

# Contriving an Opinion of Cause of Death in Autopsies

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## Abstract

Contriving an opinion of cause of death is something that requires a good expertise in the subject knowledge and the right set of discriminative skills. The immediate and basic causes of death, circumstances surrounding the death, and the investigation findings of police officers are all the necessary prerequisites to be gathered, before formulating an opinion. Decisions on the cause of death most often de facto will decide the manner of death.

A forensic pathologist can give causes of death in a logical sequential manner. Hume's and Mill's philosophy is something to be always borne in the mind of a forensic pathologist. Istanbul Protocol is the only literature mentioning as to how to opine an effect, with respect to the causes or circumstances that led to the effect. This can be extrapolated to have five different compartmentalised categories of opinions. Unless there is certain uniformity in opining, the more are the chances of confusion among our fraternity and the judiciary.

**Keywords:** Cause of Death, Forensic Pathology, Manner of Death, Opinion

## Introduction

Practicing the subject by doing a complete observation, as well as dissection during medico-legal autopsy is one thing; and application of all the information gathered during medico-legal autopsy to conclude the cause of death is quite another thing. It is a further gifted talent to compare such findings obtained, with the circumstances surrounding death to come up with the right conclusion as to the manner of the death. An opinion as to the cause of death is framed based upon the judgements and or discriminations of the forensic pathologists. Such discriminative skills are acquired on experience and from a priori reasoning.<sup>1</sup>

Certification of death is a very important source of statistical data to get information regarding the health status of a population. Hence, the cause of death section in a medico-legal report should contain both the unnatural and natural diseases that led to the death of an individual. Either of the two would have caused death ultimately, but they both need not be mutually exclusive. One event could have led to the other, or might have contributed for the other event to occur.<sup>2</sup>

Decisions of cause of the death will most often de facto will decide the manner of death.<sup>1</sup> As far as the doctors are concerned, a forensic pathologist is considered to be the most knowledgeable person regarding proper death certification.<sup>2</sup>

## What is 'Cause of Death'?

Cause of death is the injury, disease, or a combination of the two that initiates a train of physiological disturbances that result in termination of an individual's life. Immediate cause of death is the disease or injury present at the time of the death which caused death. Proximate cause of death is the original disease process or injury or event that led to a string of unbroken train of

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events eventually leading to death.<sup>2</sup>

This review paper is intended to guide any doctor as to how to frame a proper opinion of the cause of death, at the end of a medico-legal autopsy. Many a time, in natural diseases the best cause of death is listed. This may not necessarily be the actual cause of death. For example in case of a less severe coronary artery occlusion, since the pathologist does not find any other obvious lesions incompatible with life, s/he opines coronary artery disease to be the cause of death; especially when they are sufficient to cause death beyond all reasonable doubts. This will be supported by medical history and other circumstantial evidences. It is intriguing that the decedent was surviving all these years with the existing occlusion of the coronary artery. To some extent this fashion of opining is a subjective phenomenon, but this is the most practical way of practicing the subject. Hence it is always advisable to discover all the possible pathological/physiological processes in the decedents, before concluding an opinion.<sup>1</sup> Further, in order to determine the cause of death, the mechanism of death has to be understood. In many natural diseases due to the absence of pathognomonic autopsy findings and blurred ancillary investigations, the mechanism of the death cannot be determined.<sup>2</sup> The cause of death thus opined will not be disclosed in any official document provided to the next of kin of the deceased. Death certificate issued from local authorities do not mention the 'medical cause' of death, since it is only available from the death register of the authorities.<sup>3,4</sup>

### **Why is it Scientific or Logical to Opine?**

In a medico-legal report, the cause of death section represents a medical opinion that may vary from pathologist to pathologist.<sup>5</sup> Unlike clinicians, completion of the cause of death section in a medico-legal case requires careful judgment and interpretation of interacting causes of death. The opinion thus formulated is the sum total of all the autopsy findings, investigation results and the interpretations of circumstances surrounding death.<sup>6</sup>

For a forensic surgeon, diagnosis as to the cause of death is always an opinion. Such an opinion should be a reasonable conclusion, correlating the autopsy findings with the history and the circumstances surrounding the death.<sup>7</sup> It is both unethical and unproductive to provide a

mere speculative cause of death, without sufficient facts or evidence.<sup>8</sup>

### **How to Opine Cause of Death?**

Twentieth World Health Assembly (1967) defined the cause of death as "all those diseases, morbid conditions or injuries which either resulted in or contributed to death and the circumstances of the accident or violence which produced any such injuries"<sup>9</sup>. Later in 1990, an additional line (d) was added, under Part I of the M.C.C.D.<sup>10</sup> The 'circumstances' as mentioned in the definition indicate the manner of the death.

Consider the situation where a diabetic male with chronic ischemic heart disease dies due to pneumonia and the body is sent for a post-mortem examination. A clinician who would be treating such a patient in his/her various stages of illnesses will have a proper sequential knowledge of all the events that ultimately lead to death. Whereas a forensic expert, while exploring the cadaver, so as to reconstruct the events prior to death, will be handicapped when it comes to the task of arranging the events in a sequential order, for opining a cause of death.<sup>5</sup> A forensic pathologist, instead of giving the causes of death in separate columns/boxes, can describe them as a list of logical chain of events. S/he can also avoid as far as possible using complex medical terminologies, for benefit of the judiciary. For example, an opinion can be framed as – The death was due to massive gastrointestinal bleeding as a result of the ruptured veins of the food pipe (esophageal varices), a complication of hepatic cirrhosis as a result of chronic alcoholism.<sup>2</sup> The end of the chain of list (basic cause of death) actually determines the manner of death too. For example if bronchopneumonia is the immediate cause of death and if hip fracture is the basic cause (the actual triggering event), then the manner of death becomes accidental; provided the fracture had occurred accidentally.<sup>2</sup>

The causation of death philosophy: David Hume had quoted that for a cause "Y" to occur, there must be an effect "X", unless otherwise "Y" doesn't occur. But John Stuart Mill disagreed to Hume and said that a cause is a result of sum total of conditions/effects that occurred, from which one exclusive condition cannot be chosen out. For Hume, a statement such as "the rising sun causes daylight" would have been reasonable. But according to Mill, he would include 'atmosphere' too.

The presence or absence of the atmosphere is also a condition necessary for the daylight to occur.<sup>1</sup> Hume's approach is suitable to situations where there is only one fatally potential condition incompatible with life, when opining a cause of death. This restrictiveness can be seen in case of coronary atherosclerosis as a cause of death. Development of coronary atherosclerosis is not always followed by death and death does not always occur when coronary atherosclerosis has only developed. Yet, coronary atherosclerosis has been widely accepted as a reasonable proposition for pathological basis of an enormous number of deaths.<sup>1</sup>

An elderly male, a smoker with history of chronic bronchitis and emphysema was stabbed at the back aspect of the chest. During treatment he had an episode of cardiovascular collapse. Following resuscitation he developed cerebral infarction and was discharged from the hospital. But few weeks later he collapsed and died at home. The autopsy revealed massive pulmonary thromboembolism, deep vein thrombosis of calf veins and adenocarcinoma of the rectum with metastasis. This case can be opined in two different ways – either Hume's or Mill's theory of causation. If the opinion is based on the Hume's approach, where the stab wound initiated a chain of events leading to pulmonary thromboembolism further leading to death; then during trial, an intelligent lawyer can question the reason for completely excluding possibility of the complications of cancer leading to the death. In such tricky situations Mill's approach of multiple causes is always sensible to choose. As per Mill, there is no scientific and precise way of apportioning weight to each causes of death. As a corollary no cause of death can be discarded. In other words the responsibility of death should be shared by both the event of stabbing and the pre-existing carcinoma. Hence, both these principles should be borne in mind, and whenever required Mill's theory should be applied.<sup>1</sup>

Sometimes discrepancies can occur between treatment records and the opinion as to the cause of the death in the autopsy report. This has resulted in lawsuits alleging negligence against the clinicians.<sup>11</sup> Such problems can be avoided when the opinion as to the cause of death is done carefully and only upon facts derived from autopsy findings, as well as circumstances surrounding death. It is desirable for a forensic surgeon to wait until all the additional data are obtained after an

autopsy, before commenting on the cause of death.

When opinions are pending, they must be followed up regularly, so as to submit at the earliest the final cause and manner as to the death.<sup>2,5</sup> Opinions can be amended by the pathologist once any additional information are obtained. Even the manner alone can be amended leaving the cause of death to be the same.<sup>2</sup>

### **Should Manner of Death Find Place in Opinion?**

It is not imperative that the manner of death must be spelled out in each case while framing cause of death.<sup>6</sup> This is because in some cases it is implied from the cause of death itself. Moreover there is a misconception that the forensic pathologist must be only looking into the cause of death. The real skill of such an expert is when s/he contributes to the reconstruction of events surrounding the death.<sup>1</sup> In situations where the death is especially due to an external cause, the forensic pathologist has to specify the manner of death.<sup>5</sup> Further, if the expert is not able to comment upon the manner of the death, then it can be opined as "Could not be determined". When the opinion as to the manner of death is from corroboration of the autopsy findings with the inputs of the investigating officer, then it must be mentioned in the opinion of the pathologist.<sup>12</sup> The pathologist need not hesitate to correlate the investigations findings with his/her autopsy findings, so as to comment upon the manner of death. Literature also mentions that it is desirable to opine manner first, followed by the cause of the death!<sup>13</sup>

### **Different Types of Opinions**

While writing the opinion as to the cause of death, the major findings have to be listed in the order of the importance. It is not necessary to list most of the minute extraneous findings. The speculations regarding circumstances should be kept to a minimal level.

A popular, yet wrong belief is that doctors should never be definite while stating their opinions.<sup>12</sup> For the same reason they use words such as *probably* etc while stating their opinion as to the cause of death. This unnecessarily creates a bad impression for the judiciary because of the doubtful opinion. A forensic expert should never hesitate to give a definite opinion whenever they can reasonably do so.<sup>12</sup> A medico-legal opinion should be said in reconciliation with the history provided by

investigating officers, the autopsy findings and from the results of the ancillary investigations.

Istanbul protocol has provided guidelines as to how to opine the injuries present in a body in relationship with the history of the causation of those injuries.<sup>14</sup> This is the only literature mentioning as to *how to opine an effect with respect or in relationship with the causes or circumstances* that led directly or indirectly to it. It seems to be both scientific and logical to extrapolate this for opining causes of death in all medico-legal cases. If so, there can be five different types of medico-legal opinions as to the cause of death, the last one being an addition of the authors themselves while the rest four is being adopted from the protocol. Unless there is certain uniformity in opining cause and manner of the death, the more are the chances for confusion/s amongst the fraternity as well as the judiciary.

The five different types of medico-legal opinions can be – Diagnostic of, Typical of, Consistent with, Not consistent with and by Exclusion. They are elaborated as follows:

1. Diagnostic – The death *could not have been* caused in any other way
2. Typical – The death is *usually due to* this cause but *there are other* possible causes
3. Consistent – The death *could have been* produced by the cause but *there are many other* possible causes
4. Not consistent – The death was *not as per* the history/circumstances provided by the investigating officer or from the treatment records, but *due to some other* cause
5. Exclusion – There should be *no injuries / signs of violence* on the body to account for death. Poisoning and common natural diseases *should be ruled out* by ancillary investigations. But death due to *other uncommon natural causes could not* be ruled out.

Consider the example of a case of hanging to be written in these five different ways:

1. The autopsy findings and circumstances were diagnostic of death due to hanging.
2. The autopsy findings and circumstances were

typical of death due to hanging.

3. The autopsy findings and circumstances were consistent with death due to hanging.

4. The autopsy findings or the circumstances were not consistent with hanging. The autopsy findings were consistent with death due to strangulation.

5. There were no injuries / signs of violence on the body to account for death. Poisoning and common natural diseases has been ruled out by ancillary investigations. However death due to other uncommon natural causes could not be ruled out.

Sometimes no absolute statements can be made regarding the autopsy findings. This can lead to uncertainties in the opining of cause and manner of death. In such scenarios the forensic pathologist should elaborate on his uncertainties with the impression s/he has, rather than leaving them open for debate by another expert or the judiciary.<sup>6</sup> This is because the pathologist who examines a body for the first time will be the most qualified person to express his/her opinion in relation to the findings and interpretations/conclusions.

## Conclusion

The cause of death section of a medico-legal report includes both natural and unnatural causes, along with the manner of the death. A cause of death is an opinion always, which should be supported by facts and circumstances surrounding the death. This section of the medico-legal report should include the entire sequences of causes of deaths concluding at the event which triggered the chain. Mill's theory should be considered whenever required. Opinions can be kept pending or can be amended later depending upon the new information/s obtained at later stages of investigation. There can be five different categories of opining a cause of death, along with the manner.

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