

Case Reports & Case Series

Posterior circulation stroke mimicking a pontomedullary brain stem lesion: A case report



Abiodun Idowu Okunlola^{a,b,*}, Paul Olowoyo^{d,e}, Cecilia Kehinde Okunlola^c,
Olakunle Fatai Babalola^{a,b}

^a Department of Surgery, Federal Teaching Hospital, Ido-Ekiti, Nigeria

^b Department of Surgery, College of Medicine and Health Sciences, Afe Babalola University, Ado-Ekiti, Nigeria

^c Department of Clinical Pharmacology, University College Hospital, Ibadan, Nigeria

^d Department of Medicine, Federal Teaching Hospital, Ido-Ekiti, Nigeria

^e Department of Medicine, College of Medicine and Health Sciences, Afe Babalola University, Ado-Ekiti, Nigeria

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ABSTRACT

Posterior circulation stroke occurs in the territory of the vertebrobasilar arterial system. About 20–25% of ischaemic strokes affect posterior circulation brain structures. We present a patient with a posterior circulation stroke mimicking a left pontomedullary brain stem lesion. Acute onset clinical symptoms relating to the posterior circulation should be adequately investigated including angiography to exclude hypoplastic vertebral artery so as to prevent possible recurrence which may be more challenging with a mortality as high as 80%.

1. Introduction

Posterior circulation stroke occurs in the territory of the vertebrobasilar arterial system which includes the inferior surface of the temporal lobes, the occipital lobe, part of the diencephalon, the cerebellum and the brain stem [1]. It is common in the elderly hypertensive patients who often present with dysphagia, dysphonia, dysarthria, disequilibrium and cerebellar symptoms [2]. About 20–25% of ischaemic strokes affect posterior circulation brain structures [3]. Posterior circulation stroke is more difficult to recognize and may present with poor 6-month outcome despite a relatively low NIHSS score at presentation [4]. Congenital variations in the size of the vertebrobasilar arterial system have been recognized as aetiological factors in the development of posterior circulation stroke [5,6]. Left vertebral artery is dominant in about 70% of the population [7]. We present a patient with a posterior circulation stroke mimicking a left pontomedullary brain stem lesion.

2. Case report

AO is a 75 year old woman referred to us with history of dizziness,

vomiting and fainting episodes of sudden onset which resolved over a period of 24 h. These were associated with acute onset dysarthria, inability to close left eye, drooling of saliva, left hearing impairment and unsteady gait. There was no history of chronic medical disease. She was conscious and alert. She had left infranuclear facioparesis, moderate left sensorineural hearing impairment and dysdiadochokinesia. The examination of other systems was normal. Clinical suspicion of brain stem lesion was raised, which prompted the brain MRI. Haematological investigations were normal except a low level of high density lipoprotein of 0.8 mmol/L. The brain MRI (Fig. 1) showed hypointense right parietal lesion on T1 with no contrast enhancement, hyperintense on FLAIR and T2 images, left cerebellar hemispheric mixed intensity, mainly isointense, on T1 and hyperintense on FLAIR and T2 images and left pontomedullary brain stem lesion with similar intensities. Metastatic screens were negative. She had progressive improvement on conservative care. Repeat brain MRI/MRA (Figs. 2 and 3) showed resolution of the brain lesions with features in keeping with previous vascular insult, hypoplastic right A1 and right vertebral artery. Doppler ultrasound showed left carotid bulb stable plaque measuring 2.2 mm but no significant hemodynamic changes in the carotid velocimetry.

* Corresponding author at: Department of Surgery, Federal Teaching Hospital, Ido-Ekiti; College of Medicine and Health Sciences, Afe Babalola University, Ado-Ekiti, Nigeria.

E-mail address: okunlolaab@yahoo.com (A.I. Okunlola).

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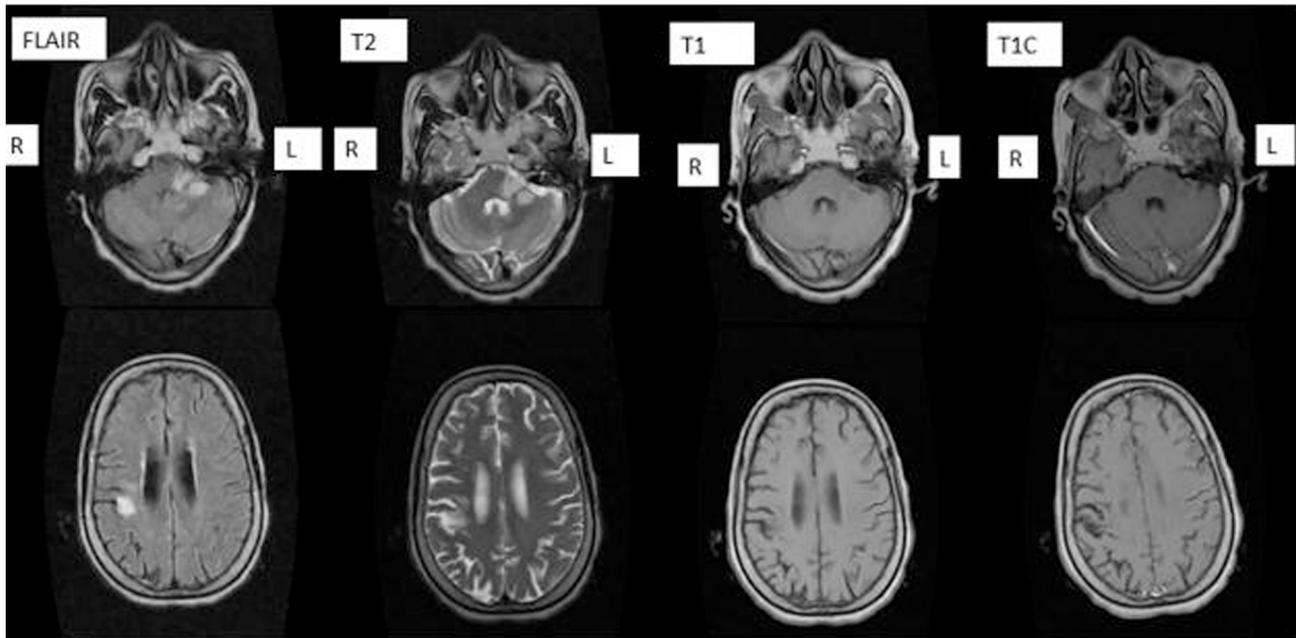
INITIAL BRAIN MRI (05/06/2018)

Fig. 1. Initial brain MRI.

ECG and ECHO showed features of hypertensive heart disease but there was no intraluminal clot.

3. Discussion

Posterior circulation stroke, unlike the anterior circulation stroke, is more difficult to diagnose due to complexity of its clinical presentation [2]. The challenges in clinical presentation and diagnoses are demonstrated in the index patient who presented with clinical features suggestive of left pontomedullary brain stem lesion. The diagnostic clue to the vascular origin was acute onset of the symptoms. There is tendency for delayed or incorrect diagnosis of the posterior circulation stroke but detailed clinical history and early neuroimaging are the keys to optimal care [8,9]. Initial brain MRI and the repeat MRI were in keeping with

vascular insult and angiography showed hypoplastic right vertebral artery. Echocardiography did not show any evidence of mural clot which suggested that cardioembolic stroke is unlikely. The probable explanation to this occurrence may be an arterial embolus. Previous studies have documented direct relationship between hypoplasia of the vertebral artery and posterior circulation stroke [5,7]. Thus, it is important to embark on stroke prevention in the patient with radiographic evidence of the hypoplastic vertebral artery to prevent its fatal consequences. Acute onset clinical symptoms of posterior circulation, even if transient, should be adequately investigated including angiography to exclude hypoplastic vertebral artery so as to prevent possible recurrence which may be more challenging with a mortality as high as 80% [10,11].

REPEAT BRAIN MRI (12/09/2018)

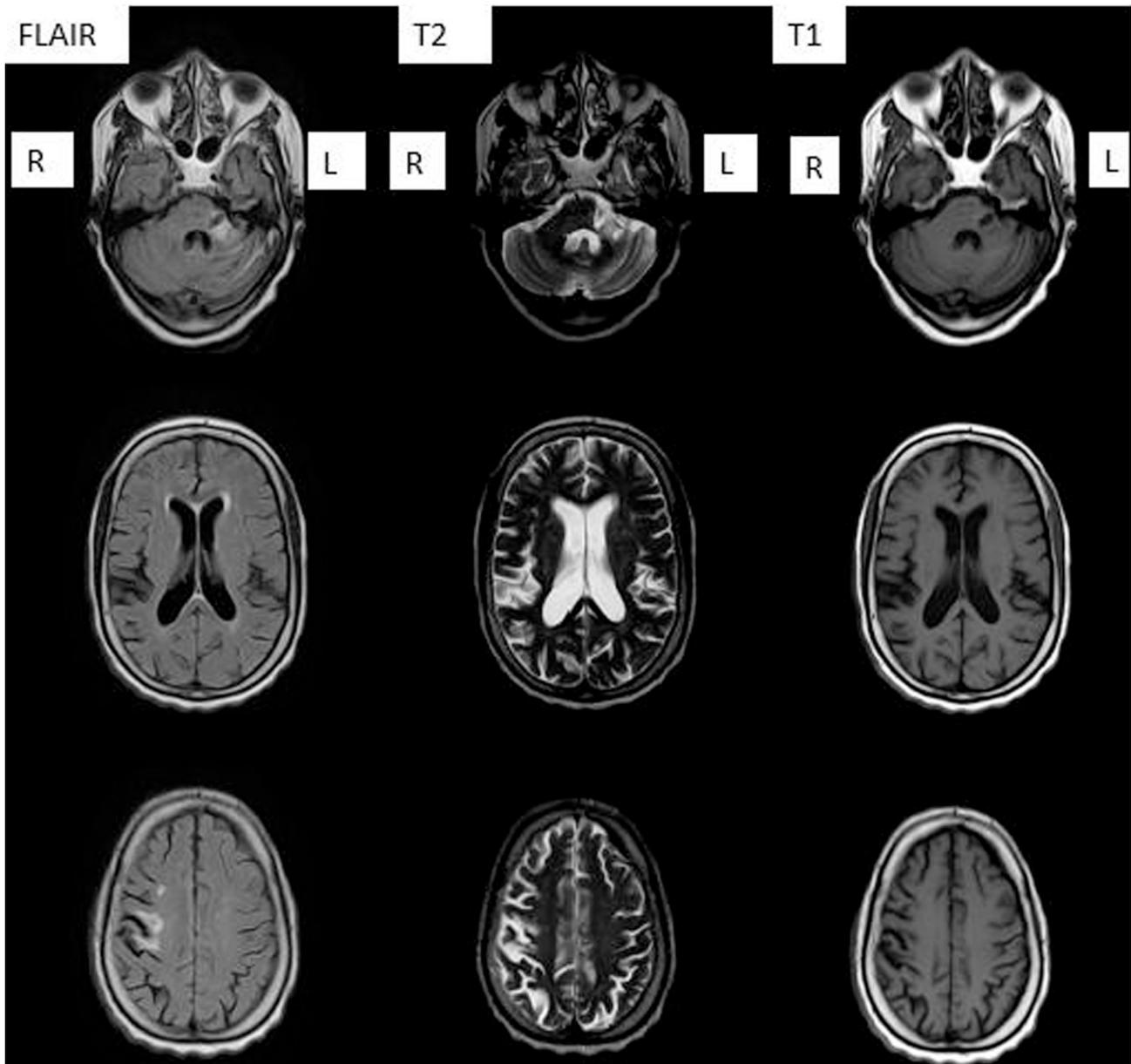


Fig. 2. Repeat brain MRI.

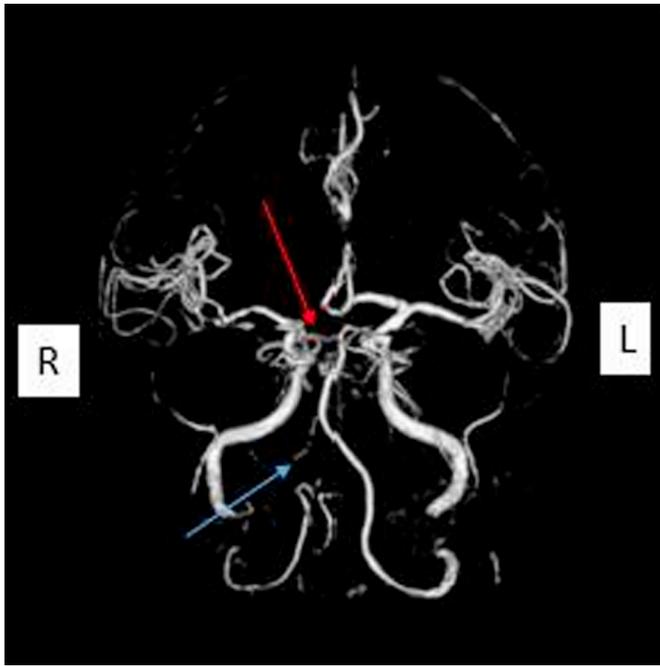


Fig. 3. Brain MRA.

4. Conclusion

Posterior circulation stroke may mimic the clinical features of pontomedullary brain stem lesion. Stable carotid bulb plaque may still predispose to ischaemic stroke.

Declaration of Competing Interest

Nil.

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