

DIFFERENTIATION BETWEEN TWO TYPES OF ADIPOSE CARDIAC CONDITIONS: CARDIAC LIPOMAS AND LIPOMATOUS HYPERTROPHY OF THE INTERATRIAL SEPTUM

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Cardiac tumors are a very rare occurrence, evidenced by autopsy studies revealing a cardiac tumor prevalence of 0.02% (1). While cardiac tumors can be accompanied by a range of symptoms depending on the tumor size, the exact location in the heart, and the amount of invasion into neighboring tissue, they may also be clinically silent. As a result, many of these tumors remain undetected throughout a person's life, only to be revealed upon post-mortem examination. Approximately 75% of these tumors are benign, with lipomas comprising 14% of benign cardiac tumors (2,3).

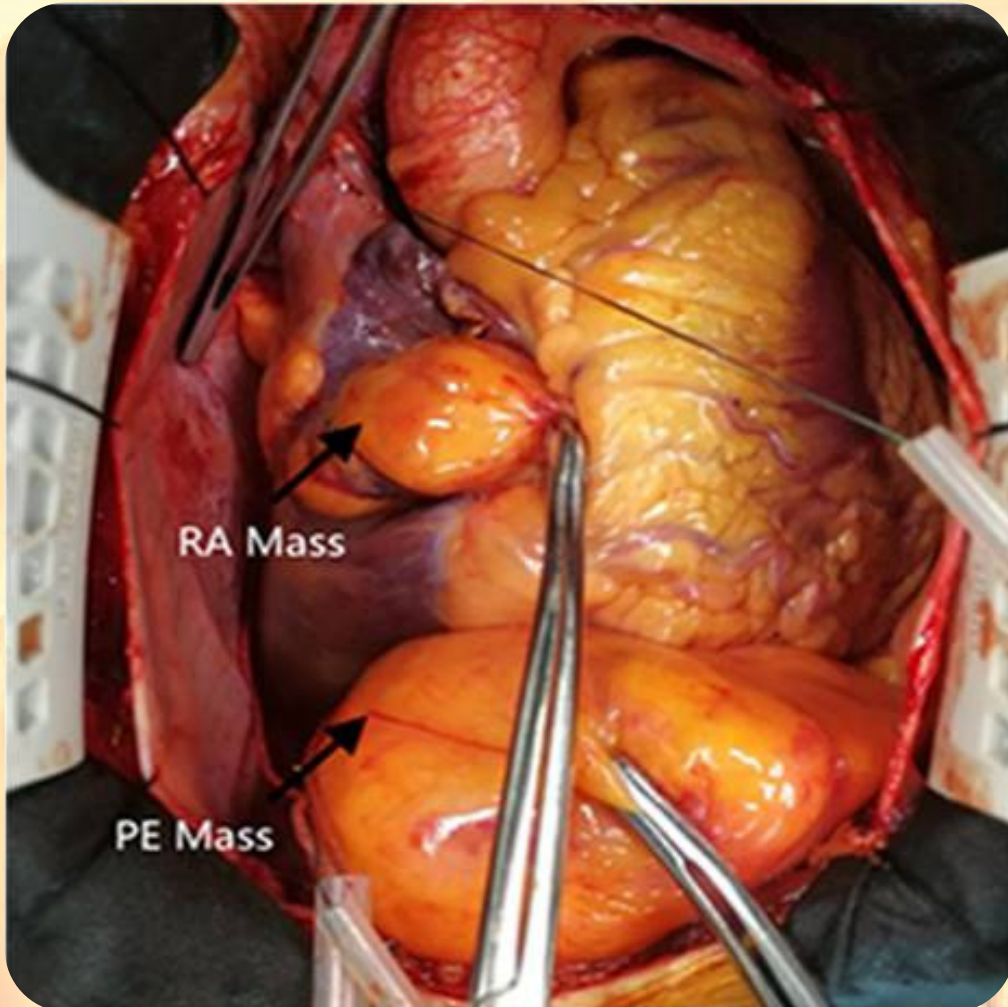
Cardiac lipomas are thought to be typically asymptomatic and are often diagnosed incidentally upon autopsy (4). They are encapsulated, tan-yellow growths of fat comprised of homogenous, mature adipocytes with intervening fine fibrous trabeculae and minimal to no cellular atypia (5). They are most often found in the subendocardial region, usually in the right atrium, left ventricle, or atrial septum (4). They can occur in any age group, but are most prevalent in people between 40–60 years of age (4). There is no difference in the distribution between men and women, and the exact etiology is unknown (6). While many of these lipomas remain asymptomatic, they can also cause direct obstruction of intracardiac blood flow, cardiac valve dysfunction, obstruction of the superior and inferior venae cavae, and phrenic nerve involvement (7). As a result, patients may experience mild chest pain, dyspnea, palpitations, fatigue, syncope, or even sudden death from severe arrhythmia or acute coronary occlusion due to the

lipoma's position in the heart (6). In living patients, cardiac lipoma detection can be achieved through echocardiography, which identify the tumor location and the presence or absence of fat (7). They can be treated through complete resection, or closely monitored without surgical intervention (7).

When an interatrial adipose cardiac mass is discovered, lipomatous hypertrophy of the interatrial septum (LHIS) should be considered within the differential diagnosis. While LHIS is a rare pathology, it occurs more commonly than cardiac lipoma (8). LHIS is a benign anomaly characterized by a >2.0 cm thick, non-encapsulated collection of fat comprised of mature adipocytes (and occasional fetal adipose tissue) with interspersed strands of non-lipomatous cells (usually cardiomyocytes) (5). As its name suggests, LHIS is usually found in the interatrial septum, and unlike its name suggests, the adipocytes of LHIS are histologically characterized by hyperplasia instead of hypertrophy (9). Although the etiology is unknown, the condition typically occurs in people who are obese or elderly, with a higher incidence in women (10). Like cardiac lipomas, LHIS can be asymptomatic and discovered only incidentally upon autopsy. LHIS can also cause symptoms like those of cardiac lipomas, resulting in atrial fibrillation, atrioventricular block, venous return obstruction, and sudden death (10, 11). Echocardiography can detect LHIS, which characteristically appears as a dumbbell-shaped mass of the interatrial septum that spares the fossa ovalis (12). Treatment consists of surgical resection, or it can be closely monitored without surgical intervention (12).

The discovery of a cardiac fat-containing tumor during autopsy raises curiosity and questions, especially those pertaining to the decedent's cause of death. While cardiac lipomas and LHIS are both benign conditions, evidence has shown that cardiac lipomas and LHIS have been reported

to cause a variety of cardiac effects as well as sudden death. Multiple similarities exist between cardiac lipomas and LHIS, but there are several key macroscopic and microscopic differences between them. Overall, this review may be of interest to anyone who encounters a fat-containing cardiac mass while examining a heart during autopsy.



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