

# Autopsy Report of Sudden Death with Findings of Polyembolokailomania – A Rare Psychiatric Disorder

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## Abstract

Internationalization has prompted expanded migration prompting incidents of deaths outside the deceased's own nation are on the ascent. The basic assumption being, that the danger during the excursion is more noteworthy than that present in the normal conditions of the traveler. Many legal formalities comes to play following demise of a foreign national. The officials of that country, following the death of a foreign national on foreign soil, conduct a primary investigation. Worldwide, cardiovascular disease is the most frequent cause of sudden death contributing for about 45-50% cases and acute myocardial infarction (AMI) being leading entity. We present a case of foreign national, who died while travelling on an intercontinental flight. This case describes the autopsy findings emphasizing the cardiac rupture, along with accidental finding of rare psychiatric disorder polyembolokialomania.

**Keywords:** Foreign national, Polyembolokialomania, cardiac rupture, sudden death, acute myocardial infarction, AMI, CR

## Introduction

According to **World Health Organization (WHO) definition** "death is said to be sudden or unexpected when a person not known to have to have been suffering from any dangerous disease, injury or poisoning is found dead or dies within 24 hours after onset of terminal illness".<sup>(1)</sup> Internationalization has prompted expanded migration prompting incidents of deaths outside the deceased's own nation are on the ascent. The basic assumption being, that the danger during the excursion is more noteworthy than that present in the normal conditions of the traveller.<sup>(2)</sup> While travelling a person can relent to natural disease or can die unnaturally. Many legal formalities comes to play following demise of a foreign national. A primary investigation is conducted by the officials of that country, following the death of a foreign national on foreign soil.<sup>(3)</sup> Additionally a range of queries and concerns might get raised by the authorities as well as the relatives regarding different perspectives related to the death. When the body is repatriated, a local pathologist may be directed to make an second autopsy

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Worldwide, cardiovascular disease is the most frequent cause of sudden death contributing for about 45-50% cases and acute myocardial infarction (AMI) being leading entity.<sup>(5)</sup> Many times, these deaths occur within an hour of onset and when brought to the hospital, patients are already dead.<sup>(6)</sup>

Cardiac rupture (CR) is an early complication of AMI with bimodal peak of incidence within 24 hours and 3-5 days occurring in 2.4% cases often associated with catastrophic haemodynamic sequelae. It can present as ventricular free wall rupture, papillary muscle rupture or ventricular septal rupture and is a lethal mechanical complication of AMI.<sup>(7)</sup>

At autopsy, patients initially without any apparent cause of sudden death have been found to have had significant coronary heart disease, including old, undetected myocardial infarction.<sup>(8)</sup>

## Case Report

On an unfateful morning, a 53 year-old-male foreign national, was traveling along with his wife and other relatives on a transcontinental flight from Bangkok, Thailand to Delhi, India. On the way, he started feeling uneasy. Therefore, an emergency landing was made at Babatpur Airport, Varanasi, India for medical assistance. The patient was shifted to a nearby hospital, Babatpur, where he was declared brought dead by the medical officer on duty. Being a foreign national punchnama and inquest was done by the police officials and body was sent to IMS, BHU, Varanasi for autopsy by Station Officer of Police station, Badagaon. Further, night autopsy was directed and conducted by autopsy surgeon. As per the history given by deceased wife, patient was a known case of hypertension.

On external examination, the deceased was an obese adult male. Rigor mortis was present all over the body. No external injuries over the body. Tongue and nails were cyanosed. Eyes and mouth were closed. Conjunctiva was congested.

On opening the thorax, 1.5 litres of blood was present in the thoracic cavity. On examination of heart, heart was about 635gms, showing massive cardiomegaly.

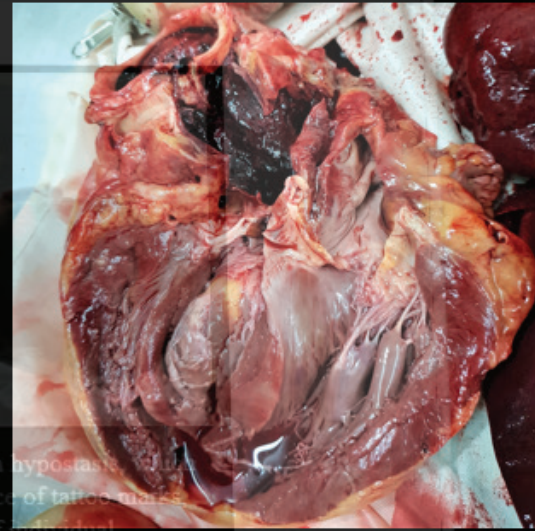
There was a big rent in posterior wall of the heart  $\cong$ 3cm in diameter (posterior wall rupture). Heart chambers were filled with clotted blood. On dissection of heart, big clots were present in great vessels (aorta and pulmonary vessels) and massive clot was present in pericardial sac weighing 246gms. Aorta showed calcification and was hard on cut section. Heart chambers were filled with clotted blood. Stomach weighed 30gms. Gastric mucosa showed patchy congestion. Kidney weighed 208gms (Rt) and 196gms (Lt). Both the kidneys were congested and showed multiple big and small bullae. On opening the scalp three metallic needles were found embedded in deeper layers of scalp (in galea aponeurosis). Gall bladder was distended. All other organs were intact and congested. All routine viscera along with heart, blood and needles were preserved, sealed and duly signed by medical officers and later was handed over to the police officials. Hence, the heart was subjected for histopathological examination and viscera were also subjected for toxicological analysis to rule out the possibility of poisoning. Autopsy was done under videography. The body was repatriated to the deceased's homeland after embalming at Institute of Medical Sciences, Banaras Hindu University, Varanasi, India.



**Photograph 1** showing fixation of Post-mortem hypostasis, which usually occurs in 8-12hrs. There is also presence of tattoo marks, which is helpful in fixation of identity of individual.



**Photograph 2** showing cardiomegaly with multiple myocardial infarction patches on the posterior wall of right ventricle and left ventricle in case of the death due to hypertensive heart disease. There is rupture of myocardium on the posterior wall of right auricle. A triangular shaped infarct was present with dimensions 3cm x 2.8cm maximum length from apex to base and maximum breadth between two angles of the base respectively.



**Photograph 3** showing sub endocardial hemorrhages in inner wall of intimal layers of aortic opening. (Transverse view of the deceased heart)



**Photograph 4** showing severe congestion of gastric mucosa with patchy haemorrhagic spots at multiple sites.



**Photograph 5** showing flea bitten appearance of kidneys due to malignant hypertension



**Photograph 6** showing three nails inserted inside the scalp above periosteum.

## Discussion

The first clinical manifestation of an underlying disease in previously asymptomatic, apparently “healthy” subjects is sudden death (SD). An independent risk factor for sudden cardiac death is heart size, and the measuring the same may prove to be a very important factor in determining the cause of death. Patients with acute CR presents with a sudden onset chest pain followed with death within a few minutes.<sup>(9)</sup>

Its ranges from non-specific complaints with subtle physical findings to cardiopulmonary arrest. Patients presenting with acute overt clinical findings in CR has 100% mortality rate. However, the incidence of CR has fallen in recent decades as reperfusion therapies have become more prevalent worldwide. Still, it is the second leading complication causing death in hospitalized patients of AMI. Anterior and lateral ventricular free walls, with blood clotting first in the postero-inferior pericardial space is the most common finding in CR.<sup>(10)</sup>

**Photograph 1** shows fixation of Post-mortem hypostasis, which usually occurs in 8-12hrs. There is also presence of tattoo marks, which is helpful in fixation of identity of individual. It also has implication in deciding religion of a person, place of habituation and sexual preferences.

Tattoo are the designs imprinted by causing small multiple puncture wounds on the skin surface with the help of needle dipped in dyes. It has always been a valuable source of identification not only during his life but also after the death.<sup>(11)</sup>

The heart of adult male individual weighs between 275-300grams. In this case, weight of the heart is 635grams.

Cardiac hypertrophy beyond acceptable weight i.e. over 400grams is common finding in hypertensive heart diseases. In this photograph, there is heavy deposition of adipose tissue on the anterior, posterior and lateral walls of the heart. At the aortic intimal layer, there is hemorrhage. Such hypertrophy is usually associated with severe coronary artery stenosis; death appears due to ischemia of muscle.<sup>(12)</sup>

The infarction is present on the anterior surface of the right ventricle, right auricle and over anterior wall of the left ventricle.

**Photograph 2** showing cardiomegaly with multiple myocardial infarction patches on the posterior wall of right ventricle and left ventricle in case of the death due to hypertensive heart disease. There is rupture of myocardium on the posterior wall of right auricle. A triangular shaped infarct was present with dimensions 3cm x 2.8cm maximum length from apex to base and maximum breadth between two angles of the base respectively.

Cardiogenic shock is likely to occur if infarction involve >40% of left ventricle and mortality in this case is as high as 90%. Davis and Pople 1971 considered that 85% stenosis is minimally reasonable be associated with sudden death. Left anterior descending artery (left anterior interventricular artery) which is branch if left coronary artery is responsible for myocardial infarction in 45-64% cases.<sup>(12)</sup>

Myocardial rupture may occur at almost any time within first three weeks of acute infarction but is most common between day 1 and day 4 when the infarct wall is the weakest. Rupture of infarcted myocardium usually results in haemopericardium and death from pericardial tamponade.<sup>(12)</sup>

**Photograph 3** showing sub endocardial hemorrhages in inner wall of intimal layers of aortic opening.

**Photograph 4** showing severe congestion of gastric mucosa with patchy haemorrhagic spots at multiple sites.

As GI System is responsible for 6-8% of sudden death cases. Hemorrhage into GIT from ulcers is also contributing to sudden death.<sup>(13)</sup> As written in autopsy report about hypertensive gastropathy there was severe congestion in gastric mucosa along with multiple haemorrhagic spots.

Hypertensive gastropathy occurs due to portal hypertension. The changes in the mucosa include friability of the mucosa and presence of ectatic blood vessels at the surface. Patients with portal hypertensive gastropathy may experience bleeding from the stomach,

which may uncommonly manifest itself in haematemesis or melena. On examination using magnifying lens the stomach mucosa showed characteristic “mosaic or snakeskin appearance”.<sup>(14)</sup>

Portal HTN occurs most commonly in cirrhosis of liver but there are chances of hypertensive gastropathy in long standing cases of hypertension too.

**Photograph 5** showing “flea bitten appearance” of kidneys due to malignant hypertension.

Malignant nephrosclerosis is the form of renal disease associated with malignant or accelerated phase of HTN. During autopsy, on gross examination the kidney size depends upon the duration and severity of hypertensive disease. Small, pin-point petechial haemorrhages may appear on cortical surface from rupture of arterioles or glomerular capillaries giving “flea bitten appearance”.<sup>(15)</sup>

**Photograph 6** showing accidental finding i.e. insertion of foreign body in form of nails in the scalp. On opening the three different layers of the scalp by Beneke’s technique<sup>(13)</sup>, three needles were recovered from the scalp above periosteum.

The insertion of the foreign body inside the body is a rare psychiatric disorder i.e. polyembolokialomania. Introduction of foreign bodies into rectum dates back to 19<sup>th</sup> century.<sup>(16)</sup>

Polyembolokialomania is rarely reported scientifically. Sexual gratification is the most common cause of polyembolokialomania. Psychotic processes are implicated in few of them like in our patient.

There have been few reports of insertion of nails inside the brain to commit suicide especially in schizophrenia with delusional beliefs or as a response to command hallucinations.<sup>(16)</sup>

These foreign bodies were in form of three needles where put on plain paper and were thoroughly examined to retrieve further details of its constitution and kept as an exhibit and forwarded to FSL, Varanasi for further examination.

Chronic high-grade stenosis of at least one segment of a major coronary artery is the most common finding at autopsy. Transmural occlusion of vessel due to massive thrombus (clot) in a major coronary artery is seen in many cases. Thus, the heart should be thoroughly examined; weighed and ventricular wall thickness should be measured at several different locations.<sup>(17)</sup>

In this setting, autopsy represents the first, and only, opportunity to establish and register an accurate cause of death.<sup>(8)</sup>

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