International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Myxoma and Carotid Artery Occlusion Finding During a Stroke: The tree that hides the forest

Oumarou Hamissou Ibrahim[1], Wintzer-Wehekind Jerome[2]

[1]Corresponding Author, Department of cardiology, Mohammed V University of Rabat
[2]Co-Author, Department of Interventional Cardiology

Abstract
57-year-old female patient, who is an active smoker, admitted for a left-sided ischemic stroke in whom we found an association of a chronic occlusion of the left internal carotid and a myxoma of the left atrium, who presented a new onset stroke a month after the myxoma resection.

Keywords: Myxoma, carotid artery occlusion, stroke

Introduction
Stroke etiological investigation should be exhaustive, but the determination of the culprit lesion is not always easy, especially in the case of simultaneous presence of a myxoma and a carotid occlusion.

History of presentation
The patient was admitted for a right-sided hemifacial paresthesia. She had no cardiovascular and respiratory symptoms; the blood pressure was at 123/83 mmhg. Her heart sounds were normal without abnormal murmurs. There were no signs of heart failure. However, the left carotid pulse was not palpable.

Past medical history
She has been smoking for the past fifteen years, with no other past medical history.

Differential diagnosis
Thrombus and malignant tumors of the left atrium are the main differential diagnoses

Investigations
The electrocardiogram showed a sinus rhythm (Figure 1), without any disorder.

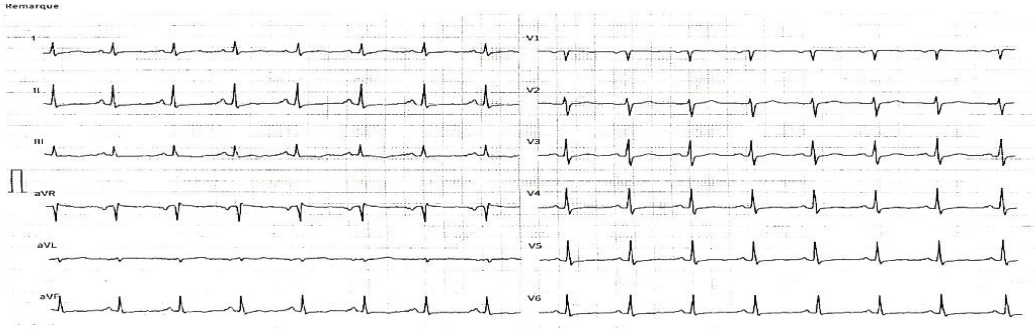

Figure 1: Twelve-lead electrocardiogram showing a sinus rhythm

Brain angio-MRI found on the diffusion sequence, a hypersignal (arrow) of the left superficial sylvian territory suggesting an acute large ischemic lesion (Figure 2). The angio-MRI of the supra-aortic trunks done at the same time showed an absence of flow at the left internal carotid artery (red arrow) associated with a normal flow at its terminal portion from communicating arteries (blue arrows). (Figure 3).

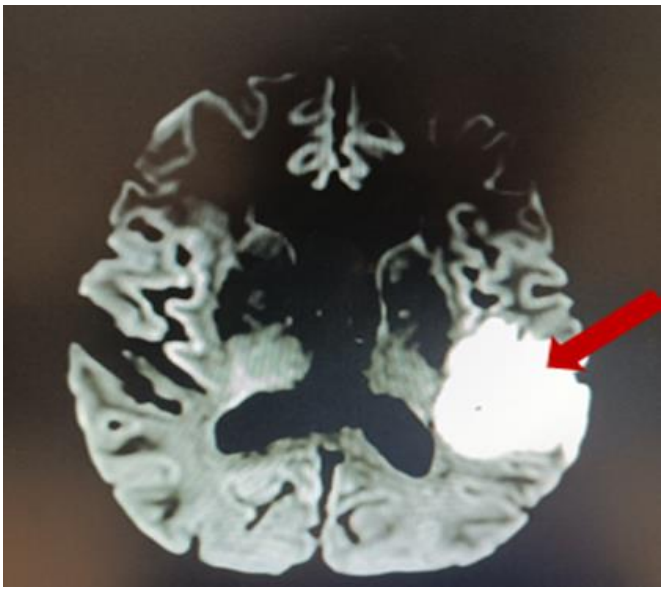

Figure 2: Cerebral angio-MRI showing a large stroke in the left sylvian territory on diffusion sequence

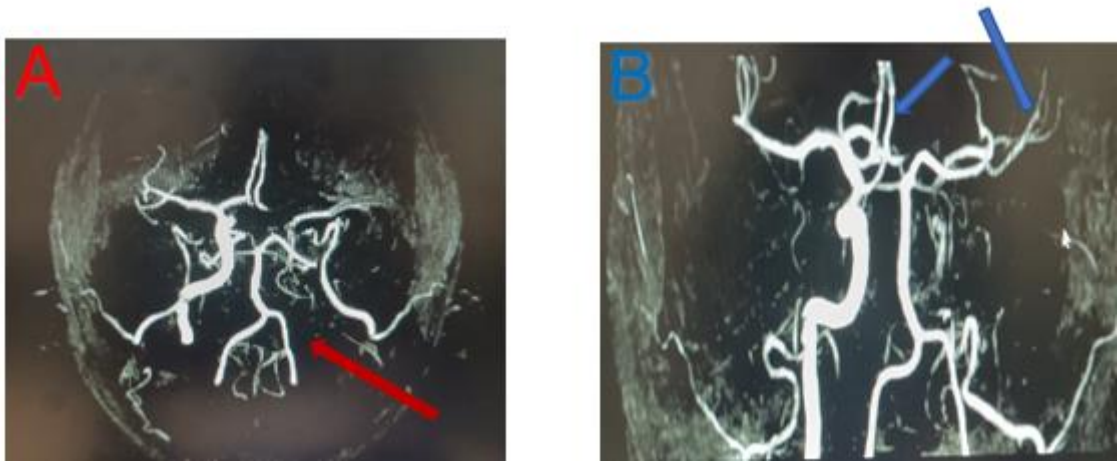

Figure 3: Angio-MRI of the supra-aortic trunks showing an absence of flow at the ostium of the left internal carotid artery (A: red arrow) associated with a collateral flow from communicating arteries (B: blue arrows) resulting first in a complete and chronic occlusion

That lesion seems to be chronic could be mistaken for the cause of the stroke. Transthoracic echocardiography revealed a tumor in the left atrium attached to the inter-atrial septum, measuring 2.5 cm in apical four-chamber view (Figure 4). The cardiac cavities had normal size and the left ventricular ejection fraction was at 65%. A transesophageal echocardiogram confirmed the presence of a myxoma of the left atrium, measuring 4.5 cm at its largest diameter in the left ventricular outflow tract view (Figure 5). There was no atrial thrombus, nor a patent foramen oval during saline contrast study; and the native

cardiac valves were thin and flexible. In addition, the heart rhythm telemetry recording during two days did not find an atrial fibrillation or other emboligenic cardiac arrhythmias. All her blood tests were normal.

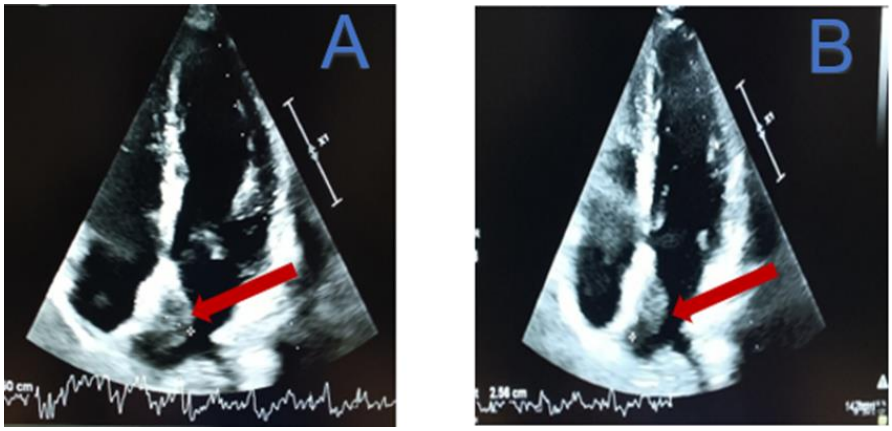

Figure 4: Transthoracic echocardiogram showing a left intra-atrial mass (arrow) attached to the inter-atrial septum and measuring 2.5cm (A = horizontal diameter and B = vertical diameter)

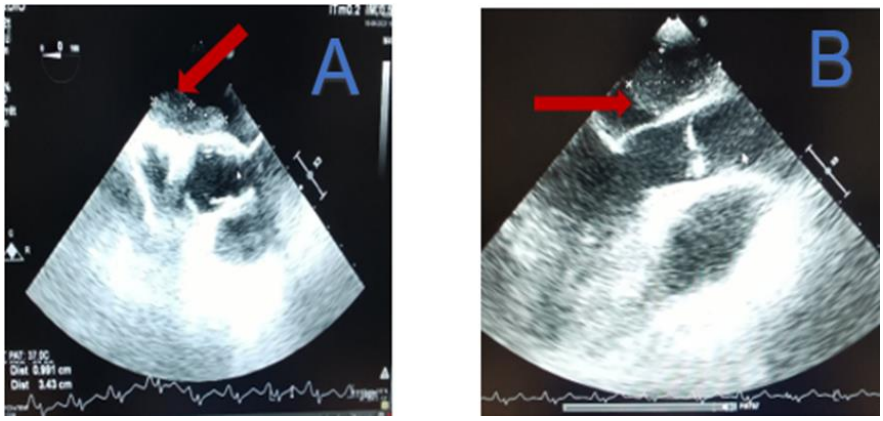

Figure 1 : Transesophageal echocardiography revealing a myxoma of the left atrium (arrow) measuring 3.43 cm (A) and 4.5 cm in large diameter (B) in the left ventricular outflow tract.

Management

There was a surgical indication to remove the myxoma, and further explorations were necessary as part of the preoperative assessment. A coronary angiogram was performed which come out normal (Figure 6). Moreover, a thoraco-abdominopelvic contrast tomography scan found no other anomaly except the myxoma in the left atrium already known and measured at 3.3 cm. (Figure 7). The surgical procedure consisted of complete excision of the myxoma associated with the inter-atrial septum reparation with a Dacron patch. The surgically excised myxoma was poly lobulated and friable (Figure 8). Two weeks after surgery, she presented a new onset stroke. The electrocardiogram showed a sinus rhythm. On transesophageal echocardiogram, there was no intracardiac mass. The saline contrast test was negative. Her CHA2DS2VASc score was at 3 and we finally introduced a long-term anticoagulant treatment in our patient.

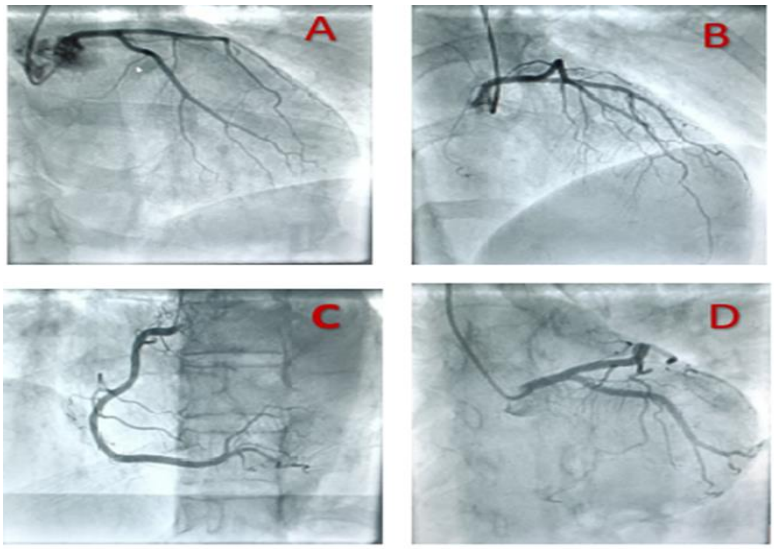

Figure 2 : A) Caudal right anterior oblique view showing the circumflex-marginal arteries which are normal, B) Cranial right anterior oblique view showing the left anterior descending artery which is normal, C) View showing the right coronary artery which is normal, D) Caudal left anterior oblique view showing the main left coronary artery which is normal

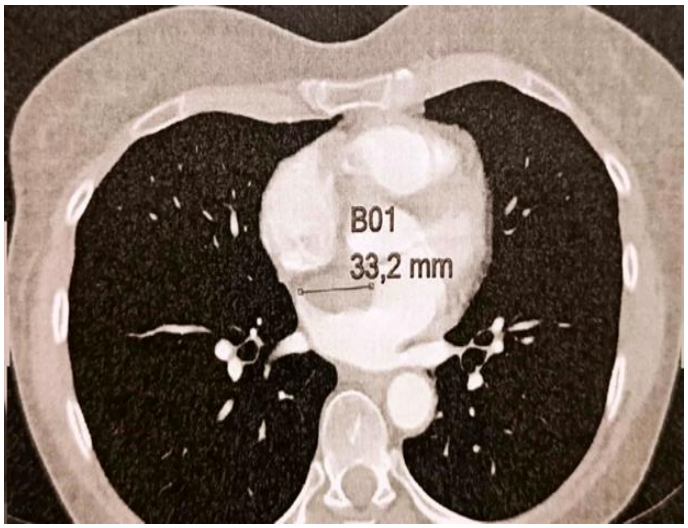

Figure 7: Thoraco-abdomino-pelvic contrast tomography scan showing the myxoma of the left atrium measuring 3.32 cm

Figure 8: Macroscopic aspect of the polylobulated myxoma

Discussion

Myxoma represents 50% of all benign cardiac tumors and in 75% of cases occurs in the left atrium (1). It is discovered incidentally during chest imaging or during its complication. (2) The myxoma appears on echocardiogram as a polyploid mass, very mobile, attached by its pedicle to the inter atrial septum in the region of the fossa ovalis. As for the thrombus, the main differential diagnosis, it has the appearance of a homogeneous mass, most often in a context of mitral stenosis or atrial fibrillation (3). Contrast tomography scan or magnetic resonance imaging and coronary angiogram are often requested as part of the preoperative assessment. Histological and genetic tests are rare performed (3). Furthermore, supra-aortic imaging and rhythmic explorations are useful to look for another thromboembolic etiology. The most frequent complications are embolisms in 40% of cases, obstructive atrioventricular, and myxoma infection. (3) The surgical consists of global excision of the tumor mass. (4) Post-operative complications concern: the recurrence of the myxoma, an atrial fibrillation or rarely the formation of thrombus at the excision site.

About our patient, the etiology of her stroke was related to the myxoma found in the left atrium according to those following reasons: the large aspect of the cerebral ischemia; the location of the myxoma, its mobility, as well as its multilobulated and friable nature. In addition, the absence of other thromboembolic causes supports the diagnosis. Regarding the left internal carotid artery occlusion, it did not explain the current symptoms and the presence of normal downstream vascularization showed that it is a chronic lesion. This can be confusing and may confuse that lesion for the cause of her stroke, it looks like the "tree" which hides the "forest" that would be the true etiology, in this case, the myxoma. The recurrence of our patient's stroke was related to postoperative atrial fibrillation. This post-operative atrial fibrillation often occurs in the six following day of a cardiac surgery and 50% of patients return to a sinus rhythm in less than 24 hours, it is a paroxysmic event (5,6).

Conclusion:

Myxoma is responsible for stroke in 15.3% of cases.

The association of a myxoma and a significant atheromatous lesion of a carotid artery can be confusing regarding the etiology of the stroke. However, an ischemia due to myxomas are often multi-focal and lar-

ge, while ischemia of carotid origin is systematized and respect a precise topography.
The post-operative atrial fibrillation is frequent in the case of cardiac surgery and at least an anticoagulation during at least one month should be considered specially in high thrombo-embolic risk patients

Follow-up
Our patient improved clinically and has been discharged with a close cardiac follow-up

Learning objectives:
1. To evoke a myxoma as stroke cause during cardiac investigations and make its differential diagnosis
2. To be able to find the true etiology of stroke during association of a myxoma and a carotid occlusion
3. To know the complications after myxoma surgery

References:
1. Nguyen T, Vaidya Y. Atrial Myxoma. [Updated 2023 Jul 3]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-.
2. D'Souza D, Hacking C, Yap J, et al. Cardiac myxoma. Reference article, Radiopaedia.org (Accessed on 01 Dec 2023) https://doi.org/10.53347/rID-1051
3. Islam AKMM. Cardiac myxomas: A narrative review. World J Cardiol. 2022 Apr 26;14(4):206-219. doi: 10.4330/wjc.v14.i4.206. PMID: 35582466; PMCID: PMC9048271.
4. Karabinis, Andreas MD, PhDa; Samanidis, George MDb, Khoury, Mazen MD, PhDc; Stavridis, George MDd; Perreas, Konstantinos PhD, FRCSb. Clinical presentation and treatment of cardiac myxoma in 153 patients. Medicine 97(37):p e12397, September 2018. | DOI: 10.1097/MD.0000000000012397
5. Lopes LA, Agrawal DK. Post-Operative Atrial Fibrillation: Current Treatments and Etiologies for a Persistent Surgical Complication. J Surg Res (Houst). 2022;5(1):159-172. doi: 10.26502/jsr.10020209. Epub 2022 Mar 28. PMID: 35445200; PMCID: PMC9017863.
6. Jagadish PS, Kirolos I, Khare S, Rawal A, Lin V, Khouzam RN. Post-operative atrial fibrillation: should we anticoagulate? Ann Transl Med. 2019 Sep;7(17):407. doi: 10.21037/atm.2019.07.10. PMID: 31660306; PMCID: PMC6787379.