



RESEARCH ARTICLE

CAUSE OF DEATH IS IT NATURAL OR UN-NATURAL?, INSIGHT INTO CAUSE OF DEATH IN REFERENCE TO MANNER OF THE CAUSE

*¹Dharmaraya Ingale, ²Dr. Swaroop S.N. and ³Dr. Ravikant Soni

¹Professor & HoD of Forensic Medicine & Toxicology, Karuna Medical College Vilayodi-678103, Chittur, Palakkad, Kerala

²Asst Professor Dept of Pathology KMC Vilayodi-678103 Palakkad

³Asst Professor Dept of Forensic Medicine KMC Vilayodi-678103 Palakkad

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ABSTRACT

Its well said in medical literature that determining the difference between natural & to unnatural cause is herculean task even for the Forensic Pathologist. Legality involved in deciding cause of death, as unnatural is not only difficult job to Doctor at the same time even to law enforcing agencies. Here is such a case encountered by author where the case was brought with history of Hanging while during autopsy along with signs of Hanging there were morbid autopsy findings of Coronary artery narrowing to the extent of 90-95 %. The paper is intended to create awareness of such cases to medical fraternity & legalities involved in certification as to cause of death & Manner of death.

INTRODUCTION

Death is not a sudden event but it is the process of stoppage of three vital functions of human body one after the other. It begins by stoppage of one function in given cause and other two later. In certain cases the autopsy finding may put the Doctor in trouble as to decide which organ has stopped first in the given case & is it logical consequence of said cause and Manner of death. Hence, meticulous autopsy with interpretation of findings observed are important tools to avoid confusion & erroneous diagnosis as to cause and manner of death.

Case Report

30 year old known male body was recovered from house of the deceased in evening hours of preceding day of autopsy in hanging state. Requisition for autopsy and dead body were submitted next day. On external (Post mortem no.46 / 2016 Dated 17-08-2016) examination the body was that of around 30 years age, moderate built and nourished. Rigor mortis was present all over the body, post mortem stains present over the

back of the trunk, nail beds were bluish. The left eye was partially open, right eye closed partially, tongue was protruded. There was an oblique ligature mark around the neck above the thyroid cartilage, below the level of hyoid bone, running obliquely upwards, backwards, to the root of right mastoid process. The length measuring 33 cms length & 1 cm in width. It is situated 5 cms below left ear lobule & 1 ½ cms below the level of right ear lobule. The skin of the ligature mark is hard & is parchumentised shows two rows of twisted pattern along its length. The ligature material present around the neck with running noose is twisted greenish plastic rope of 4 mm in thickness which fits in to the ligature mark in two rows & can withstand the weight of body. All the internal organs were intact & congested, Neck structures showing tiny haemorrhages in facial planes above & below the level of ligature marks, Hyoid bone & Thyroid cartilage were intact. Stomach was showing yellowish material, no abnormal smell, mucosa normal. Petechial hemorrhages were not found both external & internal examination.

Heart

Weights 310 grams. Left ventricle wall thickness 2 cms. LAD artery was hard calcified and narrowed by 90 -95 % and occluded completely by Atheromatous plaque 1 ½ cm from its origin (See pictures). The opinion as to the cause of death was

*Corresponding author: Dharmaraya Ingale

Professor & HoD of Forensic Medicine & Toxicology, Karuna Medical College Vilayodi-678103, Chittur, Palakkad, Kerala.

given as Death due to syncope as a result of myocardial infarction consequence to Chronic coronary artery disease Precipitated by Hanging.

DISCUSSION

In cases of due to hanging & causes of death in hanging are Asphyxia, Cerebral Apoplexy, Cerebral anemia (Anil Aggrawal, 2016). Vagal inhibition, Combination of Asphyxia & Cerebral apoplexy and damage to Cardio-respiratory centers in brain due to Fracture of 2nd Cervical vertebra. However in this case there were no specific autopsy findings for each of the above causes of death. Autopsy revealed, progressive, narrowed left Anterior descending coronary artery to the extent of 90-95%, which is incompatible with continuation of life. There were blood clot proximal to this narrowing indicating stasis of blood proximal to narrowed coronary artery. On naked eye examination by color, consistency and appearance the thickened blood vessel wall was extending for the length of 2 ½ cms length but with varying thickness & lumen narrowing. The degree of narrowing to the maximum was found at its proximal portion. At the distal portion there was hemorrhage between tunica media & externa (Virmani, 2000). Plaque ruptures are found in 60% of individuals dying suddenly with luminal thrombi and are the most frequent cause of death in young men (<50 years) and older women (>50 years; Table 1). Risk factors most predictive for this type of lesion are hypercholesterolemia, While in the case under discussion thin built young male succumb to hanging with narrowing (Stenosis of LAD) with luminal narrowing (without rupture) to the extent of 90-95% (Uren, 1992). We have demonstrated a significant inverse relation between the severity of coronary-artery stenosis and absolute myocardial blood flow during hyperemia, a finding consistent with previous work in both animals¹⁻⁴ and patients²²⁻²⁵. Basal flow remains constant despite any increase in the severity of stenosis, and maximal flow starts to diminish progressively if stenoses are 40 percent or greater. This agrees with the finding that basal flow to collateral-dependent myocardium is preserved in patients with complete coronary occlusion and normal regional wall motion²⁶. Although a relatively small number of patients were studied whose stenoses were more than 80 percent (which are equivalent to 96 percent or more if stenoses are expressed in terms of area), very few patients with normal left ventricular function have stenoses of more than 80 percent and normal anterograde flow; such patients usually appear to have functional occlusions with reduced flow and well-developed collateral vessels. (Maron, 1998) Maron, B.J., Gohman, T.E. and Aeppli D. Prevalence of sudden cardiac death during competitive sports activities in Minnesota high school athletes as a precipitating factor for myocardial insufficiency during exercise like hemodynamic stress in cases of Hanging.

Narayanreddy , 2017, Infarction usually occurs when the lumen is reduced to 20 % or less, Hypoxix myocardium is susceptible to arrhythmia's & ventricular fibrillation especially in moments of stress such as exercise or anger & emotions. Emotional disturbances are common in the persons committing suicide. In practice hanging is un-natural cause of death usually suicidal in nature. If the victim's death process begins much before fatal Asphyxial event to occur like in the case under discussion, the Cerebral Apoplexy, Cerebral anemia, Vagal inhibition, Combination of Asphyxia & Cerebral apoplexy and damage to Cardio-respiratory centers in brain due to Fracture of 2nd Cervical vertebra could have occurred.

Under such circumstances the cause of death is natural. However since the myocardial insufficiency occurred after suspension naturally it appears that the hemodynamic changes due to hanging could has been precipitated by the pre-existing myocardial insufficiency due to progressive Atheromatous narrowing of coronary artery (Sivanandan, 2009). Exaggerated sympathetic stimulation due to strangulation can result in acute reversible myocardial dysfunction mimicking myocardial infarction. In such cases the opinion as to the manner & cause of death shall remain as un natural & which is precipitated by strangulation, but the criminal responsibility of the Accused is diminished. Hence Doctors opinion in such cases, where there is contribution of preexisting natural disease, can change the course of investigation and the penal code applied in the charge sheet (Fesslova, 2010). Massive myocardial infarction in a full term neonate that occurred on the basis of a longstanding fetal anemia of unknown etiology leading to the peri-natal distress with severe hypoxia and multi-organ failure not improvable by the treatment.

In the above reference it appears that the anoxic assault as a result of preexisting anemia precipitating cascade of coronary narrowing of formation of blood clots (Anil Aggrawal, 2016). As discussed earlier presence of preexisting coronary artery narrowing or occurrence of coronary spasm causing myocardial infarction in cases of homicidal asphyxial deaths, are the contributory factors for the early cause of death, in the absence of positive demonstrable signs of asphyxia in that given case. Hence raising doubt as to the diminished criminal responsibility in favor of the accused.

In criminal law, diminished responsibility (or diminished capacity) or contribution of natural disease for the cause of death of the victim, is a potential defense by excuse by which defendants argue that although they broke the law, they should not be held fully criminally liable for doing so, as their mental functions were "diminished" or impaired. The preexisting disease, in the case under reference, specifically contributes to the partial defense for the charge of natural cause where a successful defense will result in a motive for committing suicide instead of rather cause of death being natural.

Conclusion

- Irrespective of said cause of death by the investigating officer in the requisition for autopsy surgeon should examine all the organs meticulously which may yield contributory or contradicting findings to the opinion as to the cause of death in the given case.
- In case of suspected un natural cause death in manslaughter or murder presence of such findings have definitive role of contribution in cause of death, reducing the degree of charge of manslaughter or murder in the given case.

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