Case Report

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SUDDEN CARDIAC DEATH – A CASE REPORT

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ABSTRACT

The Forensic autopsy or post-mortem examination is ordered by the competent legal authority to investigate sudden, unexpected, suspicious, unnatural, or criminal deaths. A medico-legal expert conducts an accurate autopsy examination is to ascertain the underlying and possible contributing cause and manner of death. Herein, we report a case of accidental death turn into sudden natural death following careful autopsy.

Key Words: Forensic autopsy, meticulous autopsy examination, sudden natural death.

INTRODUCTION

Medico-legal autopsy is performed to ascertain the cause and manner of death. Death due to unnatural causes and deaths that are believed to be due to natural causes, but where the medical cause of death is not certain or known are subjected to an examination that is usually done by investigating police officer of the case. This inquest is achieved by inquiry and at the conclusion of the inquest verdict arrives as to whether the death was due to a natural, accidental, suicidal or a homicidal cause[1]. Numerous definitions of sudden cardiac death have been proposed over the past twenty-five years. However, such deaths can be caused by many mechanisms, and no all-purpose definition can be applied to every situation[2]. SCD is a natural death due to cardiac causes, heralded by an abrupt loss of consciousness within one hour of the onset of acute symptoms; pre-existing heart disease may or may not have been known to be present, but the time and mode of death are unexpected[3].

The worldwide incidence of sudden cardiac death is difficult to estimate because it varies largely as a function of the prevalence of coronary heart disease in different countries [4, 5]. Approximately 50% of all coronary heart disease deaths are sudden and unexpected, often occurring shortly after the onset of symptoms. Because coronary heart disease is the dominant cause of both sudden and non-sudden cardiac deaths in worldwide, the fraction of total cardiac deaths that are sudden is similar to the fraction of coronary heart disease deaths that are sudden. Hereby, we report a case of sudden cardiac death after performing the meticulous autopsy examination.

CASE REPORT

A 40-year-old male brought to our tertiary care hospital with an alleged history of road traffic accident while riding a bicycle. The patient was declared as brought dead by a casualty medical officer at JIPMER hospital, Puducherry. The body was brought to the department of Forensic Medicine for post-mortem examination. History of the case revealed that the deceased was a bicycle rider, hit on the median strip of the road and brought to our hospital. During external examination the deceased was an average built adult male, no external injuries over the body. On internal examination, weight of the heart is about 600gm, heart chambers were examined by inflow-outflow method of dissection. The right and left ventricular wall thickness measures about 1.5cm and 3cm respectively. The left descending coronary artery shows 50% block (narrowed by atheromatous plaque) 2cm from the left coronary ostia and aorta shows multiple patches of atheromatous plaques. Cross section of right coronary artery showed complete block of the lumen by fresh thrombus. All other organs were intact and congested. The organs and blood were preserved, sent for toxicological analysis and reported as negative.

DISCUSSION

The necessary steps in the investigation of sudden death are obtaining the history and crime scene information, performing a gross and microscopic autopsy, performing appropriate laboratory tests, and making the diagnosis. A complete post-mortem examination includes detailed

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neuropathological and cardiovascular examination with toxicological analysis, must be performed in the context of all available clinical data and the circumstances of death[6].The highest incidence of sudden death in adults is between 45 and 75 years of age[7]. As per WHO census statistics death due to cardiac causes has overtaken mortality due to all cancers put together. Approximately 4280 out of every one lakh people die every year from sudden cardiac death in India alone[8].

Based on autopsy studies, it has been shown that 50–60% of patients dying suddenly from coronary atherosclerosis have luminal coronary thrombi, another 20–30% has healed myocardial infarction, and approximately 10–15% of patients have stable severe coronary narrowing involving one to three vessels, in the absence of any myocardial fibrosis or necrosis[9, 10]. The frequency of coronary thrombosis in sudden coronary death varies from 20% to 70%. The time interval between onset of symptoms and death, the presence of concurrent conditions that may cause arrhythmias, and the type of prodromal symptom all affect the incidence of thrombi in coronary sudden cardiac death.

The commonest cause of sudden cardiac death in adults over the age of 30 years is coronary artery atheroma. The most common finding at post-mortem examination is chronic high-grade stenosis of at least one segment of a major coronary artery, the arteries that supply the heart muscle with its blood supply. A significant number of cases also have an identifiable thrombus (clot) in a major coronary artery, which causes transmural occlusion of that vessel[10].The heart must be carefully weighed, and left ventricular wall thickness has to be measured at several different locations. Heart size is an independent risk factor for sudden cardiac death, and the measurement may prove to be a very significant factor in determining the cause of death.

CONCLUSION

In utmost cases where, after the visiting the crime scene and the external examination of the body, the manner and cause of death remain unclear, and of course whenever there is a suspicion of unnatural death, it is advisable to carry out a medico-legal autopsy. A meticulous post-mortem examination can help to interpret the nature, pattern of injury, circumstances and cause of death.

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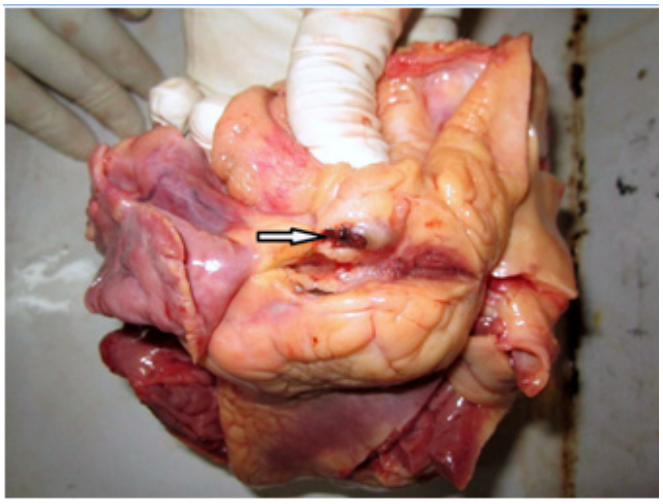

Figure 1: Thrombus in right coronary artery.

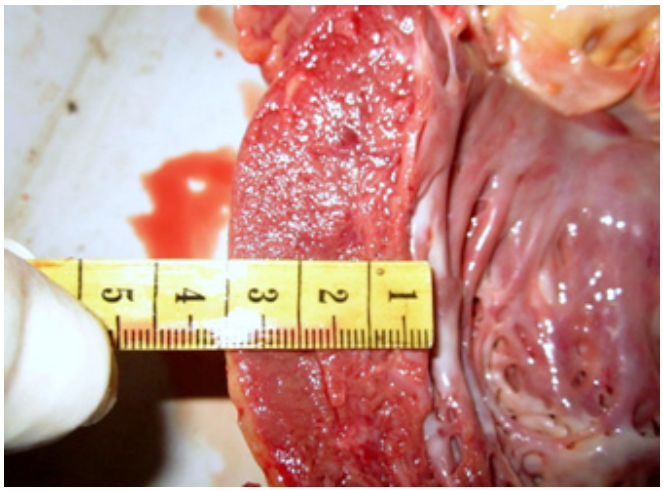

Figure 2: Left ventricular hypertrophy measuring 3cm thickness.

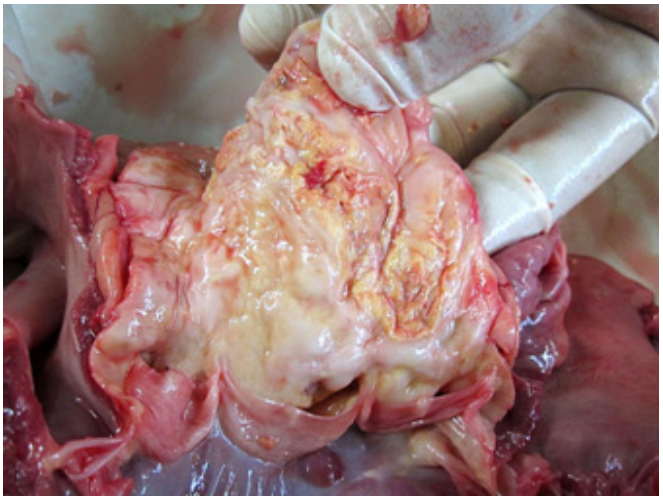

Figure 3: Multiple patches of calcified atheromatous plaques in the inner wall of the aorta.