

## CASE REPORT

# Intracerebellar Hemorrhage in a Young Adult

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### ABSTRACT

A 28-year-old male was admitted with a history of sudden onset headache, multiple episodes of vomiting, gait disturbance with swaying toward right side, and blurring of vision for 2 days. The patient was conscious, cooperative, and oriented, and his vitals were normal. Bilateral gaze-evoked nystagmus was present. Motor and sensory examinations were within normal limit, and deep tendon reflexes were 2+ in all four limbs. Cerebellar examination reveals positive finger–nose test and dysdiadochokinesia on right side. A computed tomography of head showed acute intraparenchymal hemorrhage in right cerebellar hemisphere with effacement of fourth ventricle and mild hydrocephalus. Computed tomography angiography of cerebral vessels was normal. The coagulation profile (international normalized ratio: 1.02), renal function test, and liver function tests were within normal limit. Urine toxicology screen was positive for tetrahydrocannabinoid. The patient was diagnosed with right cerebellar bleed and cannabis abuse. The patient managed conservatively with intravenous mannitol and was discharged in hemodynamic stable condition.

**Keywords:** Cannabis, Intracerebellar hemorrhage, Young stroke.

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### INTRODUCTION

Stroke occurs whenever blood flow to brain remains disturbed for more than 8–10 minutes. There are two main types of stroke— ischemic and hemorrhagic. The age-specific incidence of stroke increases progressively with increasing age. In a systematic review of 15 population-based stroke incidence studies, the rate of total stroke for those aged less than 45 years ranged from 0.1 to 0.3 per 1,000-person years, whereas for those aged 75–84 years, the range was 12–20 per 1,000-person years in most studies.<sup>1</sup> Stroke in young patient can be devastating in the form of productive year lost and lifelong dependence. Although proportion of subarachnoid and intracerebral hemorrhage is more in younger population as compared with general stroke population, cerebral infarction is still the most common cause.<sup>2</sup> In terms of etiology, cardioembolic, atherosclerosis, extracranial arterial dissection, migraine, and drug abuse are important causes. As there is rampant use of synthetic drugs for recreational activities in young population, they are also emerging as one of the risk factors for stroke in early age group. In this study, we present a case report of a young adult with a history of cannabis smoking as hemorrhagic stroke.

### CASE DESCRIPTION

A 28-year-old male smoker was admitted with a history of sudden onset headache and multiple episodes of vomiting for 2 days. Headache was severe, involving the occipital region and radiating to the neck. The patient complained of gait disturbance with swaying toward right side and blurring of vision for 2 days. There was no history of fever, limb weakness, loss of consciousness, seizure, and bladder or bowel disturbance. Patient visited nearby hospital, where he was diagnosed with malignant hypertension, given antihypertensive medication, and referred to tertiary hospital. On general examination, the patient was conscious; cooperative; and oriented to time, place, and person. His vitals were normal with a pulse rate of 84 beats per minute, a blood pressure of 144/88 mm Hg, and a respiratory rate of 18 per minute. There were no pallor, icterus, cyanosis, clubbing, and lymphadenopathy. The pupils were equal, 4 mm in size, and reacting to light. Bilateral gaze-evoked nystagmus was present. Motor and sensory examinations were

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within normal limit, and deep tendon reflexes were 2+ in all four limbs. Cerebellar examination reveals positive finger–nose test and dysdiadochokinesia on right side. A computed tomography of head showed acute intraparenchymal hemorrhage in right cerebellar hemisphere with effacement of fourth ventricle and mild hydrocephalus (Fig. 1). Computed tomography angiography



**Fig. 1:** Acute intraparenchymal hemorrhage of size 41 mm × 33 mm seen in right cerebellar hemisphere

of cerebral vessels was normal. Laboratory investigations revealed a hemoglobin level of 16.4 g/dL, a total leukocyte count of 9300 per microliter, and a platelet count of 3.0 lakhs. The coagulation profile (international normalized ratio: 1.02), renal function test, and liver function tests were within normal limit. Electrocardiogram showed a sinus rhythm with a heart rate of 78 per minute. Etiological workup for young stroke, such as two-dimensional echocardiography, lipid profile, and blood sugar level during admission, was within normal limit. Patient urine toxicology screen was positive for tetrahydrocannabinoid. The patient confirms the history of cannabis intake in the form of smoking before his illness. The patient was diagnosed with intracerebellar bleed and malignant hypertension with substance abuse (cannabis). The patient managed conservatively with intravenous mannitol, was discharged in hemodynamic stable condition, and referred to drug deaddiction center.

## DISCUSSION

Substance abuse is a risk factor for stroke, especially among young people. The substances most frequently implicated are cocaine, cannabis, heroin, amphetamines, and other sympathomimetic agents.<sup>3</sup> Synthetic cannabinoids are popular among young adults, primarily males in the mid to late second decade of life, given their perceived safety relative to other substances.<sup>4</sup> Cannabis-associated ischemic stroke is well documented in the literature. The underlying pathogenesis is postulated to be reversible multifocal intracranial stenosis, a variant of reversible cerebral vasoconstriction syndrome.<sup>5</sup> However, there are only limited cases of hemorrhagic stroke. Cannabis, being a potent vasoactive agent, causes an increase in blood pressure and heart rate.<sup>6</sup> It may also result in transient accelerated hypertension and autoregulation disruption, especially when smoked in a binge.<sup>7</sup>

As synthetic drug use may cause stroke, a thorough history focusing on the use of illicit substances and toxicological screening of urine and serum should be part of the evaluation of stroke in young population.<sup>8</sup> Our case highlights the importance of ruling out associated drug abuse in an adult patient presenting in Emergency Department with a "cryptogenic" stroke.

## CONCLUSION

Among the traditional risk factors of stroke in younger population, illicit drug abuse should be considered as an important differential. Simple test of urine toxicology screen may be helpful.

## DECLARATION OF PATIENT CONSENT

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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