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## Basilar Megadolichoectasia and Pituitary Adenoma as an Unusual Cause of Stroke

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### Abstract

Intracranial arterial dolichoectasia is a dilation of the elastic tissue of the middle layer of the cranial arteries. These vessels can be seen to be dilated, elongated, and sometimes tortuous. This type of arteriopathy is present in 12% of stroke patients, and affects the vertebrobasilar territory in 80% of cases, and can cause ischemia or hemorrhage (coexistence of aneurysm and rupture bleeding).

**Keywords:** Megadolichoectasia; Unusual stroke; Basilar ectasia; Pituitary adenoma; Basilar artery

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### Introduction

The clinical manifestations depend on the affected vascular territory: infarction located in the arterial territory due to local hypoperfusion, increased intracranial pressure, symptoms of cranial nerve compression, etc. Although the diagnostic criteria are not well established, in the larger series they consider a normal size of the basilar artery of 1.9 to 4.5 mm in diameter, measured by computerized axial tomography (CT). Sizes greater than 4.5 mm are considered dolichoectasia. Coexistence with other intracranial pathologies such as pituitary adenomas increases the possibility of complications and vascular events due to increased intracranial pressure [1-5].

### Case Presentation

A 46-year-old man, with a history of hypertension on hydrochlorothiazide treatment, and dyslipidaemia on dietary treatment, who came to the emergency room due to sudden dizziness, vomiting, difficulty speaking speech, deviation of the mouth corner, and clumsiness in the hemibody right of almost 48h of evolution. On examination in the Emergency Department, a moderate dysarthria was observed, with unforced deviation of the conjugated gaze to the right, right central facial paralysis, 0/5 muscle balance in the right upper limb, and 1/5 in the right lower limb, without sensory alterations. Right extensor cutaneous-plantar response (NIHSS: 11).

The urgent CT scan revealed an increase in the diameter of the basilar artery at the level of the prepontine and pre-mesencephalic cistern, and a hypodense lesion in the left anterolateral protrusion, suggestive of infarction. A cranial magnetic resonance

imaging (MRI) was then performed which showed an infarction in the left portion of the pons, in addition to a large vertebrobasilar dolichoectasia (15mm), with a large basilar fusiform aneurysm with mural thrombosis, which occupies most of the posterior fossa and produces mass effect on the brainstem. In addition, a 2 cm pituitary macroadenoma was observed, with lateral extension surrounding the cavernous portion of the internal carotid by 50% (**Figure 1**).

The vascular study was completed with an analysis that highlighted an erythrocyte sedimentation rate of 25 mm/h, triglycerides: 225 mg/dL, total cholesterol: 223 mg/dL, a normal transcranial Doppler and chest X-ray, a transthoracic echocardiogram without alterations, absence of arrhythmias in the electrocardiograms and monitoring during admission. He was diagnosed with a left pontine infarct secondary to basilar megadolichoectasia with aneurysm and mural thrombus, requiring rehabilitation treatment for months.

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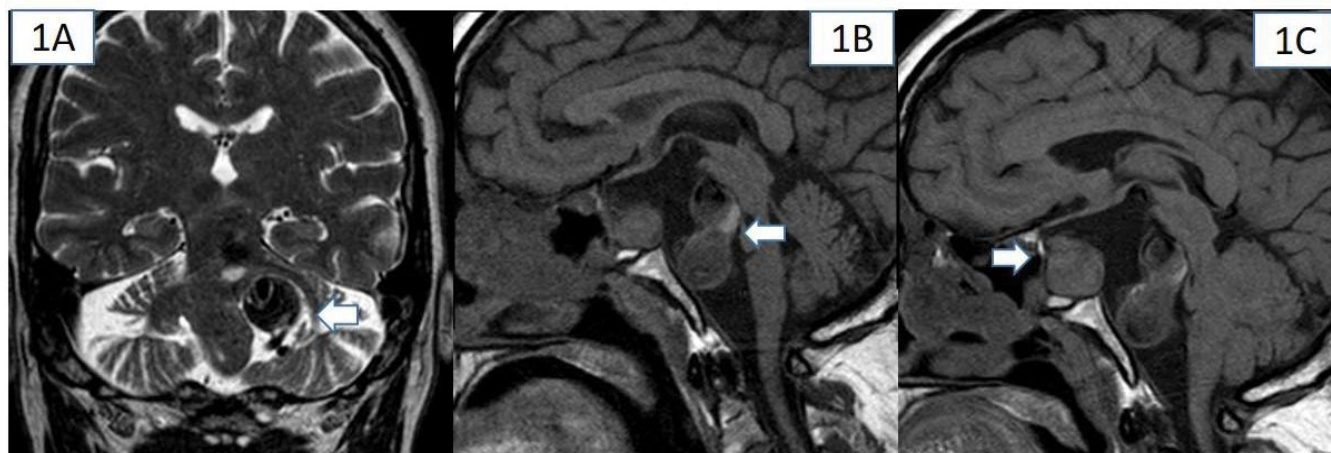
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**Figure 1** Cranial magnetic resonance images: 1A: Basilar megadolichoectasia with large basilar fusiform aneurysm with mass effect on the brainstem, and (1B) mural thrombosis. 1C: 2 × 2.3 × 2 cm pituitary macroadenoma, which surrounds the cavernous portion of the internal carotid by 50%.

## Discussion

Endovascular treatment could not be performed due to the time of evolution and the risks. The presence of the macroadenoma was also assessed as a cause of increased intracranial pressure, and a possible facilitating factor for vascular problems, for which reason it was proposed to carry out deferred surgery. In the subsequent evolution, he continued to show sequelae of paresis of the right extremities, requiring support for walking (ERm<sup>3</sup>). Later, endonasal surgery was chosen for the treatment of the pituitary macroadenoma, despite the risks, with complete resection.

## References

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## Conclusion

Basilar megadolichoectasia with intramural aneurysm is a known but very rare cause of stroke in young patients. Although more and more vascular interventional procedures have been performed in recent years for this type of pathologies, and the evolution of neurointerventionism is promising, our patient could not benefit from this technique due to the time of evolution of the clinic, and the risk vital due to its size and location. The coexistence also with a pituitary adenoma makes the treatment of these patients complex, and necessarily multidisciplinary.

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