

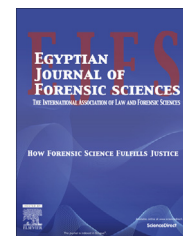
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CASE REPORT

Sudden death due to lethal strangulation of heart by congenital partial pericardium

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Received 10 December 2015; revised 31 May 2016; accepted 16 June 2016

KEYWORDS

Forensic sciences;
Forensic pathology;
Strangulation heart;
Congenital defect;
Pericardium

Abstract Cases of strangulation of heart are usually seen in post-operative heart surgery. However such strangulation of heart can occur due to defect in pericardium. Here, we report a case of 32 year old male who had complaint of chest pain while working on a building construction site. He had previous episodes of intermittent chest pain which remained undiagnosed. On post-mortem examination, it was observed that the deceased had defect in pericardium with bilateral absence of pericardial sac. In absence of any previous surgical record it was found to be of congenital in nature. Such absence of pericardial sac may remain dormant and can aggravate in situations like stress which laid to constriction of pericardial sac to the ventricular wall leading to blockage of heart vessels causing sudden stoppage of circulation to heart muscle itself. On post-mortem examination opinion as to the cause of death was given as strangulation of heart due to bilateral congenital partial pericardium. Such type of case is reported for its rarity.

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1. Introduction

Strangulation (other than the act of strangling) means constriction of a body part so as to cut off the flow of blood or another fluid. Strangulation of heart is constriction of heart by the edge of any defect in the pericardial wall causing herniation of the heart appendages. A case of strangulation

of heart is very rare and mostly seen in post-operative heart surgery in adults. Sudden death has been recognized to cardiac strangulation or connected with other lesion such as congenital heart disease.^{1–3} Congenital pericardial sac absence is an uncommon incidence and computerized tomography angiography (CTA) of the chest confirmed this rare entity estimated to occur in one in 10,000–14,000 people.⁴ Pericardial absence is classified as a left or right defect. It is secondarily being divided as total or partial. A majority of pericardial defect is by far left-sided, with left total defects more common than the left partial defects. Right-sided and bilateral absence has not often been reported.⁵

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Peer review under responsibility of The International Association of Law and Forensic Sciences (IALFS).

<http://dx.doi.org/10.1016/j.ejfs.2016.06.002>

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2. Case report

A 31 year old male had a history of chest pain. There was no significant cardiac history, but had intermittent chest pain, for which he was never admitted in a hospital. The deceased was a construction laborer at a local building site. On the day of incidence while working on a building site he suddenly felt chest pain and collapsed. He was brought to our hospital where he was declared brought in dead condition. He had no significant family history.

3. Autopsy findings

On external examination, the deceased was averagely built and nourished. His body length was 161 cm, and body weight 64 kg. No evidence of oozing of fluid from natural orifices. No evidence of previous surgical scar present over chest.

On opening the thoracic cavity there was evidence of abnormal position of the heart. The position of the heart was leftward and the apex was situated posteriorly. Left lung was visible between the aorta and pulmonary artery, indicating the absence of pericardium at this level. The pericardium was visible only overlying the base and middle portions of the right ventricle, and was absent over the entire LV, indicating a total left absence of pericardium (Fig. 1). There is evidence of luminal narrowing with evidence of reddish thrombus at the level of constriction. Pericardial sac was absent bilaterally on the lower half of the heart. Right side of partial pericardium was adherent to the diaphragm. Rim of pericardial sac was present 4 cm above the apex encircling the heart. There was evidence of impression of rim of the pericardial sac over myocardial wall. Circumference of pericardial sac was 21 cm (Fig. 2). The heart was dissected by inflow-outflow method. On cut section there was evidence of a compression of right and left ventricle at the level of constriction. Similarly, there was evidence of a compression of ascending aorta 2.5 cm above the aortic valve by abnormal position of heart and thick pericardium. Weight of heart was 320 gm.

Histopathological examination revealed recent signs of ischemia in the form of infiltration of neutrophils in the constricted area of myocardium (Fig. 3). There was evidence of



Figure 1 Pericardial sac was present 4 cm above the apex encircling the heart.

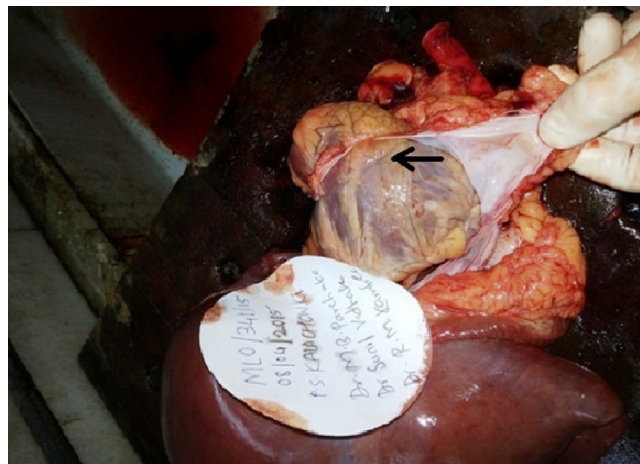


Figure 2 Evidence of impression of rim of the pericardial sac over myocardial wall.

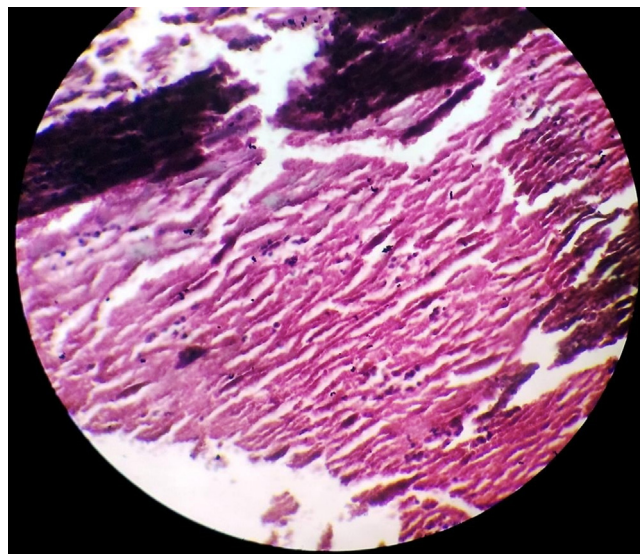


Figure 3 Infiltration of neutrophils in the constricted area of myocardium suggesting recent ischemia.

luminal narrowing of left anterior descending artery with evidence of thrombus at the level of constriction. No other abnormality detected on gross and microscopic examination. Following post-mortem examination opinion as to the cause of death was given as strangulation of heart due to partial pericardium in a case of heart in abnormal position.

4. Discussion

Congenital absence of pericardium can be termed as a range of congenital pericardial defect from a small foramen in the pericardium to a complete absence of the entire pericardium.⁶ Such patients have very non specific clinical presentation and most are detected incidentally.⁷ However, some subjects may present with symptoms of atypical chest pain, dyspnea and palpitations.⁸ On clinical examination there are signs suggestive of laterally displaced apex or absent apical impulse and

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