

Spontaneous Intracerebral Haemorrhage in a Young, otherwise Healthy Asian Male

Theodorus Kevin Putra Johansyah¹, John Nolan¹,
Christopher Andrean Putra Johansyah²

¹Faculty of Medicine, Udayana University, Denpasar, Indonesia.

²Bung Karno Public Hospital, Sukoharjo

Corresponding Author: Theodorus Kevin Putra Johansyah

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ABSTRACT

Intracerebral hemorrhage (ICH) is a significant morbid disease with a secondary injury effect on the brain. Such risk factors contributing to ICH are hypertension, smoking, excessive consumption of alcohol, high cholesterol levels, and use of drugs, as well as unmodifiable risk factors, including old age, male sex, Asian ethnicity, and cerebral amyloid angiopathy (CAA). We report a 30-year-old man with a relatively healthy status who presented with a sudden onset of unconsciousness and right-sided weakness. Babinski reflex was also found on the right toe. Multi-slice non-contrast CT scan revealed intracerebral hemorrhage with a volume of 189 ccs in the left temporoparietal region with perifocal edema and midline shifting to the right.

Keywords: spontaneous intracerebral haemorrhage, cerebral hemorrhage, young age, risk factor

INTRODUCTION

Spontaneous intracerebral hemorrhage (ICH) is a significant cause of morbidity and mortality worldwide and is a frequent neurological emergency, with 25 per 100.000 cases happening annually. A recent study showed that the 30-day mortality rate is around 40% and can be as high as 60% in 1 year.¹⁻³ Most fatalities ensue under 48 hours of the onset of the symptoms following the rupture of intracerebral arteries. A Rapid and proper diagnosis

should be established as soon as the patients develop a severe headache, high systolic blood pressure (above 220 mmHg), sudden onset of decreased consciousness, and focal neurological deficits. To acknowledge the diagnosis, concise history of the medical condition should be taken, such as using antithrombotic drugs, history of head trauma, stroke, and hypertension.⁴ Afterwards, neuroimaging of computed tomography (CT) should be done to confirm the diagnosis of the acute hemorrhage.⁵

Based on the current incidence, spontaneous ICH is more often acquired in the elderly, especially at 75-94 years old. However, it might also be found in people under 40 years old. Several possible causes of spontaneous ICH at a young age are AVM, hypertension, aneurysm, venous angioma, and cryptogenic ICH.⁶

Calculating the volume of hematoma is also essential, as larger hematoma volumes simultaneously increase the mortality rate. One of the scoring systems that can be used to determine the prognosis is ICH Score, with a higher score associated with a higher risk of mortality. It informs the prognostic factor and gives decisive information on whether surgical management should be performed or not. Cerebral hematoma with a more than 15 cm volume and diameter greater than 3 cm should be treated with surgical management. Proper treatment should be decided accurately in order to achieve a better outcome for the patients.⁴

CASE REPORT

A 30-year-old, right-handed man was brought to the Emergency Department with a history of unconsciousness 7 hours before admission. The patient works as a mechanic, lived alone with no relatives, and was brought by his neighbor after a sudden loss of consciousness with no seizures or other complaints preceding the event. He does not smoke, occasionally drinks alcohol, and has no known history of vascular disease. Previous episodes of unconsciousness, headaches, seizures, weaknesses or other neurological deficits were denied. The patient had never been hospitalized or undergone any surgery. On admission, the patient was stuporous with a GCS score of E2V2M3, opened eyes, and abnormally flexed following pain stimulus. Blood pressure was 119/67 mmHg with a pulse of 82x/minute, regular. Respiratory rate was 24x/minutes, regular, and adequate, with an oxygen saturation level of 96% on room air. Upon initial neurologic assessment, the patient had no papilledema on both eyes, blink to threat reflex was intact, and oculocephalic reflex was present. Intact corneal and gag reflex and caloric stimulation were not done. Pupillary size and responses were documented. We found miosis in both pupils with the size of 2mm/2mm with no deviation. Direct and indirect light reflex was observed. A decreased muscle tone and movement were observed on the right extremities with normal tone on the left extremities. Knee-patellar reflex was absent on the right extremities, normal on the left. Babinski reflex was found on the right toe.

Fluid resuscitation was initiated with Ringer Lactate solution, and routine blood work was ordered. A rapid random blood sugar check showed a normal level (134mg/dL), and blood results showed increased leukocytes ($20.7 \times 10^3 /\text{mm}^3$) and increased neutrophil to lymphocyte ratio (26.80) with an otherwise normal result. Chest X-ray was normal. Multi-slice non-contrast CT scan, as can be seen in [Figure 1](#), showed intracerebral hemorrhage with a volume of

189 ccs in the left temporoparietal region with perifocal edema and midline shifting to the right. The patient was consulted by our neurologist, and a diagnosis of intracerebral hemorrhage was erected. The patient was then treated with 125cc mannitol 20% infusion q6h, 1g ceftriaxone q12h, 1g metamizole q8h, 40mg omeprazole q24h, 4mg ondansetron q12h, 500mg citicoline q24h. As per neurologic consult, the patient was initially planned to undergo ICH evacuation craniotomy in a referral hospital. However, due to the patient's economic status and lack of healthcare insurance, the patient's guardian refused. We then proceeded to admit the patient to the ICU and did conservative care.

On the second day of care, GCS was E3VxM5. Patient was lethargic, opened his eyes to verbal stimuli, and developed global aphasia; unable to understand conversation and demonstrate simple commands. Patient was then moved to the general ward. No other tests were ordered. The patient was discharged of his own accord on the third day.

DISCUSSION

Currently, known risk factors for intracerebral hemorrhage are hypertension, smoking, excessive consumption of alcohol, high cholesterol levels, and use of drugs. Unmodifiable risk factors include old age, male sex, Asian ethnicity, and cerebral amyloid angiopathy (CAA).⁷

In this young patient, we found no history of smoking, occasional consumption of alcohol, no hypertension, normal lab results, and denied use of any drugs. Past medical history was unclear as the patient was relatively healthy and never went to any health center. The patient denied any kind of previous headache, vomiting, or episodes of decreased consciousness prior to admission. The most common causes for spontaneous non-traumatic ICH in young patients are arteriovenous malformations, cavernous angioma, hypertension, cryptogenic, cerebral venous thrombosis, use of

sympathomimetic drugs, and toxemia of pregnancy.⁸

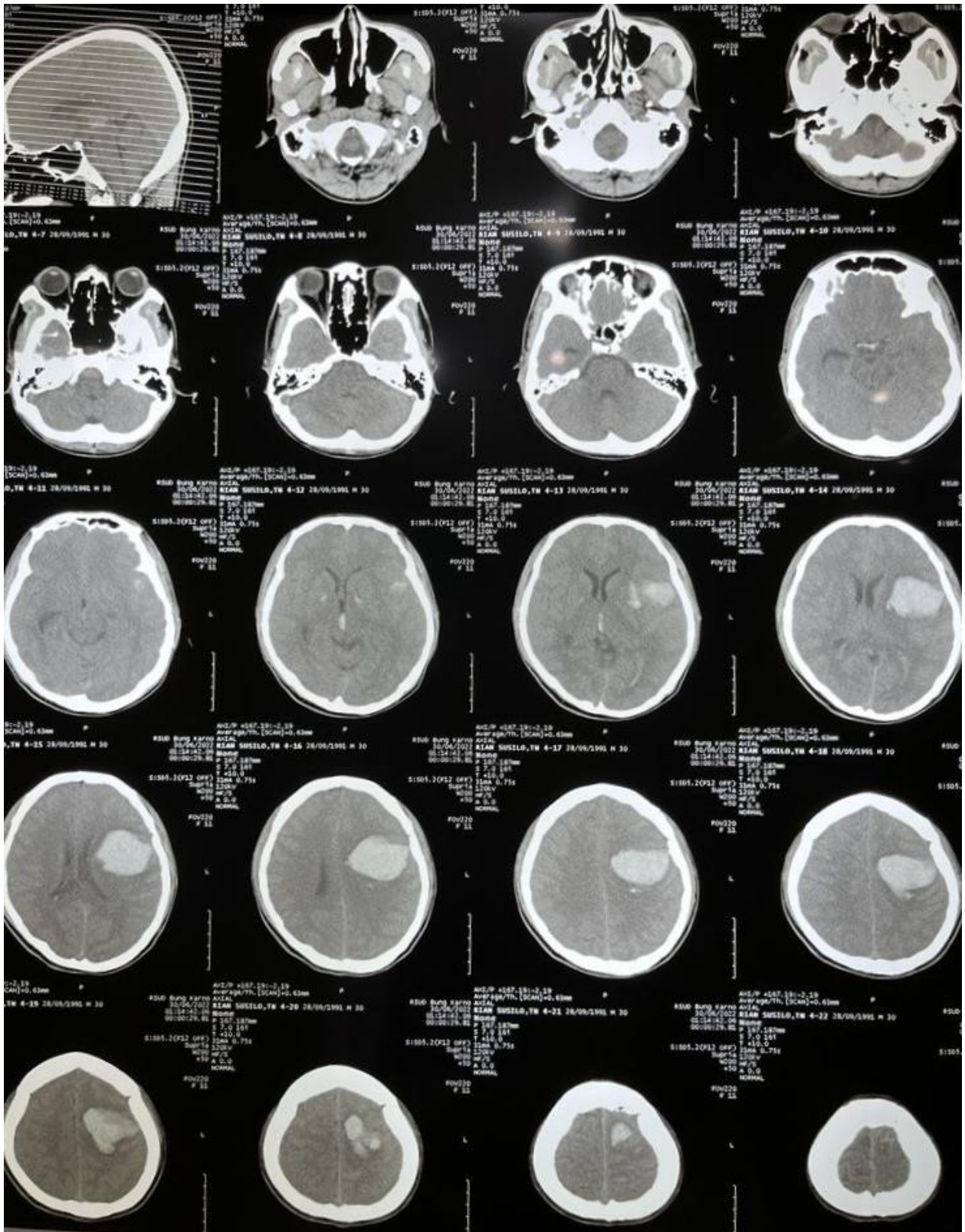


Figure 1. Non-contrast CT scan showed intracerebral haemorrhage in the left temporoparietal region.

Based on the young age, relatively healthy status, sudden onset of disease, and location of the hemorrhage in the left temporoparietal lobe, we may raise

suspicion of arteriovenous malformations (AVMs). Non-contrast CT scan that has been performed only demonstrates bleeding on the temporoparietal lobe and is not sensitive enough to pinpoint the exact cause of ICH. A further diagnostic study should be executed. The patient was not registered and therefore was ineligible to apply for national healthcare insurance. The patient was initially scheduled to undergo a diagnostic CT angiography to find the root cause of ICH. However, the patient declined due to cost considerations. This condition is certainly far from ideal, as patients with unruptured AVM have bleeding rates of 1% per year, but patients with a history of ruptured AVMs have a 4 to 5 times higher risk for recurrence.^{9,10} Furthermore, if it is proven to be AVMs, early preventive treatment is of utmost importance/microsurgery. Microsurgery, stereotactic radiosurgery, focused irradiation, and embolization can successfully obliterate AVMs and prevent recurrent bleeding. Young patients and smaller size AVMs are associated with better outcomes and should therefore be treated optimally.¹¹

CONCLUSION

Spontaneous intracerebral hemorrhage in a young patient is a rare occurrence. Some common risk factors include hypertension, smoking history, excessive alcohol consumption, male sex, Asian ethnicity, and CAA. The most common causes of spontaneous ICH in the young population include AVMs, cavernous angioma, hypertension, cryptogenic, cerebral venous thrombosis, use of sympathomimetic drugs, and toxemia of pregnancy. In this report, we observe a young, otherwise healthy Asian male presenting with headache, vomiting, a decrease in consciousness, and right-sided weakness. The patient is suspected of suffering from spontaneous intracerebral hemorrhage due to AVMs. Further diagnostic studies were not initiated due to cost. Early diagnosis and treatment are of utmost importance to prevent bleeding recurrence.

Conflict of Interest: Author declared no conflict of interest.

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