

Clinical Cardiovascular Research

Case Report

Massive Intracerebral Hemorrhage Due to Uncontrolled Hypertension: A Case Report

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Abstract

Introduction: Intracerebral hemorrhage (ICH) is a life-threatening neurological emergency associated with high mortality and morbidity. Uncontrolled hypertension is the leading cause of spontaneous intraparenchymal hemorrhage.

Case Presentation: A 47-year-old male with a history of long-standing hypertension and heavy smoking presented to the emergency department with sudden onset of speech disturbance and upper extremity weakness, followed by loss of consciousness. On admission, the patient was unresponsive to verbal and painful stimuli, with a Glasgow Coma Scale score of 3 (E1V1M1). Non-contrast computed tomography of the brain revealed a large hematoma measuring approximately 5.4 cm in the right temporoparietal region, with intraventricular extension and associated subarachnoid hemorrhage. The patient underwent urgent surgical intervention, including hematoma evacuation and placement of an external ventricular drainage catheter. During intensive care follow-up, gradual neurological improvement was observed. The patient was eventually discharged in stable condition and referred for physical rehabilitation.

Conclusion: Despite severe initial neurological impairment, favorable outcomes may be achieved in selected patients with massive intracerebral hemorrhage through early surgical intervention and comprehensive intensive care management.

Keywords: Intracerebral hemorrhage, Uncontrolled hypertension, Stroke, Intraventricular hemorrhage, Intensive care, Case report.

Introduction

Intracerebral hemorrhage (ICH) accounts for approximately 10–15% of all stroke cases and remains one of the most devastating forms of stroke, with high mortality and disability rates [1-3].

Hypertension is the most common etiological factor, particularly when poorly controlled, leading to degenerative changes in small penetrating arteries and increased susceptibility to rupture [2,4].

The clinical outcome of ICH is influenced by multiple factors, including hematoma size, location, presence of intraventricular hemorrhage, and the patient's neurological status at presentation. Among these, the Glasgow Coma Scale score is one of the strongest predictors of mortality. [1,2,5]

In this report, we present a case of massive intracerebral hemorrhage with an extremely poor initial neurological status, who demonstrated significant recovery following timely

surgical intervention and intensive care management.

Case Presentation

A 47-year-old male patient with a known history of hypertension and a 20-year history of heavy smoking -*approximately two packs per day*-, was brought to the emergency department after developing sudden speech disturbance and weakness in the upper extremities, followed by loss of consciousness.

On initial examination, the patient showed no response to verbal or painful stimuli. The Glasgow Coma Scale score was assessed as 3 (E1V1M1). The patient was immediately intubated and admitted to the intensive care unit.

Non-contrast cranial CT revealed a large intraparenchymal hematoma measuring approximately 5.4 cm in diameter in the right temporoparietal region, with surrounding edema. The hemorrhage extended into the ventricular system, and additional findings were consistent with subarachnoid hemorrhage within the cortical sulci and fissures.

Magnetic resonance imaging demonstrated a lesion in the right temporoparietal region that was hyperintense on T2-weighted and FLAIR sequences and hypointense on T1-weighted images, without contrast enhancement, consistent with acute hemorrhage. Diffusion-weighted imaging

further supported the diagnosis of hemorrhagic involvement extending into the ventricular system.

The patient underwent urgent right fronto-parietal craniotomy with evacuation of the hematoma. Additionally, an external ventricular drainage catheter was placed via the left frontal approach to manage intraventricular hemorrhage and intracranial pressure.

Postoperatively, the patient was monitored at the intensive care unit under mechanical ventilation. Initially, profound neurological suppression was observed. However, over time, gradual improvement occurred. The patient was successfully extubated and subsequently demonstrated spontaneous eye opening, localization to pain, and response to verbal commands.

Follow-up imaging showed postoperative changes, residual hemorrhagic areas, and persistent intraventricular blood, with appropriate positioning of the ventricular catheter.

Figure 1A shows the large right temporoparietal intraparenchymal hematoma, Figure 1B demonstrates intraventricular extension, and Figure 1C presents the postoperative appearance.

After achieving clinical stabilization, the patient was transferred to the neurosurgery ward and later discharged with referral to a structured physical rehabilitation program.

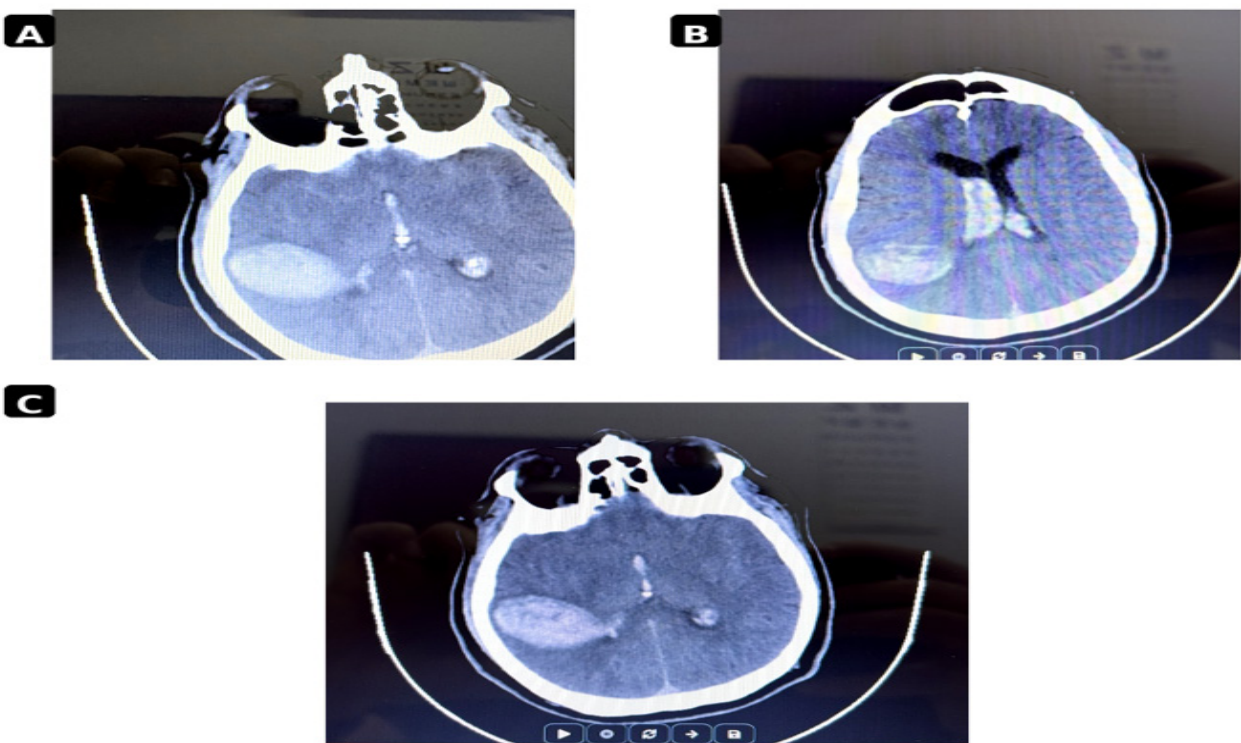


Figure 1. (A) Non-contrast axial brain CT demonstrating a large hyperdense intraparenchymal hematoma in the right temporoparietal region with surrounding edema and mass effect. (B) Axial CT image showing intraventricular extension of hemorrhage with hyperdense blood within the lateral ventricles. (C) Postoperative CT demonstrating residual hemorrhagic changes and ongoing ventricular system involvement.

Discussion

Hypertension is the most significant risk factor for spontaneous ICH. Chronic uncontrolled hypertension leads to lipo-hyalinosis and microaneurysm formation in small penetrating arteries, increasing the likelihood of vessel rupture. [1,3,4]

Large hematoma volume and intraventricular extension are commonly associated with poor outcomes and higher mortality rates. Furthermore, a low Glasgow Coma Scale score at presentation is widely recognized as a strong predictor of unfavorable prognosis. [1,2,5]

Despite these factors, the present case demonstrated a favorable clinical outcome. This highlights the potential impact of early surgical intervention and aggressive intensive care management in selected patients. Rapid evacuation of the hematoma and ventricular drainage likely contributed to intracranial pressure control and prevention of secondary brain injury [1,4,5]. Public awareness programs for hypertension will help both diagnose it earlier and reach out desired levels of readings for those having sub-optimally controlled blood pressure [6].

Conclusion

Massive intracerebral hemorrhage secondary to uncontrolled hypertension can present with severe neurological impairment. However, early surgical intervention combined with appropriate intensive care management may lead to favorable outcomes. Careful evaluation and timely treatment remain essential in the management of such patients.

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ChatGPT (OpenAI, GPT-4 version) used for English translation. Authors declare that they carefully read and approve all of the written material.

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