

ORIGINAL ARTICLE

Is Medicolegal Autopsy necessary in Diagnosed Natural Deaths?

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Abstract:

Medicolegal autopsies are performed in unnatural, sudden and suspicious deaths to find out mostly the cause, manner and mode of death. With the annual autopsy load of 3718 in the year 2022 at our centre, 524 cases consisted of diagnosed natural deaths where the cause of death was known to the physician yet they were sent for medicolegal autopsy as initially it was registered as a medicolegal case. Estimation of magnitude of natural deaths coming for medicolegal autopsy with an aim to find out whether the autopsy findings provided any extra merit over the diagnosed clinical findings including the cause of death that is, the relevance of medicolegal autopsy in natural deaths. It is a retrospective, descriptive and cross-sectional study which took 524 cases of diagnosed natural deaths coming for medicolegal autopsy at our centre in the year 2022 amongst which unidentified cases, unnatural death cases, cases which were brought dead to the hospital, sudden deaths, deaths with suspicion of foul play, cases where no clear history of the disease were available to us and cases where medical records of the deceased could not be arranged were excluded. Out of all such diagnosed natural death cases, majority of the cases (255 cases) (48.6%) died due to sepsis and the least common cause being diseased condition of the heart which constituted (56 cases) (10.6%) amongst such diagnosed natural deaths. On medicolegal autopsy, there were no extra appreciable findings which could justify the physician's decision of sending the deceased for medicolegal autopsy.

Keywords: Medicolegal; Autopsy; Natural; Unnatural; Deaths.

Background and justification:

Literally, autopsy signifies personal inspection.¹ Broadly, there are three major types of autopsies:

i. Academic or Anatomical autopsy- here the medical students gather information regarding the normal structures of external and internal human organs, ii. Pathological autopsy/clinical autopsy which is performed by pathologists or clinicians solely to find out the cause of death¹ including extent of a disease condition and sometimes to check the effectiveness of the provided treatment on the disease process,² iii. Medicolegal autopsy which is synonymously used with the term “post-mortem examination” where the autopsies are generally performed in sudden, suspicious and unnatural deaths. It is carried out after receiving a requisition and/or inquest from Police, Magistrate or following an order from Court of Law. Here all the body cavities are explored, all the organs are inspected to corroborate the findings with the evidences given by any eye witness if any and to provide substantial information to the law investigating agencies to aid in administration of justice.¹ The broad objectives of medicolegal autopsies are: i. Fixation of identity of an unknown deceased, ii. Cause of death, iii. Mode of death, iv. Nature of death, v. Manner of death, vi. Time passed since death, vii. Time passed since infliction of injuries, viii. Nature of the offending weapon causing

the injuries, ix. To differentiate between dead born, still born and live born, x. Whether suspicion of any foul play could be ruled out even in cases of negative autopsies etc. In India, medicolegal autopsy is really a challenging situation to the government due to shortage of manpower including properly trained experts in this discipline and a huge number of cases demanding medicolegal autopsies.¹ While performing day to day medicolegal autopsies at our centre, we encountered that a significant number of already diagnosed natural death cases were regularly coming for medicolegal autopsies as those cases were booked as a medicolegal case.

Initially registering a case as a medicolegal/police case during the time of admission with a vague history of fall or with a history of being found in unconscious condition, does it mandate the medicolegal autopsy in cases of natural deaths where the patient was admitted in the hospital for a considerable duration of time and the cause of death was known to the physician and the cause of fall or unconsciousness was clearly established due to the natural disease process? It is highly unexpected for an autopsy surgeon to receive such cases for medicolegal autopsy where the broad indications for medicolegal autopsies are not met. The treating physician in such cases being acquainted with the entire history of the patient and the clinical records is expected to write the cause of death without a shadow of a doubt. With the annual autopsy load of 3718 in the year 2022 at our centre, 524 cases consisted of diagnosed natural deaths where the cause of death was already known to the treating physician yet they were sent for medicolegal autopsy mentioning cause of death to be determined by post mortem examination. This study is aimed to explore all those natural deaths to find out any relevance for medicolegal autopsy and whether the medicolegal autopsy is providing any extra merit over the clinical diagnosis.

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Aims and objectives:

Aim: Justification of medicolegal autopsy in diagnosed natural deaths to verify whether the autopsy findings provided any extra merit over the clinical findings in such cases.

Specific objectives: 1. To estimate the magnitude of diagnosed natural deaths sent for medicolegal autopsy.

2. To identify the cause of death amongst such diagnosed natural deaths.

Methodology:

A. Study design: Retrospective descriptive cross-sectional study.

B. Study period: January 2022 to December 2022.

C. Study area: Department of Forensic Medicine and Toxicology, NRSMCH, Kolkata.

D. Study population: Inclusion criteria: All the cases of diagnosed natural deaths coming for medicolegal autopsy at our centre which were initially registered as a medicolegal case with a history of fall or unconsciousness and were subsequently admitted, treated in the hospital for a few days and then later on were diagnosed to be a natural cause.

Exclusion criteria: i. All the cases of unnatural, sudden and suspicious deaths coming for medicolegal autopsy at our centre.

ii. All the cases registered as brought dead cases in the hospital.

iii. All the unidentified cases.

iv. All the cases of natural deaths where no clear history about the clinical condition was available to us from the medical records.

v. All the cases where medical records of the deceased could not be arranged.

E. Sample size and sampling procedure: All the 524 cases of diagnosed natural deaths amongst total number of 3718 autopsies in the year 2022 were considered for this study, based on inclusion and exclusion criteria.

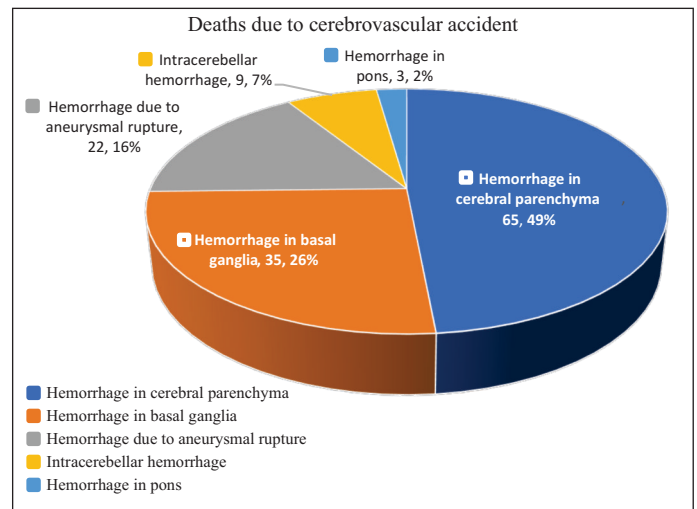
F. Data collection: Out of 3718 autopsies in the year 2022, 524 cases were found to be already diagnosed natural deaths which were initially registered as a medicolegal case where the information was collected from autopsy reports, medical records of the deceased and the police requisition/inquest and autopsy findings were compared with the clinical findings to find out the justification of medicolegal autopsies in those diagnosed natural death cases and whether the medicolegal autopsies in those cases were providing any extra merit over the clinical findings.

G. Data analysis: The collected data is stored in the computer, tabulated and statistically analysed.

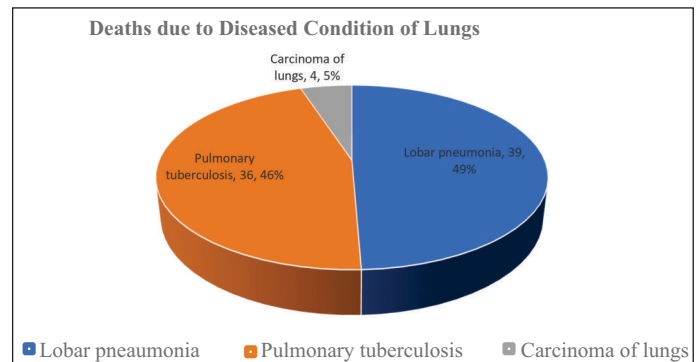
H. Human subject protection: Approval from the Institutional Ethics Committee of NRSMCH was taken.

Results:

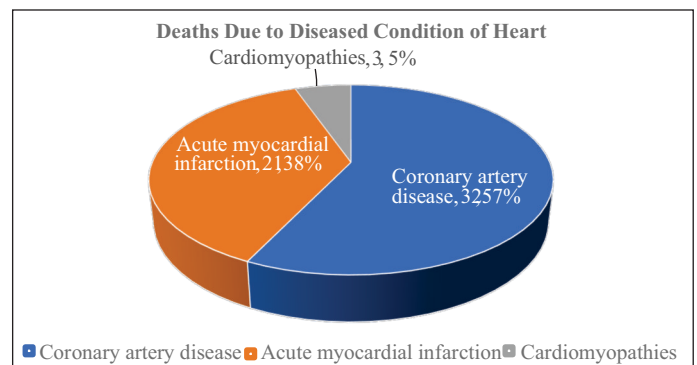
After the autopsy reports of the above given cases were compared with the clinical findings from the medical records of the deceased, to our surprise we noticed no difference in both the findings which completely justifies the fact that medicolegal



Graph 1. Showing the proportion of various causes of deaths in deaths due to cerebrovascular accident.



Graph 2. Showing the proportion of various causes of deaths in deaths due to diseased condition of lungs.



Graph 3. Showing the proportion of various causes of deaths in deaths due to diseased condition of heart.

autopsy is not required in cases of natural deaths where the physician has already diagnosed the cause after the patient was admitted and treated for a considerable duration of time under him/her.

Discussion:

Medicolegal autopsies are performed after getting inquest from the police or magistrate. As per the law of our country which authorizes the investigating officer to hold an inquest in sudden, suspicious and unnatural death cases as per Section 174 of CrPC.

Table 1. Showing the proportion of medicolegal autopsies performed on both natural and unnatural death cases out of the total number of medicolegal autopsies performed in the year 2022.

Serial Number	Autopsy	Number of Cases
1>	Total number of medicolegal autopsies	3718
2>	Total number of medicolegal autopsies in unnatural deaths	2937 (78.91%)
3>	Total number of medicolegal autopsies in natural deaths	781 (21.09%)

Table 2. Showing the proportion of medicolegal autopsies performed in the year 2022 in various types of diagnosed natural deaths.

Serial Number	Type of Diagnosed Natural Death Case	Number of Medicolegal Autopsies done in Diagnosed Natural Death Cases in 2022 (n=524)
1.	Sepsis	255 (48.6%)
2.	Cerebrovascular accident	134 (25.7%)
3.	Diseased condition of lungs	79 (15.1%)
4.	Diseased condition of heart	56 (10.6%)

The term “sudden death” here literally differs from the WHO definition of sudden death and indicates those deaths where death is not certified and considered as a medicolegal case. Unnatural deaths include cases of accidents, suicides, homicides including death following an attack of an animal, snakebite cases, on-table deaths etc. As per Merriam-Webster medical dictionary, “natural death is defined as death occurring in the course of nature and from natural causes (as age or disease) as opposed to accident or violence”.³ Natural causes are also defined in a way when a lesion is found at autopsy which is incompatible with life like ruptured aortic aneurysm or when a lesion found at autopsy which is known to cause death without any suspicion of foul play like advanced heart disease, lobar pneumonia, etc.⁴ It is mandatory that all unnatural deaths and brought dead cases should be reported to the police and in all such cases inquest should be done but depending on the circumstances of death, it is the sole responsibility of the investigating police officer to decide whether medicolegal autopsy is at all required in those cases. The basic objective of inquest is to find out the commission of any offence by creating a record of crime if any, to reveal the truth behind the deaths.

In routine day to day autopsy practice at our centre, it is revealed that a mentionable number of diagnosed natural cases are sent for medicolegal autopsies as at the time of arrival at the hospital, the cases were booked as a medicolegal case either due to unconsciousness or with a vague history of fall.

In cases of deaths due to sepsis, an internal focus of infection in the body mainly served as the source of septicemia as was evident from the clinical history and the hospital records in most of the cases.

Out of the 134 deaths due to cerebrovascular accident, the majority of deaths were due to hemorrhage in the cerebral parenchyma (65 cases) followed by deaths due to hemorrhage in basal ganglia (35 cases), deaths due to hemorrhage resulting from aneurysmal rupture (22 cases) constituted the third most common cause and the least common cause was pontine hemorrhage (consisting of 3 cases).

Out of the 79 deaths due to the diseased condition of lungs, lobar pneumonia constituted the most common cause with a total of 39

cases followed by pulmonary tuberculosis which constituted 36 cases and the least common cause was carcinoma of the lung which had a total of 4 cases.

Out of the 56 deaths due to diseased condition of the heart, the most common cause was coronary artery disease which constituted a total of 32 cases, the second most common cause was acute myocardial infarction and its complications which constituted a total of 21 cases and the least common cause was cardiomyopathy which constituted 3 cases out of the total.

Now we would like to highlight a pertaining question “does registering the case as a medicolegal case at the time of admission mandate medicolegal autopsy when the entire history of the patient along with the clinical records were available to the physician and the cause of death was purely natural without any history of foul play?”. To our surprise, even though the cause of death was known to the treating physicians, still they did not certify the cause of death in the MCCD (medical certification of cause of death) and noted that cause of death is to be determined after medicolegal autopsy.

In our study out of 3718 medicolegal autopsies performed at our Centre in the year 2022, 524 cases were of diagnosed natural deaths i.e., 14.09% of the total cases which is a significant measure of unwanted autopsies where the autopsy findings do not provide any extra information over the clinical findings. Therefore, such cases could clearly be avoided to prevent wastage of manpower and resources.

Now, naturally a question in our mind arises as to where lies the problem? If we analyze the entire scenario, then we find the actual issue to be multifaceted. The issues are hereby enlisted:

A. Issues in the Emergency: i. Huge case load creating a burden on the limited number of physicians, ii. Improper history taking of each and every case as the time allotted for each patient is shortened due to the huge case load, iii. Inadequate knowledge of the physicians as to which case should be registered as a medicolegal case which is a consequence of incomplete history taking.

B. Issues in the ward: i. Huge load of patients being admitted in the ward disproportionate to the number of treating physicians, ii. Inadequate history taking by the junior doctors, iii. Lack of supervision by senior doctors, iv. Improper knowledge of the doctors regarding MCCD (medical certification of cause of death) as to how to fill up the MCCD form in different cases including medicolegal cases where the pathophysiology behind the death is clearly known to the treating physicians which leads to non-certification of cause of death even in natural death cases. We would like to highlight that it is the responsibility of the hospital and the treating physician to deregister those cases as medicolegal case which were admitted with unconsciousness or a vague history of fall and later the cause of unconsciousness or the fall was clearly established due to disease condition like fall after a hypertensive intracerebral hemorrhage, fall on the ground or unconsciousness following any cardiac or cerebral cause and pathophysiology of death following a natural cause.

C. Issues on the part of police: i. Improper training of the police officers regarding preparation of inquests and fear of taking

responsibility to waive off medicolegal autopsies in those cases where the cause of death is already known and no foul play is established from investigational point of view. But it is an undeniable fact that as the treating physician who was in the best position to diagnose the disease condition and issue a MCCD (medical certification of cause of death) by exploring the pathophysiology of natural death, is not taking the responsibility to certify those deaths as natural deaths and deregistering those cases from the status of medicolegal case, it is quite obvious that the investigating officer cannot take the responsibility of waiving off the medicolegal autopsy when the treating physician has certified that the cause of death is to be determined by medicolegal autopsy in the MCCD (medical certification of cause of death).

All the above enlisted issues eventually lead to the following outcomes: i. Harassment on the part of the relatives of the deceased as a considerable number of formalities need to be completed for a medicolegal autopsy to be done and a medicolegal autopsy being done on the body of the deceased becomes a reason for grave mental agony on the part of the relatives, ii. The relatives of the deceased also face issues during claiming of insurance if any viscera at all is preserved during medicolegal autopsy, iii. Even after the medicolegal autopsy is completed, the relatives of the deceased have to wait for a considerable duration of time before the body is actually handed over to them, iv. An unnecessary burden is created on the limited number of autopsy surgeons and mortuary assistants as giving attention to such unwanted autopsies performed in diagnosed natural death cases reduces the autopsy surgeon's time which was to be allotted to cases of unnatural, sudden and suspicious deaths which mandate a meticulous and detailed autopsy.

A study conducted by Parmar, Pragnesh B et al., published in "Journal of Family Medicine and Primary Care" revealed cardiac cause of death was in 6.64 % of cases and 11.99 % were due to natural cause which were consistent with the respective inquests.⁵

A study titled "India and the problem of needless autopsies" published in "Egyptian Journal of Forensic Sciences", the authors expressed that where the cause of death was very obvious still autopsies are performed in the name of law ignoring the observations of the Supreme Court of India and they termed those autopsies as "needless autopsies" and also mentioned that unnecessary postmortem examination is a burden to India leading to waste of resources.⁶ In a study done by RB Kotabagi, SC Charati et al. titled "Clinical autopsy v/s Medicolegal autopsy", the authors emphasized the need of clinical autopsies to reduce the burden of medicolegal autopsies where the cause of death were already established and to study the disease process in situ to enrich the medical knowledge. Their study was aimed to create awareness among the medical officers of their institute by highlighting the differences between medicolegal autopsy and clinical autopsy.⁷

In a study done by Parekh U, Kanchan T published in "Journal of Forensic and Legal Medicine", the authors concluded that in India under Section of 174 CrPC, innumerable cases which were sent for medicolegal autopsy should be considered as highly needless which included natural deaths as well as unnatural

hospitalized deaths where the treating physician could certify the cause of death as the mechanism and pathophysiology of death was well understood. Though the cases were designated as medicolegal cases at the time of hospital admission but had well documented clinical case records and thus the cause of death was known to the treating physician and in all those cases, medicolegal autopsy was unnecessary.⁸

In a study done by Gupta S et al. titled "An approach to sudden natural deaths in medicolegal autopsies at Karamsad, Gujarat" published in the "Journal of Indian Academy of Forensic Medicine", the authors thoroughly reviewed 825 autopsy cases which were held from January 2007 to December 2009 over a span of 3 years. Out of 825 cases, 63 (7.64 %) died due to a sudden natural cause. 31-50 years was the most common age group as per the authors to which most of the cases belonged to. The most common cause of such deaths was cardiovascular disease which shared 58.73 % of the sudden natural deaths. Coronary artery disease was the most common cause of death amongst the cardiovascular causes.⁹

In a study done by Angam G et al. titled "A study of the pattern of sudden natural deaths: A JNIMS experience" published in the "Journal of Indian Academy of Forensic Medicine", as per the authors, majority of the natural deaths were due to cardiovascular diseases which contributed to 45 % of the total natural deaths with respiratory diseases being the second most common cause contributing to 28 % of the natural deaths. Gastrointestinal diseases contributed to 22 % of the natural deaths and neurological diseases were the least common cause of natural death contributing a mere 5% of the total natural death cases. The most common cause amongst the cardiovascular diseases contributing to natural death was ischemic heart disease.¹⁰

In a study done by Dayananda R et al. titled "Pattern of sudden natural deaths among autopsies conducted at Mysore Medical College" published in the "Journal of Indian Academy of Forensic Medicine", the authors studied 204 cases of sudden natural deaths out of which cardiovascular diseases contributed to 128 deaths being the most common cause of sudden natural deaths followed by respiratory diseases which contributed to 46 deaths, neurological diseases which contributed to 16 deaths, gastrointestinal diseases which contributed to 9 deaths, genitourinary diseases which contributed to 4 deaths. 119 deaths (41%) were due to coronary artery disease alone making it the most common cardiovascular cause of natural death.¹¹

Conclusion and recommendations:

Taking into account the scenario as noted above and the issues faced both on the part of the doctor and the police with respect to such diagnosed natural death cases, the following recommendations can be taken into account :- i. If at all the treating physician is interested in knowing the etiology of the disease, then there should be a provision for pathological autopsy instead of medicolegal autopsy as clinical or pathological autopsy aims at studying the disease condition in detail rather than stressing on the mode and manner of death, ii. Physicians should take more responsibility on their shoulders for effective history taking and efficient management despite the huge load of patients as apt and efficient history taking can help the physicians

to decide at the time of admission itself as to which cases are to be registered as a medicolegal case thereby reducing the number of unwanted medicolegal autopsies later on, iii. Proper supervision of the junior doctors by the senior doctors regarding the filling up of MCCD (medical certification of cause of death) and the training of the physicians in general as to which cases should be labelled as medicolegal which in turn would help the police to arrive at a decision regarding which cases are to be sent for medicolegal autopsy, iv. Physicians should not hesitate in having a proper communication with the police if they deem it necessary during the course of treatment that the case should be deregistered from the status of medicolegal case, v. Proper inquest should be done by the police to evaluate whether there is actually any foul play in question which will further dictate the necessity of any medicolegal autopsy.

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References:

1. Mukherjee JB, Karmakar RN. Forensic Medicine and Toxicology. 5th ed. Kolkata, West Bengal: Academic publishers: 250.
2. Reddy KSN, Murty OP. The Essentials of Forensic Medicine and Toxicology. 35th ed. New Delhi: Jaypee publishers: 75.
3. Natural death definition and meaning [Internet]. Merriam-Webster. Merriam-Webster; [cited 2023 Jan 4]. Available from: <https://www.merriam-webster.com/dictionary/natural%20death>.
4. Reddy KSN, Murty OP. The Essentials of Forensic Medicine and Toxicology. 35th ed. New Delhi: Jaypee publishers: 105.
5. Bansal P, Parmar PB, Rathod GB, Yadukul S, Bansal AK. Utility of inquest and medicolegal autopsy in community deaths at tertiary care hospital of India. *Journal of Family Medicine and Primary Care*. 2022; 11(5): 2090.
6. Kanchan T, Krishan K, Atreya A, Dehal N. India and the problem of needless autopsies. *Egyptian Journal of Forensic Sciences*. 2018; 8(1).
7. Kotabagi RB, Charati SC, Jayachandar D. Clinical autopsy vs Medicolegal autopsy. *Medical Journal Armed Forces India*. 2005; 61(3):258-63.
8. Parekh U, Kanchan T. COVID-19 instigates resurgence of 'needless autopsies' issue in India. *Journal of Forensic and Legal Medicine*. 2020; 74: 102028.
9. Gupta S, Panchal R, Sondarva D. An approach to sudden natural deaths in medicolegal autopsies at Karamsad, Gujarat. *Journal of the Indian Academy of Forensic Medicine*. 2011; 33(1): 30-32.
10. Angam G, Maring Saka Koko, Singh Kh Pradipkumar, Fimate L. A study of the pattern of sudden natural deaths: A JNIMS experience. *Journal of the Indian Academy of Forensic Medicine*. 2017; 39(2): 180-183.
11. Dayananda R, Pradhan Priyadarshree, Kumar MP. Pattern of sudden natural deaths among autopsies conducted at Mysore Medical College. *Journal of the Indian Academy of Forensic Medicine*. 2018; 40(2): 146-150.