

Intracardiac blood-filled cysts of the heart: a rare cause of embolic stroke

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ABSTRACT

Intracardiac blood cysts are thin-walled congenital cysts located in the endocardium and are seen predominantly in infants. They are rare in adults and are typically asymptomatic. However, complications such as valve dysfunction and left ventricular outflow tract obstruction have been reported in adults. We report a 42-year-old woman who developed an embolic stroke in association with intracardiac blood cysts. To the best of our knowledge, this is the first case report of intracardiac blood cysts manifesting as an embolic stroke.

Keywords: blood cyst, congenital cardiac cyst, embolic stroke, intracardiac cyst

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INTRODUCTION

Intracardiac blood-filled cysts are typically asymptomatic, usually congenital in origin, and are commonly seen in infants. These cysts regress spontaneously in most of the affected patients and are rare in adults. The potential complications include valve dysfunction, left ventricular outflow tract obstruction, and embolic stroke. We report an adult who presented with embolism in association with intracardiac blood cysts.

CASE REPORT

A 42-year-old woman underwent thyroidectomy for a multinodular goitre presenting with pressure symptoms. Following surgery, she developed hypocalcaemia and was admitted for intravenous calcium replacement. During her stay in the ward, she developed sudden-onset left hemiparesis which was not associated with headache, vomiting or seizures. There was no past history of fever, joint pain, or other systemic manifestations. She had history of hypertension. On physical examination, her blood pressure was 130/80 mmHg, heart rate was 80/minute, and her temperature was 36.6°C. Her pulse was regular and there was no carotid bruit. She did not have pallor, icterus, lymphadenopathy or engorgement of neck veins. She had a left hemiparesis [power grade 2 left lower limb, grade 1 left upper limb]. Optic fundi



Fig. 1 Two-dimensional echocardiogram shows a thin-walled cyst (arrow) attached to the left ventricular wall.

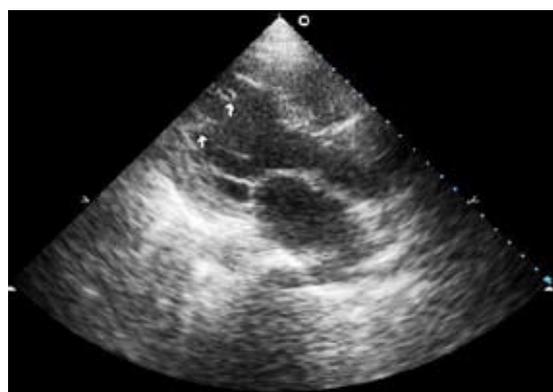


Fig. 2 Echocardiogram shows two thin-walled cysts (small arrows) attached to the left ventricular wall.

did not reveal any abnormality. Cardiovascular, chest and abdominal examinations were also unremarkable.

Complete blood count showed normal haemoglobin, white cell count and platelet count. The erythrocyte sedimentation rate was 65 mm in the first hour. Her blood chemistry showed plasma glucose of 5.6 mmol/L, albumin 37 g/L, and calcium 1.75 mmol/L. Her prothrombin and activated partial thromboplastin levels were within normal limits. Work-up for a vasculitic disorder was negative. Chest radiograph was unremarkable. Electrocardiogram recording showed a normal sinus rhythm.

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Computed tomography of the brain revealed an infarct in the right corona radiata and old infarct in the left thalamus. Carotid Doppler ultrasonography did not show any abnormality. Transthoracic two-dimensional echocardiography demonstrated multiple echogenic masses, with central lucency, attached to the anterolateral wall and apex of the left ventricle (Figs. 1 & 2). There was mild mitral regurgitation. All other cardiac valves and cardiac chambers were normal. The patient was treated with anticoagulants. She subsequently underwent rehabilitation and physiotherapy. At the time of discharge, the patient had shown improvement in her weakness with return in both left upper and lower limb power to grade 4/5.

DISCUSSION

Intracardiac blood cysts were first reported by Elsässer in 1844. They are congenital and located on the endocardium, particularly along the lines of closure of heart valves. These thin-walled cysts contain non-organised blood or serosanguinous fluid lined by flattened, cobblestone-shaped endothelium and a thin layer of fibrous tissue. They are considered as diverticula that result from microscopical invaginations of atrial endothelium into the atrioventricular valves, and rarely of ventricular endothelium into semilunar valves. The usual size ranges from microscopic to 3 mm in diameter. Occasionally, blood cysts are much larger, making them more likely to be detected by echocardiography. In 1983, Hauser et al first reported the use of echocardiography for detection of intracardiac blood-filled cysts.⁽¹⁾ Echocardiographical appearances of the cysts are characteristic, and they appear as a well-circumscribed mass with a thin wall and echolucent core.

Intracardiac blood-filled cysts are typically asymptomatic and are seen predominantly in infants. During autopsy, they are found on cardiac valves in approximately 50% of infants below two months of age and are rarely found after two years of age. In more than half of the autopsy cases, they are multiple, and up to 20 coexisting cysts have been reported. They usually affect the atrioventricular valves and have been described on the mitral valve, tricuspid valve, aortic valve, as well as the pulmonary valve.⁽²⁾ The cysts have also been described on papillary muscles, atrial septum and in the atrialised portion of right ventricle

in a patient with Ebstein anomaly.⁽³⁻⁷⁾ The cysts regress spontaneously in most of the patients and are rare in adults. However, growth of the cyst has also been reported. The complications reported include valve dysfunction, left ventricular outflow tract obstruction and ventricular dysfunction.⁽⁷⁾

Rare cardiac causes of embolic stroke reported in literature include cardiac papillary fibroelastoma, cardiac myxoma, thrombosis secondary to atrial septal aneurysm, cardiac hydatidosis and pulmonary arteriovenous fistula.^(8,9) Intracardiac blood cysts causing embolic stroke has never been previously reported, to the best of our knowledge. Our patient was diagnosed to have multiple blood cysts based on the typical echocardiography findings. In view of the multiple intracardiac blood cysts and history, embolic stroke was considered to be most likely. Rupture and thrombosis of the cysts with embolisation is thus a potential complication.

There is no consensus regarding the optimal management of asymptomatic cysts. However, in view of the potential complications, these blood cysts should be monitored with serial echocardiographical studies. Roberts et al proposed that the cyst should be removed routinely to exclude malignancy and to avoid the potential risk of embolism.⁽⁶⁾ Others reserve surgical resection for those cystic masses that interfere with normal cardiac function.

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