

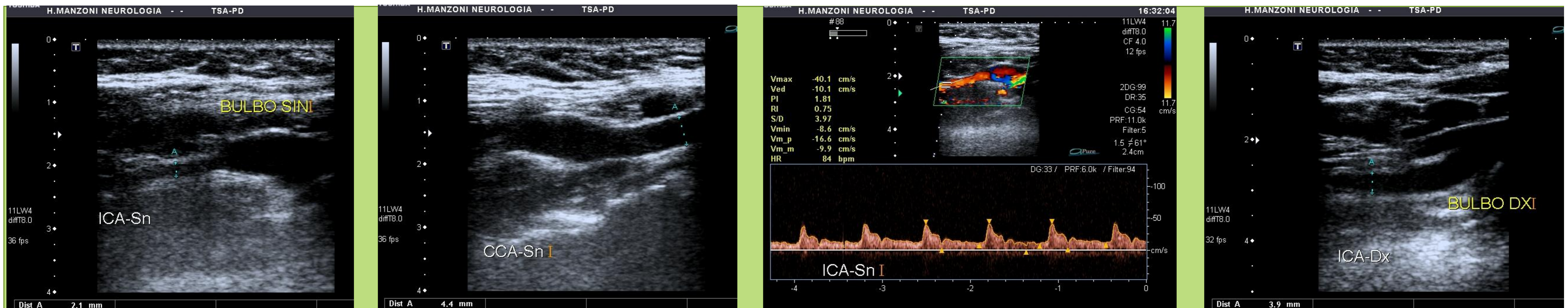


**INTRODUCTION:** Internal carotid artery (ICA) can present different types of physiological variants, even if these conditions are rare. According to Lie's definition [1], hypoplasia is considered when a portion of the artery is present and the initial segment is normal in size. Patients with hypoplasia rarely present with cerebrovascular events.

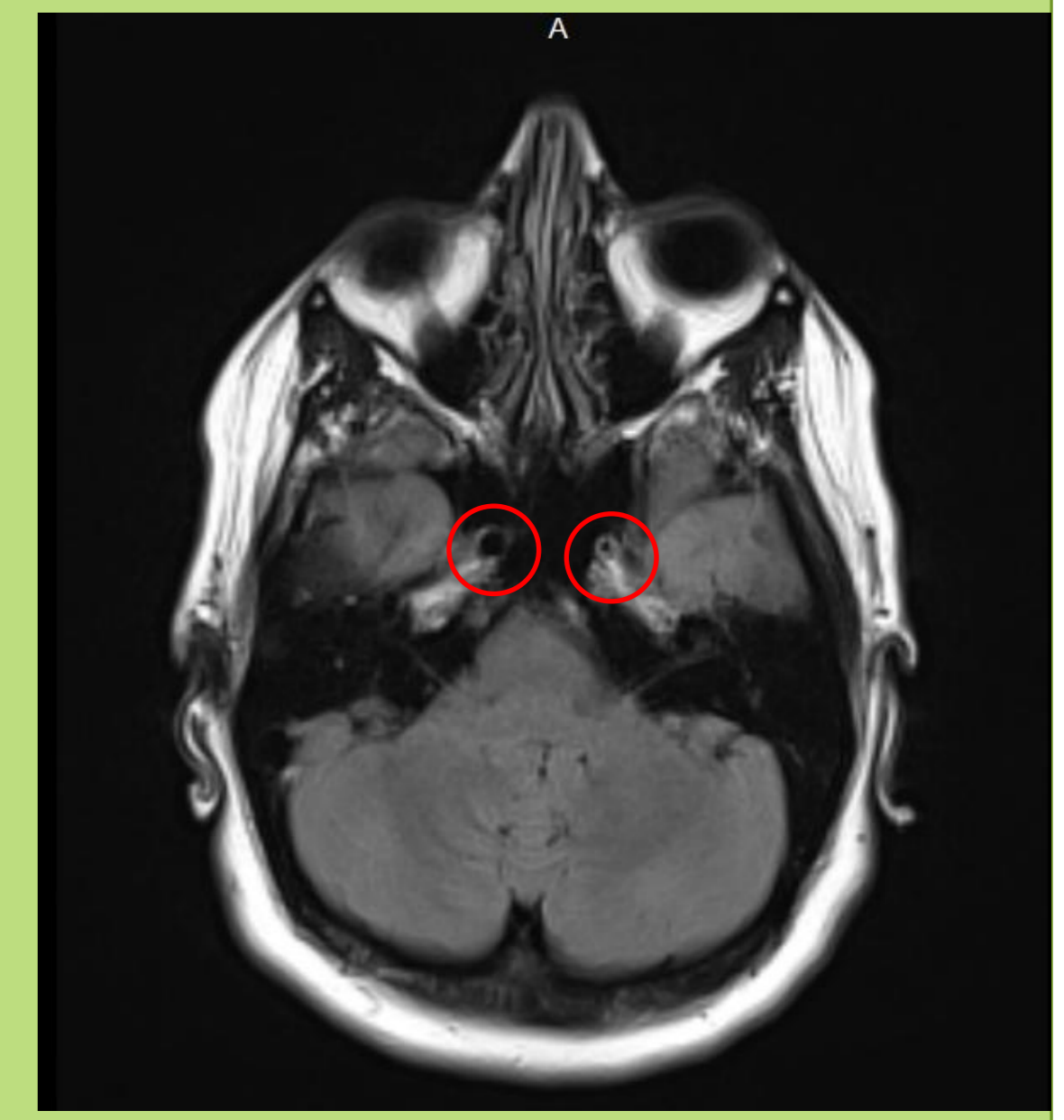
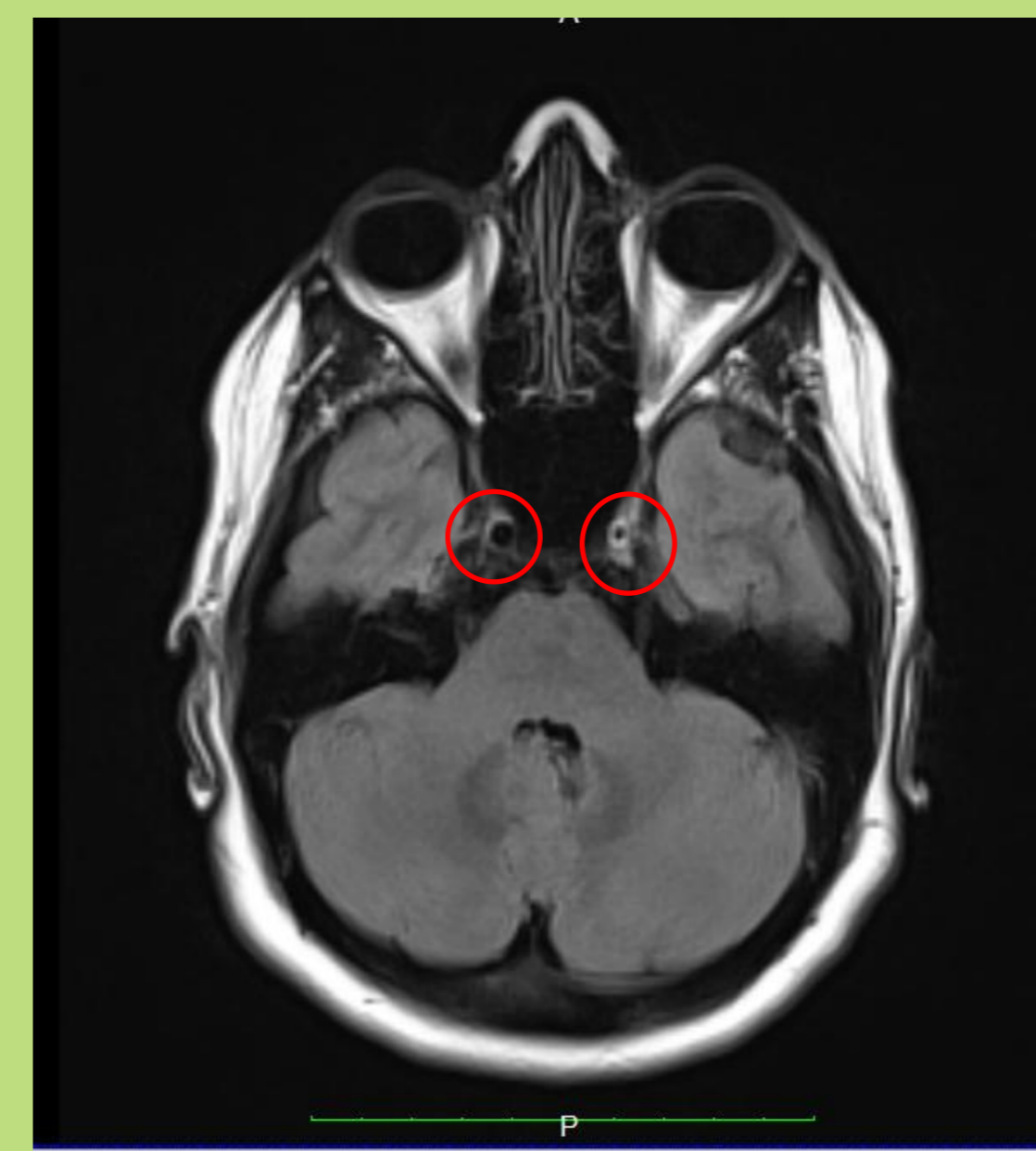
**OBJECTIVE:** To describe a case of hypoplasia of the left internal carotid artery.

## CLINICAL CASE

• A 30-year-old woman went to the emergency department complaining left tongue and hemifacial paresthesia, lasting 4 hours. She had a history of Charcot-Marie-Tooth (type 2A), Hashimoto's disease and migraine with visual aura. Neurological evaluation was normal, except for bilateral severe distal hypotrophy of lower limbs. Cervical vessels color-doppler sonography showed the presence of a normal carotid wall thickness, but an asymmetry in calibre because the left ICA was smaller than the right one.



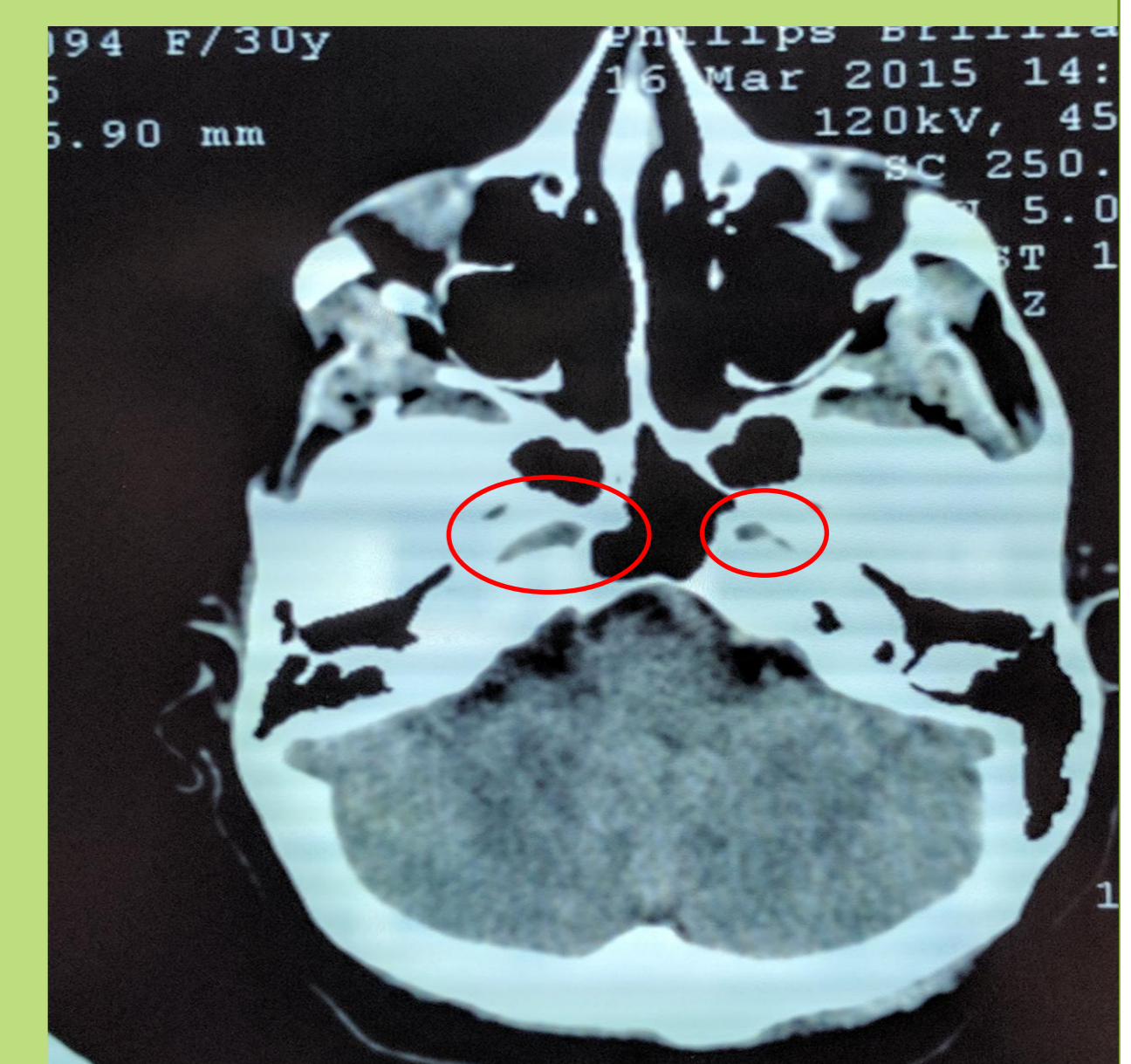
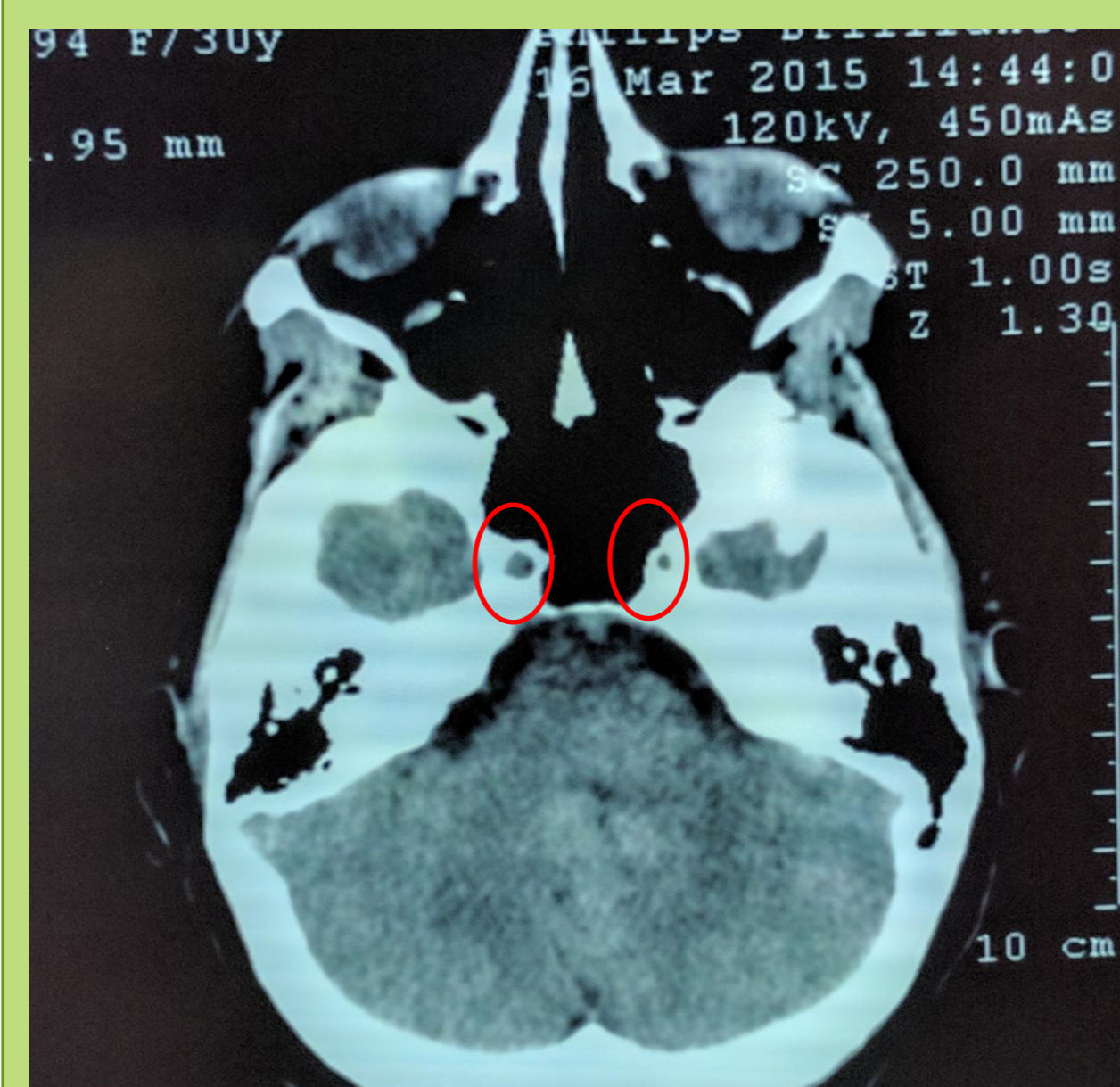
• A brain MRI was performed and it revealed a normal brain parenchyma and an asymmetry of carotid siphons, with the left one smaller than the other.



BRAIN MRI FLAIR

• A brain CT scan was repeated, investigating temporal bone conformation. This exam showed a left carotid canal decreased in size (hypoplasia), compared to the contralateral, but not its agenesis.

- A TCCD evaluation showed compensatory collateral circulation through the anterior communicating artery and left posterior communicating artery.
- Angio-MRI did not reveal intracranial aneurysms.
- Antiplatelet therapy was started for 36 months and then stopped.



BRAIN CT SCAN

## DISCUSSION

• Different types of physiological variants have been reported in ICA anatomy, including hypoplasia and agenesis [2, 3]. Agenesis is the total absence of the entire artery due to an embryological arterial developmental failure; on the contrary, hypoplasia is considered when a portion, or remnant, of the artery is present and the initial segment is normal in size. Clinicians can distinguish these situations thanks to temporal bone computer tomography, which reveals the absence of the lumen of the carotid canal compared to the contralateral side in the case of agenesis and a decreased caliber of the carotid canal in case of hypoplasia. A complete work-up (with ultrasound, magnetic resonance and computed tomography) is crucial in distinguishing between a congenital condition and an acquired one and in evaluating compensatory circulation. Moreover, recognition of this anomaly is important, as it may be associated with aneurysm(s) and it, though rare, should be considered in the differential diagnosis of ICA luminal narrowing.

## REFERENCES

1. Lie TA (1968) Congenital anomalies of the carotid arteries. Excerpta Medica, Amsterdam, pp 44–49.
2. Siddiqui and Sobani Bilateral hypoplasia of the internal carotid artery, presenting as a subarachnoid haemorrhage secondary to intracranial aneurysmal formation: a case report. Journal of Medical Case Reports 2012, 6:45
3. J.-H. Lee, C. W. Oh, S. H. Lee, and D. H. Han Aplasia of the internal carotid artery. Acta Neurochir (2003) 145: 117–125