Case report - Cardiac general

Surgical treatment of right atrial myxoma complicated with pulmonary embolism

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Received 2 March 2009; received in revised form 23 April 2009; accepted 24 April 2009

Abstract

Myxomas are the most common type of cardiac benign tumors and most of them are located in the left atrium, followed by the right atrium. Myxomas in the right atrium may rarely embolize to the pulmonary arterial vasculature. Here, we present a case report of a patient with right atrial myxoma and massive embolism to the pulmonary arteries treated surgically with right atrial mass removal and pulmonary embolectomy. The right atrium mass presented with prolapse through the tricuspid valve causing a stenotic physiology. The left pulmonary artery was completely occluded and the right pulmonary artery was partially obstructed. Surgical tactics included a brief hypothermic circulatory arrest. The patient had an uneventful recovery and was asymptomatic after 6 months of follow-up.

Keywords: Cardiac surgery; Cardiac tumors; Pulmonary embolism

1. Introduction

Myxomas form approximately 50% of benign cardiac tumors and most of them are located on the left atrium [1]. When diagnosed on the right atrium a rare complication may develop called pulmonary embolism. Few of these cases are described in the medical literature. The approach must be complete, removing both the right atrium mass and pulmonary emboli.

2. Case report

A female patient, 43 years old, previously healthy, presented with sudden episode of moderate dyspnea 1 month previously and spontaneous resolution after a few hours. Following this, she developed tiredness when practicing intense efforts. Physical examination was unremarkable. During diagnostic work-up thorax radiography was normal and electrocardiogram showed sinus rhythm. Transthoracic echocardiogram revealed a large mass inside the right atrium (5×6 cm) that suffered prolapse through the tricuspid valve during diastole and caused severe valve stenosis. Right cavities were enlarged. Due to pulmonary hypertension, contrast enhanced computed tomography (CT) was proposed as further work-up examination. It revealed total obstruction of the left pulmonary artery and vascular exclusion of the left lung (Fig. 1). The right pulmonary artery was partially obstructed and the main pulmonary artery was free of lesions. The proposed surgery was complete removal of the tumor, both from the atrium and the pulmonary arteries, aiming at symptom relief and new embolism prevention.

Surgical approach was through a medial sternotomy and aorto-bicaval cannulation. The superior cava was cannulated close to the innominate vein. Special care was taken regarding manipulation of the right atrium to avoid new embolism. Profound hypothermia (20 °C) was initiated. The right atrium was opened and a large, pedunculated tumor originated from the atrial septum was removed (Fig. 2). Pulmonary embolectomy was conducted under intermittent total circulatory arrest (13 min in total). The right pulmonary artery was opened longitudinally in its intra-pericardial portion and a 2-cm tumor was removed. The main pulmonary artery and left pulmonary artery were continuously opened and a 3-cm tumor that completely obstructed the left pulmonary artery was removed. There was no requirement for endarterectomy. Perioperative echocardiogram confirmed normal function of the tricuspid valve, reduced pulmonary vascular resistance and the absence of residual masses. Total extracorporeal circulation time was 122 min.

The postoperative period was uneventful, extubation occurred in the first day and on the third day the patient was discharged from the intensive care unit.

The histopathologic examination confirmed the tumor etiology as a myxoma.

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and failure to resolve the symptoms [2]. In our case, pulmonary embolectomy was indicated to prevent right ventricle dysfunction in the future due to chronic pulmonary hypertension present in this young patient.

Patients suffering from chronic and idiopathic pulmonary embolism should have discarded left or right tumors as a potentially treatable and curable disease [7, 8]. The right ventricle can also be a host of myxomas [9].

The use of transesophageal echocardiogram is superior to transthoracic echocardiogram in preoperative evaluation of atrial myxoma and is obligatory during surgery for atrial masses removal. The report of a death due to massive embolization of an atrial mass during the passage of the transesophageal probe should be mentioned [10].

The strategy in the postoperative period includes judicious volume administration. Ideally the patient’s weight after 24 h of surgery should be equal to the immediate preoperative weight. A pulmonary catheter should guide the continual infusion of diuretics and liquids. Ambulatory examinations included an echocardiogram and new CT image of the pulmonary arteries to discard residual disease.

In conclusion, we suggest that atrial myxoma associated with pulmonary embolism treatment should aim at total removal of masses both from the atrium and pulmonary arteries. Pulmonary embolectomy should be conducted under profound hypothermia and total circulatory arrest. Postoperative management should be similar to pulmonary embolectomies of other causes. Long-term surveillance should be followed up to detect eventual disease return. Patients with chronic idiopathic pulmonary embolic disease should have cardiac tumor origin discarded.

References