

Sudden Death Due to Myxomatous Degeneration of Cardiac Valves: A Case Report

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Abstract

Sudden death occurs from unnatural as well as from natural causes. Forensic pathologists usually encounter cases of sudden death which occurred in apparently healthy individuals under suspicious circumstances. Most of the cases have known history of a natural diseases but unfortunately in few cases, the pathology is revealed only during autopsy. We report a case of sudden death due to mitral valve prolapse in a young boy during a scuffle after sustaining a trivial trauma.

Key words: Sudden death, trivial trauma, myxomatous degeneration.

Introduction

The World Health Organization (WHO) definition of sudden death according to the International classification of diseases, version 10 (ICD-10) is death, non-violent and not otherwise explained, occurring less than 24 hours from the onset of symptoms. ⁽¹⁾ Causes of sudden death can be divided into natural and unnatural. Forensic pathologists are necessary to give an opinion in a court of law regarding the cause of death and its medico-legal interpretation in cases where an individual dies after receiving non-fatal injuries and a natural pathology is revealed during autopsy. When a person with no previous history of any known symptoms of natural disease dies immediately after an assault, the law officials is more likely to give an association of the death with the trauma. ⁽²⁾ The degree of relationship of trauma to disease in such cases should be clearly interpreted. In cases where a combination of injury and disease is seen, before giving opinion, the forensic pathologist

must examine all available facts, medical documents, findings at post mortem and histopathological examination.

Case report: 18 year old boy was brought dead to a tertiary care hospital with an alleged history of sudden collapse following a verbal argument and scuffle with his friends at school. Police filed the case under section 174 Cr Pc and brought for medicolegal autopsy. History of the case revealed that he had history of mild abdominal discomfort for one week before death, for which no treatment was taken. There was no family history of sudden cardiac death. On external examination the deceased was moderately built and nourished. Abdomen was slightly distended. Few antemortem injuries were present on the body which occurred during the scuffle which were non-fatal. On internal examination, the intima of aorta showed numerous atherosclerotic fatty streaks. Heart weighed 400 grams, flabby and showed petechial hemorrhages on the front and

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back wall of both ventricles. Mitral valve measured 12cm Peritoneal cavity contained 400ml of straw coloured fluid. The viscera and blood were sent for toxicological analysis and reported as negative for poisons.

Histopathology of the heart revealed thickening with extensive myxomatous degeneration of the cardiac valves.(figure 1 and 2)

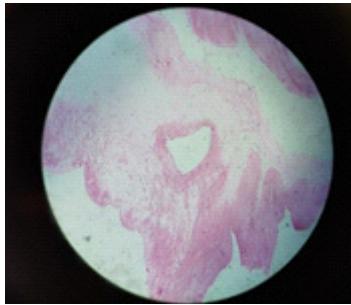


Figure 1

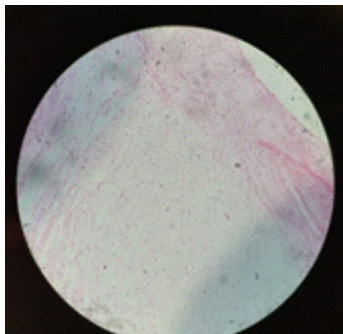


Figure 2.

Discussion

Forensic pathologists may encounter cases in which deaths occur following a scuffle after sustaining minor injuries and the police officials register the cases under unnatural death and bring for autopsy⁽²⁾. Even the relatives are not convinced after getting the reliable reports regarding the cause of death. The forensic pathologist has to explain the court and the police officials the degree of contribution of trauma to death in such cases.⁽⁵⁾

In the majority of such cases the deceased has history of symptoms suggestive of some natural illness, but in few cases the pathology is revealed only during autopsy.⁽⁴⁾ Opinion regarding the cause of death in cases following trauma should be given after getting detailed history, police investigation reports about the circumstances of death,

toxicological and histopathological reports. Even if a natural cause of death is obtained, the contribution to death from minor trauma and emotional stress and pain cannot be excluded. The stress associated with the circumstances lead to increased secretion of catecholamine which in turn cause fatal arrhythmia especially in people with preexisting heart disease. Myxomatous degeneration of the cardiac valves is usually asymptomatic and is seen in young individuals and usually it goes undetected and is commonly associated with mitral valve prolapse.⁽⁵⁾ Approximately 3% develop complications of Infective endocarditis, mitral insufficiency, stroke and arrhythmias leading to heart failure and sudden death is a very rare complication. In this case probably a fatal arrhythmia may be the terminal event. One would have to do a complete autopsy, including a thorough toxicological screen, to exclude other possible causes of death before making a diagnosis.⁽⁵⁾ The emotional upset in a fight can cause death due to sudden release of adrenaline which rises blood pressure or tachycardia that may precipitate an arrhythmia. The mechanism of death in such a case may be cardiac arrhythmia related to underlying heart disease, but initiated by the emotional and physical stress. The physical and emotional stress due to an assault contributes the cause of death.

A person may die of shock without any marks of violence. Sudden death may occur in circumstances in which a victim is subjected to fear of real danger from the assailant. Co-morbid conditions like heart disease, hypertension, and diabetes mellitus can render the victim more vulnerable to stress reaction. In such circumstances, death may occur during the event or may lead to death even an hour after the threatening situation has passed.

Conclusion

Sudden death may occur during an excitement, mental tension evoked by an assault by another person sustaining trivial trauma, when the question of homicidal death has to be clarified⁽⁶⁾. The medicolegal importance of death because of disease and injury or effort together has also to be kept in mind. After autopsy a natural death may turn out to be natural and vice versa. The medicolegal interpretation of relationship of death and the disease

or injury has to be kept in mind before giving an opinion regarding the cause of death.⁽⁷⁾ The findings and conclusions need to be given in a sturdy way to support an opinion.

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