

# Bilateral Cerebellar Hemorrhage: A Rare Presentation

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## Abstract

Hypertensive intracranial hemorrhages (ICH) are generally solitary, but occurrence of simultaneous multiple ICH due to hypertension is quite rare. They are usually the result of uncontrolled hypertension and irregular drug intake and are associated with cerebral aneurysms, vascular malformations, hemorrhagic infarction, coagulation defects, cerebral angiitis and sinus thrombosis. We present a case of a 65-year-old hypertensive female on irregular treatment who presented to the casualty in an unconscious state with a blood pressure of 180/110 mm of Hg, deeply comatose and with bilateral non-reacting dilated pupils. The patient had six episodes of projectile vomiting with severe headache a day before admission. She was also a known case of deep venous thrombosis and was on warfarin for the same. On admission, her computerized tomography scan revealed bilateral lobar cerebellar hemorrhage with obstructive hydrocephalus and diffuse cerebral edema, which is a very rare. Simultaneous multiple ICH in the cerebellum due to hypertension are rare and associated with high morbidity and mortality. So it is important for medical professionals to initiate proper treatment or at least refer such patients to specialty centers without delay.

**Keywords:** Cerebellar hemorrhage, Hypertension, Intracranial hemorrhages

## INTRODUCTION

Hypertensive intracranial hemorrhage (ICH) is generally solitary and located in defined sites with a relatively typical pattern of extension. ICH occurrence accounts for approximately 20 to 35% of all strokes in Asia.<sup>1-3</sup> The occurrence of simultaneous multiple ICHs (SMICHs) is a rare clinical entity, with a prevalence rate of 1-4.7% of all spontaneous ICH.<sup>4-7</sup> SMICHs are associated with cerebral aneurysms, vascular malformations, hemorrhagic infarction, coagulation defects, cerebral angiitis, sinus thrombosis, and/or amyloid angiopathy.<sup>8</sup> Here, we present a case of a 65-year-old hypertensive patient with bilateral cerebellar bleed which is a rarity.

## CASE REPORT

A 65-year-old female patient presented to the casualty in an unconscious state. She had a blood pressure of 180/110 mm of Hg, pulse rate of 68 beats/min. Her neurological status on admission was deeply comatose and was afebrile with bilateral non-reacting dilated pupils. On enquiry, it was found that the patient was a known hypertensive since last 10 years but on irregular medications for the same. She was also a known case of deep venous thrombosis since last 6 months and was on warfarin for the same. Her relatives reported that a day before she had six episodes of projectile vomiting, non-bilious and containing food particles associated with severe headache which was throbbing and continuous for which she visited a local practitioner who prescribed her a few medications. Patient felt comfortable after the medications and was off to sleep. But the next morning she was unresponsive and unconscious after which she was referred to us for further management. Her computerized tomography scan revealed bilateral lobar cerebellar hemorrhage with obstructive hydrocephalus and diffuse cerebral edema (Figures 1 and 2).

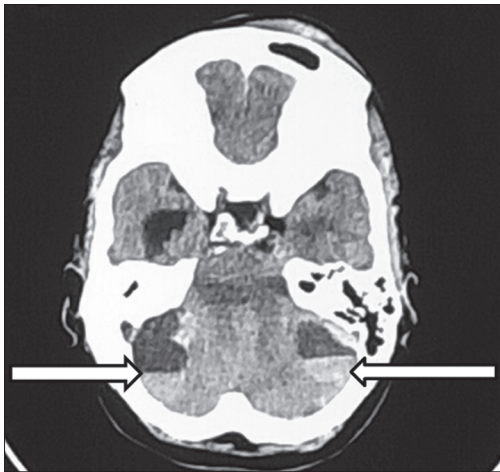
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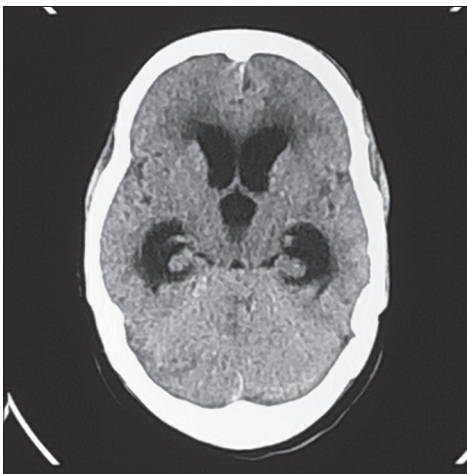
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**Figure 1: Computerized tomography scan image showing bilateral cerebellar hemorrhage (as shown by both arrows)**



**Figure 2: Computerized tomography scan image showing obstructive hydrocephalus with dilated temporal horns**

## DISCUSSION

Recurrent ICH in hypertensive patients is not an unusual finding but the simultaneous occurrence of two or more ICH is a rare clinical entity.<sup>9-11</sup> The occurrence of SMICHs is a rare clinical entity, with a prevalence rate of 1-4.7% of all spontaneous ICH.<sup>4-7</sup> Several risk factors including blood pressure, blood sugar, cigarette smoking, alcohol drinking and hypercholesterolemia have been confirmed as precipitating factors for hypertensive ICH. However, the prevalence of hypercholesterolemia was significantly higher in the group with multiple ICHs.<sup>8</sup> Multiple ICH are rarely associated with cerebral amyloid angiopathy, venous sinus thrombosis, oral anticoagulant therapy, vasculitis, hemorrhagic transformation of cerebral infarcts and in the presence of multiple intracranial pathologies such as vascular anomalies or tumors.<sup>12</sup>

Kabuto *et al.* Reported that the most common location of multiple ICHs was the bilateral putamen, while only two of

17 multiple ICH patients in his case series had putaminal and cerebellar hemorrhages.<sup>8,13</sup>

The simultaneous development of ICH in two different arterial territories may occur in hypertensive patients and create SMICH.<sup>14</sup> The current theory is that the initial hemorrhage causes resulting structural or hemodynamic changes that tend to result in an immediate second hemorrhage.<sup>3,15</sup> The initial hemorrhage that results from a ruptured microaneurysm may cause the necessary conditions, such as hemodynamic changes and structural distortion, that rupture other micro-aneurysms, capillaries, and/or venules on the contralateral side, which are at risk in a relatively short time.<sup>13</sup> Our patient also had bilateral cerebellar bleed which have different vascular territories, and so is a rare entity. Such cases have high rates of morbidity and mortality. The majority of patients with SMICH have poor outcomes because of their poor neurological status, late presentation and severely impaired consciousness.<sup>8</sup> The mortality rate for patients with SMICH is much higher than that of patients with a single ICH, even if the hematomas are small.<sup>3,13-15</sup> The indications for surgery in case of multiple simultaneous hypertensive ICHs are ambivalent.<sup>6</sup> For patients with multiple ICHs, surgery seems of minor use.<sup>3</sup> Treatment may be either medical or surgical, and the decision for treatment should be based on the Glasgow Coma score of the patient, the locations and sizes of the hematomas, and the presence of additional medical problems. In any case, the high mortality and morbidity rates in these patients make the treatment of such a devastating condition difficult. Thus, preventive measures must be taken.<sup>8</sup>

The most common symptoms of cerebellar hemorrhage are giddiness, severe nausea, vomiting and ataxia. Headache may be severe. Patients with cerebellar hemorrhage can rapidly become comatose within hours after the onset. Alteration of mental status can be secondary to damage to the pons or midbrain or abrupt obstructive hydrocephalus. Occasionally, peripheral facial weakness and horizontal gaze impairment can also occur, representing herniation onto the pons. These cases have a poor prognosis.

## CONCLUSION

SMICHs in the cerebellum with different arterial territories are a rare occurrence and prevalence of hypercholesterolemia has been found to be on a higher side in these patients. Also uncontrolled hypertension, irregular drug treatment and coagulopathy has been implicated its causation. Medical professionals should be alert, and recognize symptoms suggestive of ICH and initiate treatment for excessive reflex hypertension to properly

treat this dangerous condition or at least refer patients to specialty centers for further management without delay.

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