Right Ventricular Lipoma Arising from the Anterior Papillary Muscle: A Case Report

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We report a rare case of right ventricular lipoma arising from the anterior papillary muscle in a 62 year-old man. Transthoracic echocardiography showed a homogeneous mass in the right ventricle attached to the anterior papillary muscle. Computed tomography showed features consistent with intracardiac lipoma, which was confirmed by histology.

Key Words: right ventricle, lipoma, papillary muscle

Introduction

Intracardiac lipomas account for about 10% of primary cardiac tumors (1). The clinical presentation depends on the size and location of the tumor. Transthoracic echocardiography is usually the initial diagnostic modality for patients with a suspected cardiac mass, but it is unable to show distinct tissue characteristics. Computed tomography and magnetic resonance imaging allow for specific tissue characterization of the components within the mass. Herein, we report a case of right ventricular lipoma arising from the anterior papillary muscle and describe the echocardiographic, computed tomographic and pathologic features of this lesion.

Case Report

A 62-year-old man was brought to our emergency room with chest tightness for 2 hours. He had a history of type 2 diabetes mellitus and hypertension for 5 years. His blood pressure was 142/95 mmHg, pulse 93 beats per minute, respirations 20 per minute, and temperature 36°C. The heart rhythm was regular, and physical examination did not reveal any other abnormalities. Laboratory tests showed a normal blood count, electrolytes and cardiac enzymes. His blood glucose was 154 mg/dl. His chest roentgenogram showed mild cardiomegaly. The electrocardiogram showed sinus rhythm with a right bundle branch block pattern. Transthoracic echocardiography revealed an echogenic mass in the right ventricle (Fig. 1A). Computed tomography (CT) revealed a low-density mass in the right ventricle (Fig. 1B). The tissue density measured by Hounsfield Units was -90 to -132 on average, consistent with lipomatous tissue. He underwent cardiac catheterization which revealed severe three-vessel coronary artery disease. The patient underwent surgery, which included coronary-artery bypass grafting. When the right ventricle was opened, a lipomatous mass on the right ventricle engulfing the anterior papillary muscle was found (Fig. 2A). The tumor could not be removed so a biopsy speci-
men was taken. Histopathologic examination revealed that the tumor consisted of mature adipose tissue (Fig. 2B), consistent with a lipoma. The patient made a good recovery from the operation.

**Discussion**

Intracardiac lipomas account for about 10% of primary cardiac tumors and have been described in the pericardium, septal tissue, heart valves, and subendocardium. They are usually asymptomatic and are diagnosed incidentally during autopsy, echocardiography, or cardiac catheterization\(^1\). Intracardiac lipomas are circumscribed, spherical, or elliptical masses of homogenous yellow fat, which originate most commonly from within the left ventricle or right atrium. Clinical manifestations depend on the size and location of the tumor. They can be asymptomatic, or produce symptoms such as fatigue, chest pain, palpitations, dyspnea and syncope secondary to impaired cardiac function or outflow obstruction\(^2-4\). There is a reported case of an enormous cardiac lipoma which encased and compressed the heart, resulting in severe cardiopulmonary compromise and death\(^5\). Lipomas of the right atrium, interatrial septum and
right ventricle may predispose to arrhythmias and can be associated with other pro-arrhythmogenic conditions\(^6\). In this patient, cardiac lipoma was an incidental finding. To our knowledge, a right ventricular lipoma arising from the papillary muscle has never been reported.

Transthoracic echocardiography is usually the initial diagnostic modality for patients with a suspected cardiac mass. It provides high-resolution, real-time images, and can assess the hemodynamic consequences. However, it is unable to show distinct tissue characteristics. CT and magnetic resonance imaging are helpful in determining the degree of myocardial invasion and involvement of pericardial and extracardiac structures, and also allow for a specific tissue characterization of the components within the mass\(^7\). Low-attenuation features with a density similar to fat on CT are pathognomonic for lipoma.

**Conclusion**

We report a case of right ventricular lipoma arising from the anterior papillary muscle. Multimodality imaging allows for complementary and comprehensive assessment of cardiac masses.

**References**

源自前乳突肌的右心室脂肪瘤：一病例报告

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我們報告一個罕見病例：源自前乳突肌的右心室脂肪瘤。胸前超音波顯示在右心室乳突肌上有一質的均勻的腫塊，電腦斷層掃描符合心內脂肪瘤的特點，並在組織學上獲得證實。

關鍵詞：右心室，脂肪瘤，乳突肌