

## Trauma Misleading a Natural Death: A Case Report

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### Abstract

Major component of Forensic Pathology is its ability to recognize and interpret the injuries and determine its role in causing death. It becomes more complicated in sudden deaths, wherein there are both significant external mechanical injuries and internal natural lesions. Meticulous autopsy plays an important role in unravelling such deaths.

Sudden death due to cardiac cause is the most common pathology encountered at autopsies. Diseases of the heart account for approximately 90% of all sudden deaths due to natural disease, with atherosclerotic coronary artery disease being the underlying cause of approximately 75 - 90% of sudden cardiac deaths. Autopsy studies indicate that 8 - 20% of deaths following myocardial infarction are due to free wall myocardial rupture.

We here by present a case of sudden death of 75 years old lady who was brought dead to hospital with external injuries to head after fall in bathroom. But after autopsy we were able to attribute cause of death due to rupture of left ventricular wall and not due to head injury.

**Keywords:** Sudden deaths; Myocardial Infarction; Haemopericardium.

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### Introduction

Certain cardiac conditions like myocardial infarction (MI), rupture of free wall, arrhythmias etc can be prompted by minor trauma. Sometimes these cardiac insults may lead to fall and eventual death of the individuals. MI and cardiac arrhythmias may not leave any significant findings supporting their occurrence at autopsy making the forensic pathologists' job more difficult. But in case of cardiac tamponade, obvious autopsy features are present.

External trauma like head injury may mask the condition if the incomplete autopsy is performed. Timely diagnosis and treatment of this life threatening condition could have saved the life of the deceased. Hence meticulous autopsy is important even in

traumatic deaths where external injuries are obvious, for the reason that, cardiac lesions may be missed. This can result in misleading conclusion as to the cause of death.

Cardiac rupture is a rare complication of acute myocardial infarction and represents the second cause of death after cardiogenic shock[1,2,3]. Most patients with cardiac rupture may succumb almost instantaneously due to cardiac tamponade with rapid, irreversible, elec-tromechanical dissociation[4,5,6].

In this paper we highlight importance of intelligent and a timely diagnosis of the life threatening cardiac tamponade during life and importance of meticulous autopsy of the case after death in morgue.

### Case report

A 75 yrs old female slipped and fell down while going to bathroom early in the morning. Immediately she was taken to the emergency department of hospital in an unconscious state. On examination by the attending physician, the patient was declared brought

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dead. The dead body was sent to the mortuary for autopsy.

The autopsy was conducted on the same day. On external examination, the dead body was of a female with moderate built. The face was markedly congested. There was a split laceration over the head in occipital region (Figure 1) with corresponding scalp contusion. No other external injuries were present over the body. On internal examination a large amount of blood clot, measuring 200 gm, was found inside the pericardial cavity (Figure 2). The heart was enlarged weighing 476gm. Two large tears, measuring 4cm X 1.5cm and 3cm X 1cm with irregular margins communicating with the left ventricular cavity were present over antero-lateral and posterior surface of left ventricular wall (Fig 3). Hyperemia of surrounding myocardial tissues was also noticed. Left ventricular wall hypertrophy

present and the walls of all major coronaries were calcified. All internal organs were congested.

Histopathological examination of the heart revealed the showing the coagulative necrosis of the myocardial fibres and neutrophilic infiltration suggestive of acute myocardial infarction (Fig 4) leading to rupture of the ventricular wall (Fig 5). Fibrosis of the ventricular wall (Fig 6) was suggestive of old myocardial infarction.

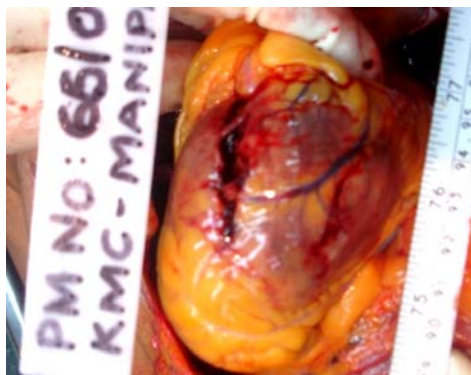
Psychological autopsy from the relatives revealed the significant past medical history of the decrease was a known hypertensive.

The cause of death given was cardiac tamponade consequent to rupture of left ventricular wall secondary to acute myocardial infarction.

**Figure 1: Split laceration over the scalp**



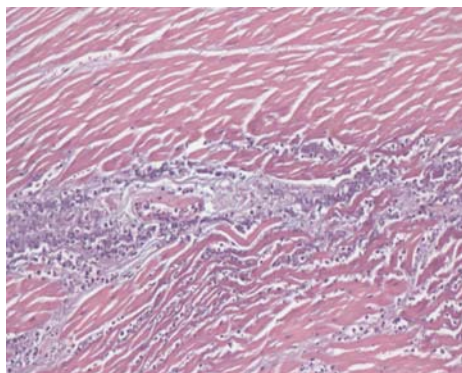
**Figure 3: Ventricular wall ruptures**



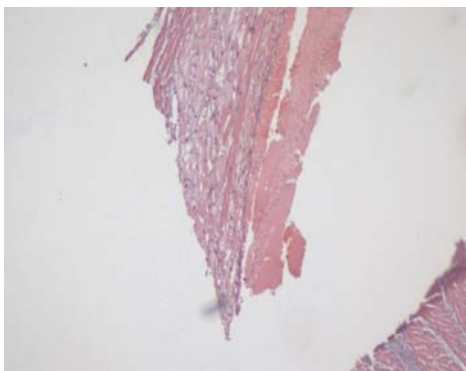
**Figure 2: Haemopericardium**



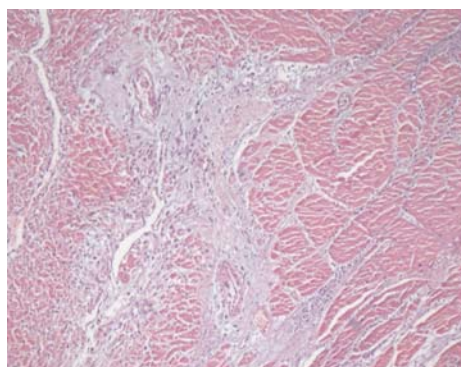
**Figure 4: Acute myocardial infarction:  
Section shows an area of  
coagulative necrosis and neutrophilic  
infiltration (Heamatoxylin and Eosin, 20X)**



**Figure 5: Ruptured ventricular wall  
(Heamatoxylin and Eosin, 10X)**



**Figure 6: Old myocardial infarction:  
Section showing fibrosis of the  
myocardium  
(Heamatoxylin and Eosin, 20X)**



## Discussion

Cardiac tamponade is caused by a large or uncontrolled pericardial effusion[7]. Common aetiologies include blunt or penetrating trauma, surgical complications, sequelae from myocardial infarction and effusion[8,9]. The factors which either predispose or increase the risk of cardiac rupture complicating an acute myocardial infarction are: female gender, older age (> 65 years), first myocardial infarction (frequently transmural), severe one-vessel coronary artery disease with a lack of collateral formation, absence of previous angina[10,11,12] and sudden or progressive hypotension, and sudden electromechanical dissociation[13]. In our case four of the above five risk factors were evident from the history and post-mortem examination. The presence of multivessel disease and a history of previous myocardial infarction may exert a protective effect, probably linked to development of greater collateral circulation and a better tolerance to wall traction, respectively[14]. Eighty-five percent of ventricular wall ruptures occur within the 1st week and 40% within the first 24 hours after myocardial infarction. The rupture is frequently caused by an increase in wall tension in the zone where necrosis and ischemia have created dilatation and thinning of the myocardium[15].

Sometimes the cases having external injuries may mask the existing disease in the body. As in this case, the head injury masked the myocardial infarction. Examination of heart revealed haemopericardium secondary to the rupture of Left ventricle due to Myocardial Infarction thereby enabling us to opine regarding the cause of death.

## Conclusion

It is vital to establish the relation between the trauma and the disease to know whether the trauma has triggered the diseased process or the disease has led to the trauma before final opinion. Sometimes trauma can mislead the forensic pathologist while ascertaining the cause of death. So it is essential to take utmost care while dealing with cases with minimum external injury. As deaths are common in old age persons following minimum trauma, the natural causes of death should not be overlooked.

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