

Anterior Thalamic Infarction as Initial Manifestation of a Right Atrial Lipoma

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Cardiac tumors are an infrequent source of embolism to the brain in young adults. Myxomas are the most common among them and they are mainly located in the left atrium.¹ Cardiac lipomas are a very rare benign neoplasm of the heart usually located in the right atrium.^{2,3} Its etiological relationship with stroke is not well established. We describe the case of a thalamic stroke probably caused by paradoxical embolism from a right atrial lipoma through a patent foramen ovale.

CASE REPORT

A 46-year-old male with mild hypertension, presented with speech and behavioral alterations first noticed on awakening without a previous Valsalva manoeuvre. On admission his blood pressure was 150/90 mm Hg, with a pulse of 70 beats/min and O₂ saturation of 97%. He was afebrile and cardiac and cervical auscultation was unremarkable. On neurologic examination, a non-fluent dysphasia with word finding difficulties, right facial paresis and a left Horner's syndrome was observed. He also presented mild right hemiparesis and myoclonic-dystonic movements in lower limbs (NIHSS 7). Cervical and Transcranial Doppler (TCD) were normal. Cranial computerized tomography was normal. A cranial magnetic resonance (MR) demonstrated on diffusion sequences the presence of an acute non-hemorrhagic infarction involving the anterior area of the left thalamus (Figure 1A). Perfusion MR sequences and cerebral magnetic angioresonance were normal. The patient was admitted to the stroke unit. Conservative treatment was initiated. No arrhythmia was registered during hospitalization. Duplex sonography excluded atherosclerotic lesions in the carotid arteries. The next day, a right to left massive shunt was found on TCD bubble study (Figure 1B). This test was performed using agitated saline as a contrast agent. Thrombophilic screening, neoplastic markers and autoimmune assays were negative. Transthoracic and transesophageal echocardiograms (TEE) were performed showing a mobile mass of homogeneous density attached to the free wall of the right atrium (Figure 1C). No other cardioembolic lesions such as aortic plaques or dysfunctional left ventricle were found. The mass could be optimally assessed by cardiac MR as a well defined, slightly lobulated and homogeneous lesion, strongly hyperintense on T1 sequences, with low signal intensity on Fat-suppressed sequences (T2 STIR) and without contrast enhancement after gadolinium administration (Figure 1D), highly suggestive of a lipoma. A patent foramen ovale (PFO) without associated aneurysmal septum could also be seen on TEE. The mass and the foramen ovale were surgically removed

and closed respectively. The diagnosis of cardiac lipoma was established after pathological study (Figure 2 A-C). The patient was discharged from hospital with residual dysphasia and cognitive impairment consisting mainly of severe lack of initiative.

This case illustrates a typical clinical presentation of an anterior thalamic infarction combining a dysphasic and cognitive syndrome, a central Horner's syndrome and myoclonic dystonia having a transitory affect not only the paretic limb but also the leg ipsilateral to the infarction. The vascular territory of the lesion suggests a cardiac source of embolism.^{2,4}

Lipomas are benign nonmyxomatous neoplasms of the heart that normally cause no symptoms and their diagnosis is often accidental.⁵⁻⁷ They represent 10% of the overall cardiac tumor masses arising from cardiac tissue and they are most frequently located in the right atrium.⁸ The relationship of cardiac lipomas with stroke is not well established, probably because of the rarity of this type of tumors. They have to be differentiated from lipomatous hypertrophy, usually localized in the atrial septum⁹ and sometimes associated with atrial septal defects and with stroke on a few occasions.¹⁰⁻¹¹ The tumors arising from the right atrium present with constitutional symptoms, right heart failure, arrhythmias, syncope or ischemic heart symptoms.¹² To our knowledge, stroke has been related to right atrial tumors only in three cases: in a primary cardiac lymphoma,¹³ in a cardiac hemangioma¹⁴ and in a myxoma,¹⁵ two of them coexisting with PFO.^{14,15} In the case of our patient, it is also reasonable to assume that the source of the embolus that caused his stroke came from the right atrium through the PFO. Embolic tumor fragments are improbable because the lipoma was not easily breakable as it had a smooth surface and was encapsulated. Therefore, it is more plausible to consider that the abnormal motility of the right atrium owing to the dilatation caused by the lipoma, could favor the development of transient arrhythmias and/or a turbulent flow with the formation of thrombus that could

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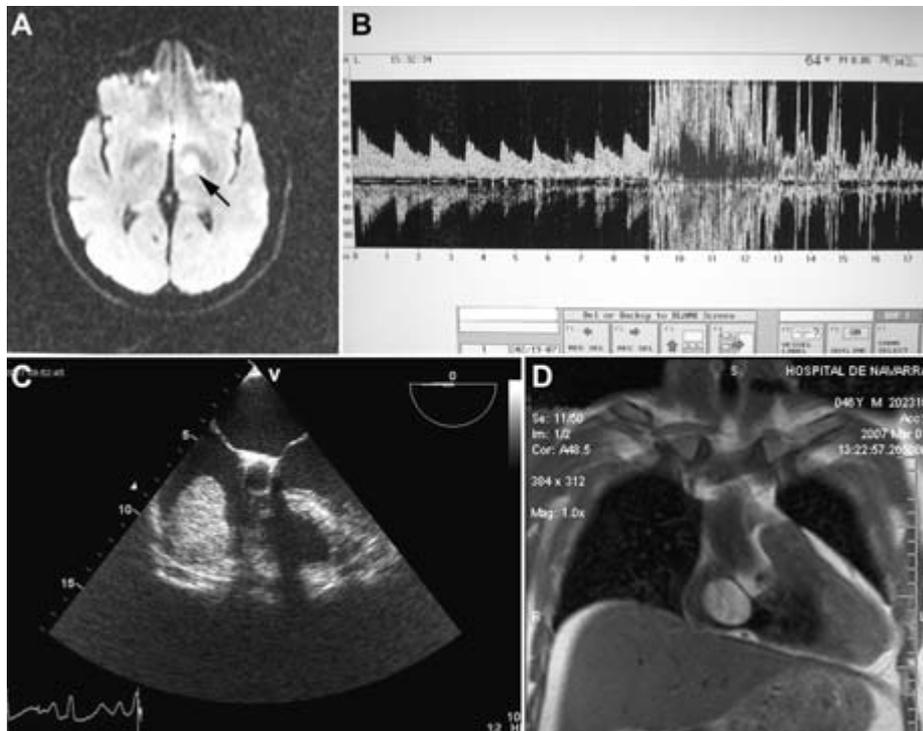


Figure 1: A, Axial diffusion-weighted cranial resonance image showing increased signal intensity in the left anterior thalamus (arrow) suggestive of an acute infarction. B, Contrast saline transcranial Doppler ultrasound (bubble test) using the Valsalva manoeuvre showing a high number of microembolic signals in the left medium cerebral artery indicative of a right to left shunt. C, Transesophageal echocardiogram showing a hyperechoic mass attached to the free wall of the right atrium. D, Cardiac resonance image, T1-weighted sequence, showing a strongly hyperintense lesion in the right atrium, suggestive of a lipoma.

reach the brain through the PFO.¹⁴ The PFO was diagnosed firstly by TCD bubble study and then confirmed with TEE and it was not associated with a lipomatous hypertrophy of the interatrial septum. The possibility of a paradoxical embolism from an unrecognized peripheral venous thrombosis that lead to the incidental finding of the lipoma must also be considered although determining the pathological relevance of PFO for the stroke etiology in a particular patient is difficult when concurrent risk factors are present. Phlebography was not performed in this patient but the yield of this exploration to detect deep venous thrombosis in cases of suspected paradoxical embolism is very low.¹⁶

This case report illustrates that stroke may be the first manifestation of a right atrial lipoma when it coexists with a PFO.

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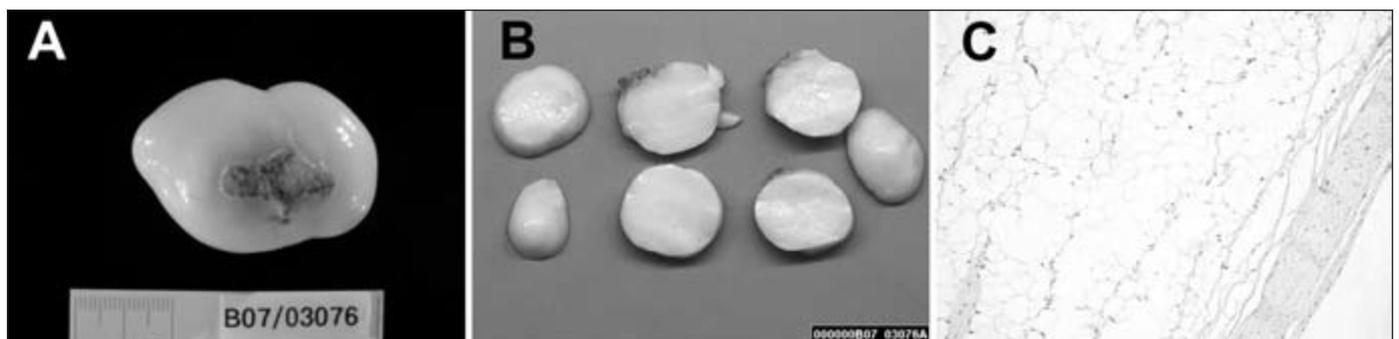


Figure 2: A, Gross pathology of the lipoma after its resection, it was 5 x 3.5 x 3.5 cm size. B, Macroscopic view of the inner aspect of the lipoma showing the aspect of fatty tissue. C, Photomicrograph of the tumor composed of mature adipose cells with a thin capsule of cardiac tissue at the margin.

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