

## Case Report

# Recurrent Headache and a Worried Patient: Case Report

Mesharck Gariba\*

Bedford Hospital, UK

## Clinical History

A 46-year-old lady presented with an ongoing left posterior headache for the last three months. Her hospital records, showed that, the patient have had multiple hospital visits with similar presentation. She described pain as throbbing non-radiating left occipital headache, and some numbness around the left-side of the neck. Her symptom is associated with blurred vision, left-sided weakness/numbness of the upper and lower limbs, and the feeling that “the room is spinning”. She denied slurred speech, nausea, and vomiting. She has past medical history of asthma, fibromyalgia, migraine, and post COVID symptoms. Her current medication includes, sumatriptan, gabapentin, inhalers, and she is allergic to ibuprofen. She is single, had no children, and denied miscarriage. She denied alcohol use and been a smoker. There was no relevant family history. She had no idea the cause of her symptom but concerned it might be something sinister due to multiple visits and expected answers/treatment to her symptom.

## Examination

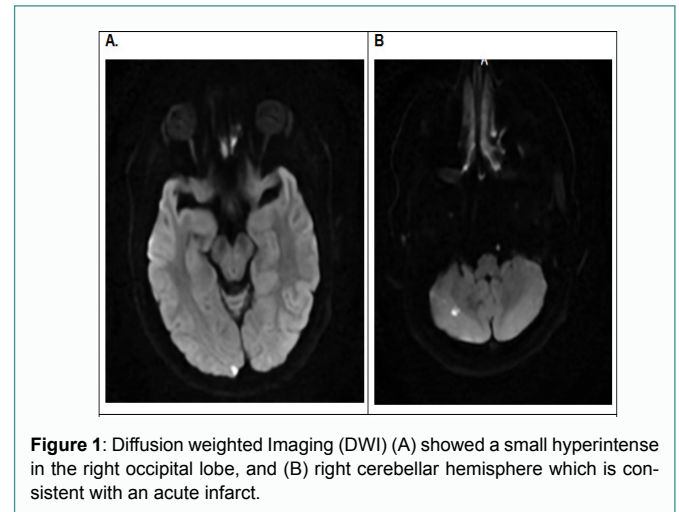
She was alert and orientated. Her vital signs were all within the normal range. Her pupils were equal and reactive, visual fields and eye movements were normal. Pronator drift and Romberg test were negative. She had subjective numbness/weakness on left upper and lower limbs. She does not have any obvious dermatomal pattern sensory loss and the deep tendon reflexes are intact. Plantar reflexes are down going. No bladder or bowel symptoms. There seems to be functional component to her symptoms as they are very variable with patient not able to lift her left arm and leg while in the bed and then later, she is seen walking around the bed without any weakness.

## Investigations

Her routine blood investigation which includes renal, liver, bone profile, C-Reactive Protein (CRP), and full blood counts were all normal; the lupus anticoagulation, Erythrocyte Sedimentation Rate (ESR), and autoimmune screening were all negative. Non-contrast CT brain showed no evidence of acute infarct/haemorrhage. CT angiogram aortic arch and carotids report no evidence of any aneurysm, significant vascular stenosis, or dissection. CT angiogram Intracranial reports no evidence of any significant vascular stenosis or dissection.

CT venogram showed no filling defect noted in the opacified venous sinuses, and no evidence of venous sinus thrombosis. MRI cervical spine report a disc bulge in C6-7 level with mild to moderate central canal stenosis and indentation of the spinal cord. Neurosurgery team reviewed the images and advised for conservative//local management. Echocardiography allows a comprehensive assessment of cardiac structure and function [1]. Echocardiography reports a good LV and RV function, and an LVEF of 55%. Her 24-hour tape reports no atrial fibrillation. She was referred to the ENT team for her vertigo symptom. The ENT team requested MRI brain and internal auditory meatus. MRI brain report an acute small infarct in the right cerebellar hemisphere and right occipital lobe likely embolic, and the representative images shown in Figure 1.

The patient was treated for cervical spondylosis with analgesics as per neurosurgery recommendation. She was started on anti-platelet, Proton Pump Inhibitor (PPI) and statin for the acute cerebellar infarct.



## Discussion

Cerebellar Infarcts (CI) are known to be rare in young adults [2], and extremely rare case of multiple cerebellar territories involvement [3]. It is well known that CI in young patient has been poorly studied [4]. CI is classified as Posteroinferior Cerebellar Artery (PICA), Superior Cerebellar Artery (SCA), Anterior Inferior Cerebellar Artery (AICA), and nonterritorial infarct (Mixed). Research shows that, up to 15% of all CI occurs in the ages 18 to 50 years [5]. CI account for 1% to 4% of all brain strokes [6-8]. The main mechanism for CI in young patients includes cardiac embolism [4] and non-atherosclerotic vasculopathy [5]. According to Barinagarrementeria, Amaya and Cantu (1997) [4] in a retrospective clinical and radiological data analysis report that,

**Citation:** Gariba M. Recurrent Headache and a Worried Patient: Case Report. *Ann Med Case Rep.* 2024;6(2):1050.

**Copyright:** © 2024 Mesharck Gariba

**Publisher Name:** Medtext Publications LLC

**Manuscript compiled:** Jun 19<sup>th</sup>, 2024

**\*Corresponding author:** Mesharck Gariba, Bedford Hospital, UK

arterial occlusion as a result of intracranial vertebral artery dissection is the most common cause of CI in young patient. But cardio-embolic events and atherosclerosis are the common cause of CI in all age group [9]. The frequency of affected cerebellar arteries in young patients is reported to be the same in other age groups with a higher PICA involvement than SCA [4]. Migraine is linked with increased risk for stroke by twofold [10] although numerous factors have been explored with no clear etiology of stroke in patients with migraine [2]. Migraine results in severe and prolong vasoconstriction which lead to hypoperfusion hence can cause CI [11,12]. Other risk factors for CI include tobacco use, alcohol intoxication, rheumatic valve disease, arterial hypertension, hypertriglyceridemia [4] and diabetes mellitus [13].

Research shows that, the common clinical manifestation of CI in young patients includes headache, vertigo, and gait instability [4]. The presence of ataxia, double vision, and nystagmus should increase suspicious for CI [6]. Patient often complaining of vertigo symptom especially young patients will have a benign disorder, and up to 3% of such patients will have a CI [13]. About 10% of patients with CI who present with vertigo may have no other focal neurologic deficits [14]. It is a key responsibility for the attending clinicians to differentiate benign form of vertigo from CI or other central causes and is important to consider risk factors such as central symptoms which include severe ataxia and neurologic deficits. Possible differential diagnosis for CI may include middle cerebral artery stroke, migraine headache, posterior reversible encephalopathy syndrome, lacunar stroke, brainstem infarction, multiple sclerosis, and intracranial haemorrhage [6].

The “gold standard” for definitive diagnosis of CI remains Magnetic Resonance Imaging (MRI) with Diffusion-Weighted Imaging (DWI) of the brain [6]. MRI brain with DWI can visualize both poor perfusion and signs of tissues injury. MRI brain makes it possible to diagnose CI, even very small-sized infarction with high sensitivity [15,16]. Magnetic Resonance Angiography (MRA) is helpful to localise vascular obstruction especially large vessel occlusion particularly in basilar artery occlusion [6]. In cases where MRI brain or MRA is contraindicated or not readily available, enhanced Computed Tomography (CT) angiogram with perfusion imaging or unenhanced CT brain can be helpful. Unenhanced CT brain can visualize haemorrhagic lesion, and occasionally demonstrate findings suggestive of an infarct.

CI is treated largely like ischaemic strokes. The National Clinical Guideline for Stroke (2023) [17] recommend patient with acute ischaemic stroke in whom treatment can be started within 4.5 hours of known onset should be considered for thrombolysis with alteplase or tenecteplase. Likewise, patients with an acute CI having a clear time onset can be treated between 4.5 and 9 hours for thrombolysis with alteplase. Patient eligible for treatment with thrombolysis should have their blood pressure reduced below 185 mmHg/110 mmHg before treatment [17]. For patients within 24 hours of an acute CI with low risk of bleeding, antiplatelet therapy with statin therapy, and PPI to reduce the risk of gastrointestinal haemorrhage should be considered. Brain stem compression, gait disturbance and hydrocephalus are possible complications of CI [18] with delayed treatment or misdiagnosis.

In summary, this case represents the difficulty in differentiating between migraine and CI in a patient with multiple hospital visits and functional component of her symptoms. Unremarkable neurological deficits on presentation and low risk profile for stroke as well as no

evidence of acute infarct/haemorrhage on CT brain increase the likelihood of misdiagnosis. Research shows that about 35% of CI are misdiagnosed in the emergency department [14]. Our case illustrates the key classical manifestation of CI in young patient, and the role of MRI brain with DWI in diagnosis. CI are rare in young patients, is often misdiagnosed, and not given much importance in the available literature [18]. Complications of CI can lead to permanent disabling deficits, hence making correct diagnosis of CI in young patient or all patients in general will become increasingly important.

## Declaration of Interest Statement

All co-authors have seen and agree with the content of this case report and there is no financial interest to report.

## References

- Gariba M, Sam C, Babu A, Ilazi X, Nteteka A, Lawrence E. Primary Venous Thromboembolism (VTE) Prophylaxis in Elderly Patients. *Open J Clin Case Rep.* 2023;1(1):1003.
- Kam CT, Rait JS. Mind the headache: rare bilateral cerebellar infarction in a young female patient. *BMJ Case Rep.* 2021;14(6):e244161.
- Gurer G, Sahin G, Cekirge S, Tan E, Saribas O. Acute bilateral cerebellar infarction in the territory of the medial branches of posterior inferior cerebellar arteries. *Clin Neurol Neurosurg.* 2001;103:194-6.
- Barinagarrementeria F, Amaya LE, Cantú C. Causes and Mechanism of Cerebellar Infarction in Young Patients. *Stroke.* 1997;28(12):2400-4.
- Bogousslavsky J, Moncayo-Gaete J. Stroke in young adults. *MedLink Neurology.* 2023.
- Ioannides K, Tadi P, Naqvi I. Cerebellar infarct. Treasure Island (FL): StatPearls Publishing; 2024.
- Kase CS, Norrving B, Levine SR, Babikian VL, Chodosh EH, Wolf PA, et al. Cerebellar infarction. Clinical and anatomic observations in 66 cases. *Stroke.* 1993;24(1):76-83.
- Tohgi H, Takahashi S, Chiba K, Hirata Y. Cerebellar infarction. Clinical and neuroimaging analysis in 293 patients. The Tohoku Cerebellar Infarction Study Group. *Stroke.* 1993;24(11):1697-701.
- Furman JM, Jason BJ. Evaluation of the patient with vertigo. Up To Date. 2015.
- Schürks M, Rist PM, Bigal ME, Buring JE, Lipton RB, Kurth T. Migraine and cardiovascular disease: systematic review and meta-analysis. *BMJ.* 2009;339:b3914.
- Chaves CJ, Caplan LR, Chung CS, Tapia J, Amarenco P, Teal P, et al. Cerebellar infarcts in the New England Medical Center Posterior Circulation Stroke Registry. *Neurology.* 1994;44(8):1385-90.
- Caplan LR. Migraine and posterior circulation stroke. In Caplan LR, ed. *Posterior Circulation Diseases: Clinical Findings, Diagnosis and Management.* Cambridge, Mass: Blackwell Science; 1996;544-68.
- VanWagner AJ, Doerr B, Hernandez S. Posterior Inferior Cerebellar Infarct in a Younger Adult Male with Vertigo and Ataxia. *Spartan Med Res J.* 2017;2(2):6385.
- Nelson JA, Viirre E. The clinical differentiation of cerebellar infarction from common vertigo syndromes. *West J Emerg Med.* 2009;10(4):273-7.
- Amarenco P, Kase CS, Rosengart A, Pessin MS, Bousser MG, Caplan LR. Very small (border zone) cerebellar infarcts: distribution, causes, mechanisms, and clinical features. *Brain.* 1993;116 ( Pt 1):161-86.
- Min WK, Kim YS, Kim JY, Park SP, Suh CK. Atherothrombotic Cerebellar Infarction. *Stroke.* 1999;30:2376-2381.
- The National Clinic Guideline for Stroke. Acute Care. Chapter 3. 2023.
- David AM, Jaleel A, Joy Mathew CM. Misdiagnosis of Cerebellar Infarcts and Its Outcome. *Cureus.* 2023;15(2):e35362.