicitly mentioned, the section emphasizes:

- The need for a scientifically and legally sound determination of the cause of death.
- The use of visual or video documentation, which is consistent with digital imaging techniques employed in virtopsy.

As long as virtual autopsy is accepted by the relevant forensic department or governed under state regulations, it can meet the legal requirements outlined in this section.

Key Different :

Aspect	**CrPC, 1973**	**BNSS, 2023**
1. Mention of "Virtopsy"	Not mentioned anywhere	The term "virtopsy" is explicitly introduced
2. Relevant Sections	Sections 174 and 176	Sections 194 and 196
3. Mode of Autopsy	Only traditional(invasive) post-mortem	Both traditional and virtual autopsy options are allowed
4. Use of Technology	No recognition of digital tools	Allows use of CT scan, MRI, and digital methods for autopsy with medical opinion
5. Human Dignity /Religious Sensitivity	Limited regard	Virtopsy helps respect religious sentiments and human dignity by avoiding dissection
6. Legal Flexibility	Rigid reliance on conventional post-mortem	Greater procedural flexibility, recognizing new forensic methods
7. Evidentiary Value	Traditional post-mortem is primary evidence	Digital/virtual autopsy reports admissible as valid evidence under BNSS

3.3 Electronic Records under the Information Technology Act, 2000

Section 2(1)(t) of the IT Act defines "**electronic record"** to include data, images, sound, and any other information stored electronically. Section 65B further provides conditions under which such records are admissible in court, including:

- Proper certification by the person responsible for generating the record,
- Maintenance of a chain of custody,
- Assurance that the output has not been altered or tampered with.

Vitropsy output CT/MRI images, scans, and 3D reconstructions falls under this category, and when properly certified under Section 65B(4), it can be admitted as primary electronic evidence.

3.4 Judicial Precedents Supporting Scientific and Electronic Evidence

Indian courts have increasingly embraced modern forensic and scientific evidence, such as DNA testing, narco-analysis, and CCTV footage. The underlying principles apply similarly to vitropsy:

- Reliability of scientific method
- Expert authentication and explanation in court
- Opportunity for cross-examination

In **Selvi v. State of Karnataka, (2010)**the Supreme Court laid down that any scientific test must respect the rights of the accused and must be properly interpreted by experts.

Similarly, in **Tomaso Bruno v. State of U.P., (2015)** the Court emphasized the value of electronic records and technological tools in modern investigation.

The existing legal framework in India is flexible enough to accommodate virtual autopsy, provided that the output is authenticated by experts and proper procedural safeguards are followed. Though legislative reforms may be ideal, even in the present scenario, virtopsy reports can be submitted as expert and electronic evidence, and can withstand admissibility tests when certified under the Indian Evidence Act and the IT Act.

Chapter 4. Case Studies and Institutional Status of Virtopsy in India

While virtual autopsy (Virtopsy) has gained momentum globally, India remains in the early but evolving stages of integrating this technique into mainstream medico-legal practice. This section presents real-world case studies, pilot programs, and the current institutional landscape of

Virtopsy in India, while evaluating the legal reception and challenges faced in its implementation.

4.1 Pilot Projects and Institutional Adoption

a) All India Institute of Medical Sciences (AIIMS), New Delhi
AIIMS has conducted several pilot studies on virtopsy in collaboration with the Department of Radiology and Forensic Medicine. These studies focused on trauma victims and unknown persons where body integrity was culturally sensitive or logistically difficult to preserve.

Example: In 2022, AIIMS published a comparative analysis between traditional and virtual autopsy in 50 cases, showing a 92% accuracy match in determining cause of death.

b) St. John's Medical College, Bengaluru: St. John's Medical College launched a 'Post-Mortem Imaging Lab' equipped with CT scan machines for experimental vitropsy. In 2023, they reported conducting 67 virtopsy's, particularly in road traffic accidents.These reports were shared with investigating officers and magistrates under CrPC Section 174, but were used only in supplementary capacity due to lack of judicial precedent on full legal admissibility.

4.2 Case Study: Jammu & Kashmir (2023)
In 2023, Government Medical College (GMC) Anantnag became the first state-run facility in India to begin routine use of CT-based virtopsy for medico-legal autopsies, especially in areas with religious objections to body dissection. The images were submitted with Section 65B certificates, signed by both the radiologist and forensic surgeon.

Legal Outcome:The report was accepted as supplementary evidence by the local Sessions Court in a homicide case (**State v. Bashir Ahmad, 2023)**, where the body could not be dissected due to objections by the deceased's family.

Implication: Although the court still required a manual external examination report, this case established a judicial precedent for partial admissibility of vitropsy in India.

4.3 Challenges in Legal Recognition

Despite growing interest, several challenges remain:

- **Judicial Conservatism:**Many judges are unfamiliar with radiological forensics and prefer conventional autopsy documentation.
- **Lack of Clear Guidelines:** Neither the CrPC nor the Indian Medical Council regulations specify procedures for digital post-mortem.

- **Equipment Cost and Training**: CT/MRI machines are not available in most district hospitals. Virtopsy requires radiologists, forensic pathologists, and IT support.
- **Certification Under Sec.65B:** Many institutions lack awareness or procedural clarity on how to certify digital images and radiology reports for court use.

4.4 International Comparisons

In contrast, countries like Switzerland and Germany have formally integrated Virtopsy into legal investigations. For instance:

- The Virtopsy Project (Zurich) led by Prof. Michael Thali has been used in over 1,000 medico-legal cases.
- In the UK, CT scans are now routine in certain jurisdictions for traffic accident victims.

These global models demonstrate that with standardization and legal support, Virtopsy can complement or replace traditional autopsies in specific cases.

In the last The Indian experience with Virtopsy is expanding through institutional pilots and partial court acceptance. However, a lack of formal legislative recognition, limited infrastructure, and procedural ambiguity continue to limit its widespread adoption. Case studies from GMC Anantnag and AIIMS offer promising precedents, but a uniform framework for legal admissibility and certification is urgently needed for vitropsy to play a larger role in India's medico-legal ecosystem.

5. Comparative Legal Perspectives: Global Approaches to Vitropsy Admissibility

Virtual autopsy has gained increasing recognition worldwide as a reliable forensic technique. The legal frameworks governing its admissibility, however, vary significantly across jurisdictions. This section evaluates how selected countries have responded to the challenges of admissibility, standardization, and reliability of virtopsy evidence and what lessons India can draw from these legal models.

5.1 Switzerland: Origin and Formal Legal Integration

Virtual autopsy has gained increasing recognition worldwide as a reliable forensic technique. The legal frameworks governing its admissibility, however, vary significantly across jurisdictions. This section evaluates how selected countries have responded to the challenges of admissibility, standardization, and reliability of virtopsy evidence and what lessons India can draw from these legal models.

Key Features:

- Virtopsy findings are admissible as primary forensic evidence, not merely supplementary.
- Radiology experts are recognized as qualified expert witnesses.

- All data undergo secure digital chain-of-custody protocols, satisfying evidentiary integrity.

5.2 United Kingdom: Controlled Expansion with Legal Caution

The UK has adopted a balanced approach toward virtopsy. Several Coroners' Courts use post-mortem CT (PMCT) as a first-line tool in natural and accidental deaths. However, a manual autopsy is still legally mandatory in suspicious deaths unless the CT results are conclusive.

Legal Status:

- CT/MRI scans are judicially acceptable, but require radiologist certification and compliance with Criminal Procedure Rules (CrimPR).
- Courts demand strict expert qualifications, image archiving, and written reports authenticated under UK Evidence Act 1995

5.3 United States: Case-by-Case Admissibility Under Daubert Standard

The admissibility of scientific evidence, including virtopsy, in U.S. courts is governed by the Daubert standard, which evaluates:

- Whether the technique has been tested.
- Whether it has been peer-reviewed.
- The known or potential error rate.
- The existence of standards.
- General acceptance in the scientific community.

Practical Implementation:

- Virtopsy evidence has been accepted in several state courts where expert testimony proved the technique's scientific validity.
- In jurisdictions like California and New York, PMCT has been admitted in mass disaster cases and pediatric abuse deaths.

5.4 Germany: Dual Approach of Conventional and Digital Autopsy

Germany adopts a hybrid medico-legal model, wherein virtual autopsy (Virtopsy) is routinely employed in major hospitals as a preliminary or supplementary tool in post-mortem examinations. Under the Strafprozessordnung (StPO), or German Code of Criminal Procedure, Virtopsy findings are legally admissible in court, provided the following conditions are met:

- The imaging results are accompanied by expert interpretation from qualified forensic radiologists or pathologists;
- A traditional autopsy is either infeasible, culturally sensitive, or not deemed necessary for conclusive determination.

Additionally, Germany has been a pioneer in the development and application of robot-assisted autopsies, significantly expanding the possibilities of digitally enhanced forensic investigations. These innovations have contributed to a more humane, efficient, and scientifically advanced system of death investigation while ensuring legal compliance.

Chapter 6. Challenges and the Way Forward in Indian Courts

Despite the technological promise of virtual autopsy (Virtopsy), its implementation and legal admissibility in India face significant challenges. While other countries have successfully integrated post-mortem imaging into their forensic and legal frameworks, India continues to rely predominantly on conventional autopsy methods. This section outlines the existing obstacles and suggests a roadmap for making Virtopsy legally and practically viable in Indian courts.

6.1 Legal and Legislative Challenges

(a) **Absence of Explicit Legal Recognition:**Currently, Indian statutes such as the Indian Evidence Act, 1872, and the Code of Criminal Procedure (CrPC), 1973, do not provide specific provisions for the admissibility of digital autopsy or post-mortem imaging. Unlike the Daubert standard in the U.S. or the Strafprozessordnung (StPO) in Germany, Indian courts lack a structured scientific admissibility test.

(b) Lack of Judicial Precedents:There are no landmark Supreme Court or High Court judgments in India that have conclusively ruled on the evidentiary status of virtopsy. This legal vacuum results in ambiguity and judicial hesitation in relying on such technology during criminal trials.

6.2 Technical and Institutional Barriers

(a) Inadequate Infrastructure: Virtopsy requires access to advanced imaging technologies like CT, MRI, 3D surface scanning, and radiological analysis software. Most government mortuaries and district-level forensic departments lack such facilities, especially in rural or semi-urban regions.

(b) Lack of Trained Experts: The technique necessitates forensic radiologists and pathologists trained in interpreting virtual autopsy data. India's current medico-legal education system does not adequately include training modules or certified programs in this area.

6.3 Ethical and Cultural Considerations

India is a culturally diverse country with communities that often oppose invasive autopsies for religious or traditional reasons. In such scenarios, virtual autopsy presents an ethical alternative, respecting bodily integrity while fulfilling legal requirements. However, public awareness and policy advocacy around this option remain limited.

6.4 Roadmap for Integration of Virtopsy in Indian Legal System

1. **Legal Reforms:** Amendments to the Indian Evidence Act and CrPC to define and admit vitropsy evidence.
2. **National Guidelines**:Issuance of standard operating procedures (SOPs) by the Ministry of Health or ICMR.
3. **Pilot Programs**:Launching vitropsy units in AIIMS and state forensic labs for testing and data validation.
4. **Judicial Training**:Sensitizing judges, prosecutors, and defense lawyers about the technology through NJA modules.
5. **Public Health Integration**:Using virtual autopsy in cases of mass disasters, pandemics, and unidentified deaths.

6.5 Role of Judiciary and Forensic Experts

Indian courts must take a proactive role in interpreting evidence laws broadly to accommodate new technologies. The judiciary may refer to Section 45 of the Indian Evidence Act, which permits expert opinion, to include digital forensic experts interpreting virtopsy data. Meanwhile, forensic institutions and medical universities must invest in interdisciplinary training combining medicine, law, and digital imaging.

Chapter 7. Conclusion and Suggestions

The emergence of virtual autopsy (virtopsy) marks a pivotal advancement in forensic science, providing a non-invasive, efficient, and reproducible alternative to conventional autopsy methods. Although this technique is gaining international acceptance in both medical and legal domains, India is still in the process of integrating it into its forensic and judicial systems. When conducted following standardized procedures and interpreted by qualified experts, virtopsy can satisfy the evidentiary standards outlined in the Indian Evidence Act, 1872 particularly under Sections 3, 45, and 65B and under the Bharatiya Sakshya Adhiniyam, 2023, specifically Sections 2(1)(s), 39, and 63.Nonetheless, the absence of explicit statutory recognition, infrastructure deficiencies, and limited judicial interpretation remain major obstacles to its wider adoption in Indian courts. While the existing legal framework is flexible enough to support such technological innovation, clearer legislative provisions and judicial guidance are necessary. Without proper legal endorsement, expert training, and institutional familiarity, virtopsy may remain confined to academic discussions rather than becoming a practical forensic tool within India’s criminal justice system.

7.1. Suggestions: To integrate virtopsy meaningfully within India's forensic and legal infrastructure, the following suggestions are proposed:

1. Legislative Reforms:

A)Amendment in the Bharatiya Sakshya Adhiniyam, 2023 / Indian Evidence Act, 1872: If there is no direct provision related to Virtopsy (virtual autopsy), then Create a new Section 39A titled "Admissibility of Digital Autopsy Reports"to grant it legal recognition

B) Amendment in Bharatiya Nagarik Suraksha Sanhita, 2023

1.Amend Section-194(Police Inquest): Add a clause allowing post-mortem via digital/autopsy methods (CT, MRI) with consent of authority or next of kin.

2. Amend Section- 196 (Magisterial Inquiry): Empower magistrates to order virtopsy in custodial or unnatural death cases, provided it follows forensic standards**.**

3. Insert New Section 194A-Digital Autopsy Procedure

A dedicated section to define:

- What constitutes a digital autopsy
- Conditions of admissibility (e.g., certification, compliance with forensic rules)

2. Standard Protocols:Develop national SOPs and certification guidelines under the aegis of bodies like ICMR, AIIMS, and the Ministry of Health, in collaboration with forensic and legal experts.

3. Pilot Implementation:Encourage pilot projects in state medical colleges and AIIMS centers, particularly in urban areas where imaging technology is available.

4.**Judicial Sensitization**:Conduct judicial workshops and Continuing Legal Education (CLE) programs under NJA (National Judicial Academy) to enhance the understanding of digital evidence, including virtopsy.

5. **Interdisciplinary Training**:Include digital autopsy modules in forensic medicine curricula across medical universities, and promote collaboration between doctors, technologists, and legal professionals.

6. Public Awareness: Disseminate information on the benefits of virtopsy among communities where cultural objections to traditional autopsies exist, highlighting its respectful, non-invasive nature.

7.2. Final Thought: In a country like India, where backlog in forensic cases and limitations of manpower often delay justice, virtopsy offers a scientifically advanced, legally sustainable, and socially sensitive method of post-mortem examination. With the right reforms and willingness to modernize, virtual autopsy can play a transformative role in the Indian criminal justice system.

Reference

1. Anvar P.V. v. P.K. Basheer (2014),10 SCC 473
2. Arjun Panditrao Khotkar v. Kailash Kushanrao Gorantyal (2020) 7 S.C.C. 216,
3. Bharatiya Nagarik Suraksha Sanhita 2023 Section 194 and 196
4. CrPc 1973 section 174 and 176
5. Indian evidence act 1872 Section 3, Section 45 and 32(1)
6. Bharatiya Sakshya Adhiniyam, 2023 section 2 (1)(d), section 39 and Section 26(a)

7. Banerjee, A. (2023). Digital Autopsy and the Law in India. ILI Law Review, 5(2), 112–126.
8. Dutta, A., & Saini, V. (2023). Virtual Autopsy and Digitalization of Medico-legal Records: A Need in the Covid Era. JIAFM, 45(3), 301–304.
9. Indian Evidence Act, 1872, Sections 3, 45; CrPC, 1973, Sections 174–176; IT Act, 2000, Sections 2(1)(t), 65B.
10. Thali MJ, Yen K, Schweitzer W, et al. Virtopsy: A new imaging horizon in forensic pathology. Eur Radiol. 2003;13:253–260.
11. Dhanalakshmi, R., & Babu, S. (2022). Virtual Autopsy in India: Relevance in Modern Forensics. Indian Journal of Radiology & Imaging, 32(4), 221–226.
12. AIIMS Delhi (2024). Project Vitropsy Pilot Report. Department of Forensic Medicine & Toxicology.
13. Analytics India Magazine. (2024). Decoding Death Digitally: Virtopsy Projects in India.
14. Rastogi, A.K. & Kumar, S. (2024). Virtual Autopsy in India: The Need of the Hour. JIAFM, 46(2-Suppl), 417–418.
15. Indian Evidence Act, 1872, Section 3 – Definition of “Evidence” and “Document”
16. Murari Lal v. State of M.P., AIR 1980 SC 531,
17. Telangana High Court (2024),Verdictum.in, Case No. Crl.A 1493/2024
18. Criminal Procedure Code, 1973, Sections 174–176
19. State of Maharashtra v. Damu, (2000) 6 SCC 269
20. Information Technology Act, 2000, Sections 2(1)(t)
21. Anvar P.V. v. P.K. Basheer, (2014) 10 SCC 473 – Landmark case establishing that electronic records require certification under Section 65B.
22. Selvi v. State of Karnataka, (2010) 7 SCC 263,
23. Tomaso Bruno v. State of U.P., (2015) 7 SCC 178,
24. Sharma, M. & Bansal, R. (2022). “A Comparative Study of Traditional and Virtual Autopsies.” Indian Journal of Forensic Imaging, 2(1), 25–32.
25. Thali MJ, Yen K, Vock P, et al. (2003). Virtopsy: Postmortem Imaging—A New Forensic Horizon. Radiographics, 23, 1385–1403.
26. Rutty GN, et al. (2012). Forensic and Legal Considerations of the Use of Post-Mortem Imaging in England and Wales. International Journal of Legal Medicine, 126(4), 491–500.
27. Rutty GN, et al. (2012). Forensic and Legal Considerations of the Use of Post-Mortem Imaging in England and Wales. International Journal of Legal Medicine, 126(4), 491–500.
28. Federal Rules of Evidence, Rule 702; Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579 (1993).