

ABNORMAL SHAPED HEART IN A CADAVER- A CASE REPORT

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SUMMARY:

Heart is a conical hollow muscular organ situated in middle mediastinum enclosed within the pericardium. It pumps blood to various organs of the body to meet their nutritive requirements. Here we present a case of abnormal shaped heart found in a middle aged male cadaver. The heart had an abnormal columnar shape with four surfaces. Three pulmonary veins were normally presented but fourth one was rather comparatively very small. Such a noticeable change in shape of heart can occur ante mortem or postmortem, causes for which are discussed further.

Key Words: Abnormal shape, Heart, Pulmonary Veins.

INTRODUCTION:

Human heart is a conical, hollow muscular organ that pumps blood throughout the body to various organs by continuous rhythmic contractions. Normally, a heart has four chambers. These are right and left atria and the right and left ventricles. The atria lie above and behind the ventricles. On the surface of heart the atrioventricular groove separates atria and ventricles. Interatrial groove separates the two atria whereas interventricular groove separates the two ventricles. The heart has an apex, a base and anterior, inferior and left surfaces. These surfaces are separated by upper, lower, left and right borders. The inferior or diaphragmatic surface is formed by both ventricles and the base of heart or posterior surface is formed by the atria, mainly the left one. In relation to the base there are openings of four pulmonary veins which open into left atrium. Apex of heart is formed by tip of the left ventricle. The right border is formed by right atrium. The horizontal inferior border is formed mainly by the right ventricle and slightly by the left ventricle near the apex. The left border is formed by the left ventricle and the superior border is formed by both the atria. Here we present a case of heart with four surfaces and prominent borders.^[1]

METHODOLOGY:

During the routine dissection of undergraduates at the Department of Anatomy at the CSMSS Ayurved Mahavidyalaya, Aurangabad, it was observed that the cadaver had an abnormal shaped heart. The left lung was deficient inferiorly along the region of cardiac notch and it showed numerous adhesions with the thoracic wall. Further the lungs were separated from the body, and the heart was dissected and studied after

its removal from pericardium.^[2] Following observations were found.

OBSERVATIONS:

Right lung was normal. Left lung was also normally placed but was deficient inferiorly along the region of cardiac notch. Left lung showed numerous adhesions with the thoracic wall.

External structure of heart:

Dimensions- Length-10.3 cm, Breadth-5.5 cm, Thickness- 7.1 cm, Weight- 209 gms.

Location- in the mediastinum, along the median plain of the body.

Apex- formed mainly by the left ventricle, directed downwards and lies about 2 cm left to median plain.

Base- formed mainly by left atrium, it shows three normal pulmonary veins and a very small fourth pulmonary vein.

Surfaces: Anterior surface- or the sternocostal surface is formed mainly by right atrium, right auricle in upper part and right ventricle in lower part.

Posterior surface- is formed by the left ventricle below and by base of heart above.

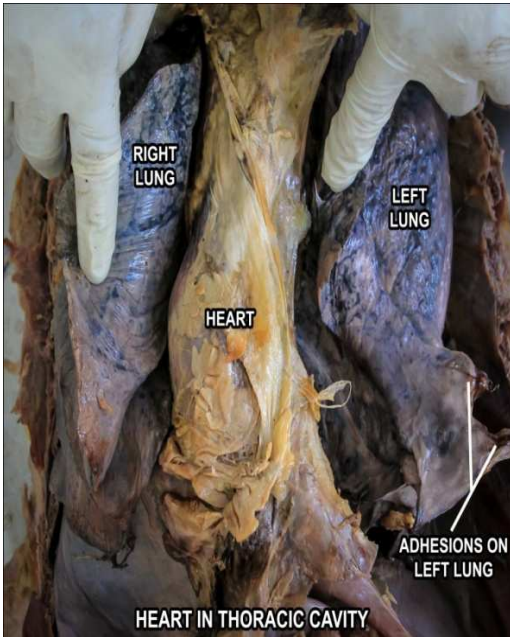
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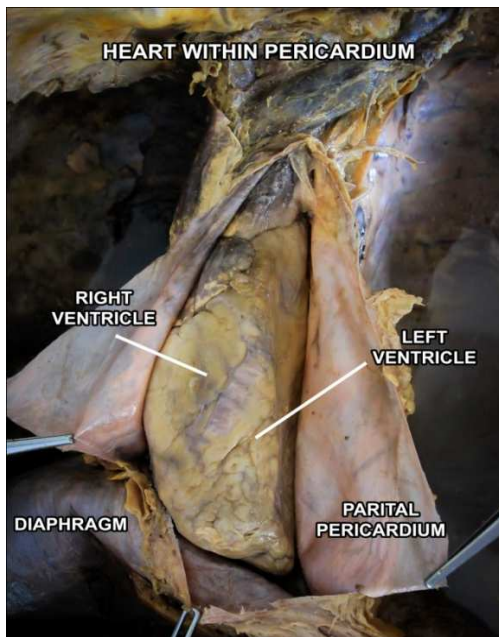
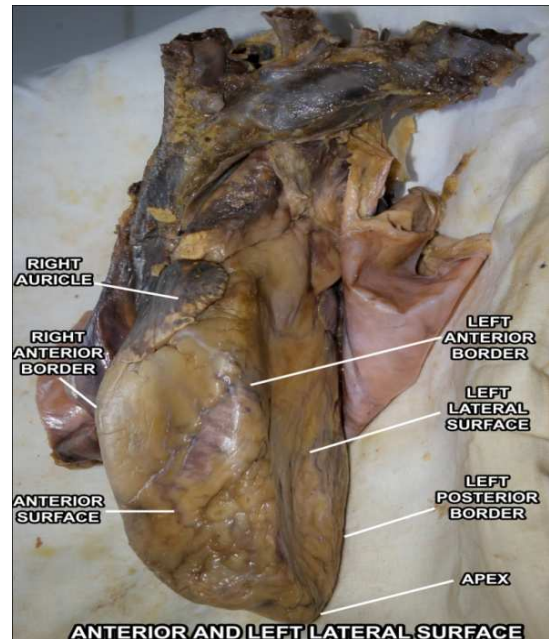
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Right lateral surface- Right atrium and some part by right ventricle.



Left posterior border- it is also vertical, superiorly rounded and blunt and inferiorly sharp and formed by left ventricle.



Left lateral surface- is formed mainly by left atrium. And some part by right ventricle, root of pulmonary trunk and some part of left auricle.

Borders-

Left Anterior border- it is prominent, vertical and sharp. Superiorly it is formed by Right ventricle and inferiorly it is formed by left ventricle.

Right Anterior border- it is blunt, rounded and vertical. Superiorly it is formed by Right auricle and inferiorly by Right ventricle.

Internal structure of heart:

The internal structure of all the chambers was normal and did not show any abnormality.

DISCUSSION:

Such a noticeable change in shape of heart and the impressions formed on the surfaces of the heart can occur ante mortem or post mortem. Post mortem changes can occur due to mishandling of the cadaver or if the cadaver is placed improperly under pressure. But, in case presented neither any of the other visceral organs show change in their shape, nor the thoracic

cage show any indications which can suggest of cadaver mishandling. The rib cage was intact. So post mortem change in shape of heart can be ruled out. Ante mortem changes can occur due to pressure of the surrounding organs having some pathological conditions like hypertrophy. Or it can be due to development of a tumor or cyst. However in present case no such tumor or cyst was found. But inferior portion of the left lung was deficient, where it was adherent to the thoracic wall. So it can be presumed that this abnormal change in shape of heart was due to some tumor, cyst or hypertrophied lung tissue which was surgically removed before the death of the person. Unilateral pulmonary venous atresia, without associated structural abnormalities of the heart is a rare congenital anomaly. Cardiac defects are seen in around 50% of cases. It is thought to result from a failure of incorporation of a pulmonary vein into the left atrium. ^[3] Secondary pulmonary vein stenosis in adult patients is usually associated with some identifiable underlying causative process. Until recently, involvement of the pulmonary veins by an extrinsic process such as neoplasm growth, sarcoidosis, or fibrosing mediastinitis was the association most frequently seen. ^[4]

CONCLUSION:

This abnormal change in the shape of heart may have happened due to pressure exerted by some tumor, cyst or hypertrophied lung tissue which was surgically removed before the death of the person or it may be a case of unilateral pulmonary venous atresia or Secondary pulmonary vein stenosis.

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