SCIENCE SET
OPEN ACCESS PUBLISHERS

Short Communication

Science Set Journal of Radiology

The Hyperdense Basilar Artery Sign: A Case of Top of Basilar Artery Syndrome

Jihane EL Houssni*, Ismail Neftah, Omar EL Aoufir, Fatima Zahra Laamrani, and Laila Jroundi

Radiology Department, Mohammed Vth military hospital, Ryad street, 10010 Rabat, Morocco

***Corresponding author:** Jihane EL HOUSSNI, Radiology Department, Mohammed Vth military hospital, Ryad street, 10010 Rabat, Morocco.

Submitted: 05 June 2024 **Accepted:** 19 June 2024 **Published:** 24 June 2024

Citation: *Jihane EL Houssni, Ismail Neftah, Omar EL Aoufir, Fatima Zahra Laamrani, and Laila Jroundi (2024) The Hyperdense Basilar Artery Sign: A Case of Top of Basilar Artery Syndrome. Sci Set Jour Radiology 1(2), 01-02.*

Abstract

The initial evaluation for suspected Top of Basilar Artery Syndrome includes non-contrast CT. On non-contrast CT scans, the presence of hyperdensity in the basilar artery often indicates basilar artery occlusion. This hyperdense basilar artery sign, akin to the hyperdense middle cerebral artery sign seen in anterior circulation strokes, may be the sole finding in an acute presentation and has demonstrated strong predictive value for basilar artery thrombosis, particularly in patients with a high pretest probability of posterior circulation stroke. We report a case of a 60-year-old female patient with cardiovascular risk factors, including diabetes and hypertension, who presented to the emergency department with sudden-onset visual disturbances. A non-contrast CT scan revealed a spontaneously hyperdense appearance in the upper portion of the basilar artery, indicative of basilar artery occlusion, accompanied by bilateral cortico-subcortical temporo-occipital hypodense ischemic areas.

Keywords: Top of Basilar Artery Syndrome, The Hyperdense Basilar Artery Sign, CT

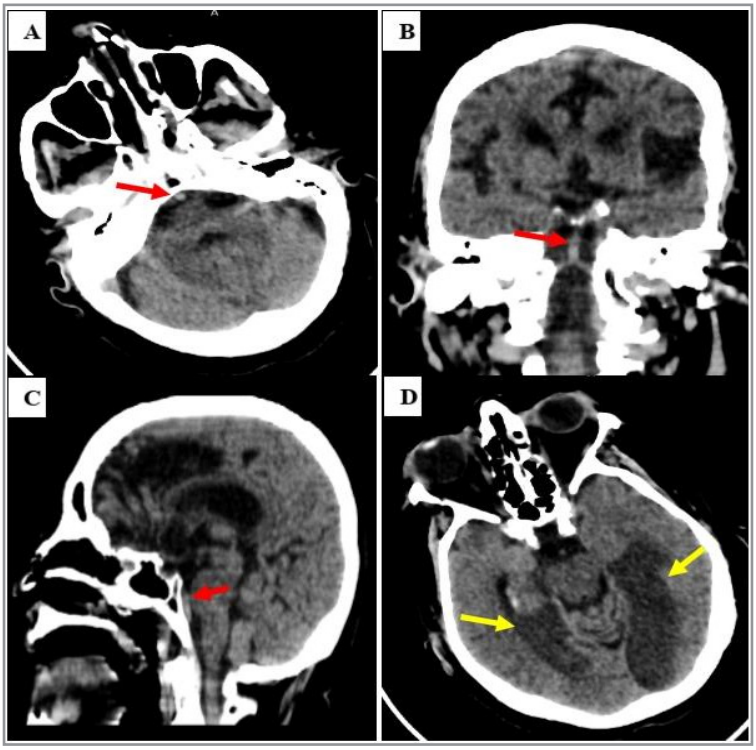

Figure 1: Cerebral CT scan without contrast injection: A (Axial section), B (Coronal section), and C (Sagittal section): Spontaneously hyperdense appearance of the rostral portion of the basilar artery (Red arrow). D: Axial section showing bilateral cortico-subcortical temporo-occipital hypodense areas (Yellow arrow).

History

A 60-year-old female patient, with cardiovascular risk factors including diabetes and hypertension, was admitted to the emergency department for sudden-onset visual disturbances. A cerebral CT scan was performed, revealing a spontaneously hyperdense appearance in the upper portion of the basilar artery, accompanied by bilateral cortico-subcortical temporo-occipital hypodense ischemic areas.

Diagnosis

Top of Basilar Artery Syndrome

Commentary

The syndrome of Top Basilar Artery is also known as rostral brainstem infarction [1]. It was first described by John Abercrombie in 1828 [2]. It results from thrombosis in the rostral portion of the basilar artery [1]. The basilar trunk is formed by the union of the right and left vertebral arteries. It is a significant component of the posterior circulation, contributing to the circle of Willis and supplying structures in the posterior cranial fossa, including the pons and cerebellum [3]. Basilar artery occlusion is observed in 1% of strokes [3].

Top of basilar artery syndrome can occur due to various factors such as atherosclerotic thrombosis of the basilar artery, cardiac or large vessel emboli, vasculitis, giant aneurysm affecting the basilar artery, or balloon angiography [4]. Occlusion of the rostral portion of the basilar artery can lead to infarction in the mesencephalon, thalamus, hypothalamus, paramedian diencephalon, medial temporal lobes, and occipital lobes [4].

Clinically, patients typically present with symptoms such as visual and oculomotor deficits, as well as behavioral abnormalities. Motor dysfunction, on the other hand, is frequently not observed [1].

The initial evaluation for suspected Top of Basilar Artery Syndrome includes non-contrast CT [2]. On non-contrast CT scans, the presence of hyper density in the basilar artery often indicates basilar artery occlusion [2]. This hyperdense basilar artery sign, akin to the hyperdense middle cerebral artery sign seen in anterior circulation strokes, may be the sole finding in an acute presentation and has demonstrated strong predictive value for basilar artery thrombosis, particularly in patients with a high pretest probability of posterior circulation stroke (sensitivity 71%, specificity 98%) [5].

Conflict of Interest

None of the authors has any conflicts of interests to disclose

References

1. Suthar PP, Rana PJ, Mehta C, Patel NA (2015) Top of Basilar Artery Syndrome. J Clin Diagn Res 9: TJ01.
2. José G Rivera, José L Moreno, Irma L Maldonado, Edgar Bravo, José C Padilla (2023) Top of the Basilar Syndrome: A Case Report of a Healthy Young Woman and Literature Review. Cureus 15: e44663.
3. Tirumalasetty Sriharsha, Sava Nandha Gopal, Arun Kumar A, Vikrannth V, Vinod Raghavan, et al. (2023) A rare case presentation of top of basilar artery syndrome. Int J Adv Med 10: 327-329
4. Tanha F, Donat JR, Gulka IB, Kirk A, Shuaib A (1995) "Top of the basilar artery" syndrome and thalamic aphasia: A case report. Journal of Stroke and Cerebrovascular Diseases 5: 227-231.
5. Lasanthi Aryasinghe, Yasmin Kazim, Hamza F Obeid, Husnain Hashim (2016) The hyperdense basilar artery sign: a case of locked-in syndrome. Int J Emerg Med 9: 12.