Complete Spontaneous Thrombosis in Unruptured Non-Giant Fusiform Intracranial Aneurysm Presenting with Transient Ischemic Attack. Case Report

Trombose Espontânea Completa em Aneurisma Intracraniano Fusiforme Não Roto Não Gigante Apresentando-se com Ataque Isquêmico Transitório. Relato de caso

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ABSTRACT
Fusiform aneurysms are spindle-shaped lesions that account for only 1% of all intracranial aneurysms, that rarely may undergo spontaneous partial or complete thrombosis and could lead to parent artery thrombosis, ischemic stroke, and focal neurological deficits. The phenomenon behind this event is still rarely reported, and its mechanism has also been poorly understood. We present an unusual case with complete spontaneous thrombosis of a small unruptured fusiform aneurysm at the right posterior cerebral artery, presenting with a transient ischemic attack.

Keywords: Fusiform aneurysms; Spontaneous thrombosis; Thrombosed aneurysms; Small fusiform aneurysms

RESUMO
Os aneurismas fusiformes são lesões fusiformes que representam apenas 1% de todos os aneurismas intracranianos, que raramente podem sofrer trombose parcial ou completa de forma espontânea e podem levar a trombose da artéria principal, acidente vascular cerebral isquêmico e déficits neurológicos focais. O fenômeno por trás desse evento ainda é pouco relatado e seu mecanismo também é pouco compreendido. Apresentamos um caso incomum com trombose espontânea completa de um pequeno aneurisma fusiforme não roto na artéria cerebral posterior direita, apresentando-se como um ataque isquêmico transitório.

Palavras-chave: Aneurismas fusiformes; Trombose espontânea; Aneurismas trombosados; Pequenos aneurismas fusiformes

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INTRODUCTION

Fusiform aneurysms are spindle-shaped lesions that account for only 1% of all intracranial aneurysms. These aneurysms can thrombose spontaneously on rare occasions, causing parent artery thrombosis, ischemic stroke, and regional neurological deficits. Here, we present an unusual case with complete spontaneous thrombosis of an unruptured small fusiform aneurysm located at the right posterior cerebral artery (PCA), presenting with a transient ischemic attack (TIA).

CASE PRESENTATION

A 30-years old woman, previously healthy, presented to another facility with a history of headache for 2 days and left hemiparesis. Computed tomography (CT) was done at the time of the ictus and showed no evidence of SAH or intracerebral hemorrhage. During CT angiogram (CTA), a fusiform unruptured intracranial aneurysm was located at the right PCA. Aneurysm size was 9.1 x 6.5 x 5.4 mm (Figure 1), which, in terms of size, could be classified as small fusiform.

Four weeks later the patient was transferred to our neurosurgical department. At the moment of the admittance, there was no neurological impairment. Digital subtraction angiography (DSA) was performed and demonstrated a complete obliterated aneurysm with any other vascular changes (Figure 2). These data were interpreted as complete spontaneous aneurysm thrombosis. The patient has not experienced any new neurological episodes in the last two months. She is currently undergoing clinical and radiological follow-up after being diagnosed with total spontaneous intra-aneurysmal thrombosis.

Figure 1. Cerebral computed tomography at diagnosis showing the right posterior cerebral artery aneurysm of 9.1 x 6.5 x 5.4 mm in size. A. Axial; B. Sagittal; C. Coronal view showing posterior cerebral artery aneurysm; and D. Reconstruction of computed tomography showing the fusiform aneurysm of the posterior cerebral artery.
Despite the exact mechanism behind the intra-aneurysmal thrombosis being still unknown, the turbulent blood flow within an aneurysm is a well-known fact, which can account for complete or partial thrombosis of the aneurysm, together with endothelial injury. The occurrence of thrombosis in small intracranial fusiform aneurysms has been rarely reported, with the medical conduct based on previous studies of intracranial non-fusiform thrombosed aneurysms. It is crucial to understand that thrombosed aneurysms' natural history isn't the end of the story. Even with totally thrombosed intracranial aneurysms, further aneurysmal growth, distal thromboembolism, persisting mass effect, and eventual recanalization still remain possibilities as long as the parent artery flow is maintained.

The same logic applies to thrombosed fusiform aneurysms, which are likewise dangerous and require treatment. In general, TIs or strokes from thrombosed tiny aneurysms are not widely documented, and there is still debate and disagreement regarding how to treat patients with this condition which present with ischemic stroke. Vandenbulcke et al. reported in their review that 33% of recanalization in previous thrombosed intracranial aneurysms, being most of these patients on antiplatelet treatment, and the surgical treatment has been already proposed in giant cases. The safety of use of antiplatelets in, despite thrombosed, aneurysmatic patients is still a controversy, even Przelomski et al. presented a report of 12 unruptured aneurysms in patients with TIA and stated that the prognosis of unruptured aneurysm presenting with TIA was good, regardless therapy (surgery, anticoagulant, antiplatelet therapy, and none). The benefits of surgical intervention in these cases of small thrombosed aneurysm have never been shown, and benefit-cost must be evaluated.

In a dynamic condition, the natural history of thrombosed intracranial aneurysms is assumed to be guided by a delicate balance between thrombogenesis and thrombolysis. As a result, angiographically occluded tiny aneurysms may not indicate a positive outcome, as there is still a possibility of recanalization and rupture, which can be life-threatening, needing close monitoring.
CONCLUSION

A rare yet serious consequence of an unruptured intracranial small fusiform aneurysm is highlighted in this case. Small fusiform aneurysms may thrombose and cause TIA or stroke episodes, according to clinical and imaging evidence. The cerebral aneurysm was discovered at the acute stage of TIA in this case, and conservative treatment was started. In order to better understand the pathogenesis and therapy of thrombosis in these aneurysms, more research is needed.

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