

Prognostic Aspect of Cerebellar Hematomas in Tropical Environments: Study of 33 Cases at Conakry University Hospital

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Abstract

Background: Cerebellar hematoma is thought to result from a collection of blood in the cerebellar parenchyma. It is a rare topographical form, accounting for 5%-10% of hemorrhagic strokes, with an unpredictable and often dreadful prognosis. The aim of our study is to determine the prognostic factors of cerebellar hematomas in the Neurology Department of the CHU Ignace Deen in Conakry.

Methodology: We conducted a retrospective descriptive study lasting four (4) years, from June 1, 2017 to May 31, 2021, in the neurology department of the CHU de Conakry, focusing on patients hospitalized with a cerebellar hematoma confirmed by cerebral CT scan. The variables were epidemiological, clinical, therapeutic and prognostic. Any p-value <0.05 was considered statistically significant.

Results: A total of 33 patients, representing 9.7% of cerebellar hematomas, with a mean age of 60 ± 12.50 years, ranging from 33 to 82 years, and a male predominance of 69.7% (sex ratio 2.3). Hypertension was the main risk factor in 87.9% of cases. The main symptoms were headache in 90.9% of cases, dizziness in 81.8% and vomiting in 60.6%. The factor associated with a favorable outcome was an ICH score ≤ 2 (p-value=0.004). The mortality rate was 27.3%. A favorable outcome without sequelae was observed in 18.2% of cases, versus 54.6% in cases with neurological sequelae.

Conclusion: At the end of this study, we concluded that cerebellar hematoma constitutes a diagnostic and therapeutic emergency. High ICH and modified Rankin at re-entry were poor prognostic factors associated with functional sequelae and a high mortality rate.

Keywords: Cerebellar hematoma • Prognosis • CHU ignace deen

Introduction

Cerebellar haematoma is a rare, highly lethal topographical form of haemorrhagic stroke that can lead to complications. It accounts for 5% to 10% of haemorrhagic strokes, and its incidence increases with age [1,2]. It is defined as a collection of blood in the cerebellar parenchyma resulting from a rupture, often arterial and rarely venous [1]. The incidence of stroke is rising in both developed and developing countries. In Senegal, Dieynabou SA in a series of 53 cases found an incidence of 10% in Mali, Keita AD et al. in a case study found a frequency of 3.5% [3,4]. In Mauritania, Mint A.O.E et al. found 5.9% in their series [5].

It manifests as sudden onset of headache, vomiting and vertigo, often accompanied by cerebellar signs. Cerebellar haematomas with extension and/or compression of the brain stem are accompanied by deep coma [6].

Hypertension is the most important risk factor, and cohort studies have shown that one in two strokes occurs in previously hypertensive subjects. These cerebellar hematomas are likely to be severe, due to the narrowness of the posterior fossa and the proximity of the brain stem. However, their prognosis remains unpredictable and very often dreadful, despite the

increasing importance of surgery in their treatment [1]. The aim of this study was to determine the prognostic factors of cerebellar haematoma in the neurology department of Conakry University Hospital.

Methodology

The Neurology Department of the Ignace-Deen National Hospital of Conakry University Hospital served as the setting for this study. It was a retrospective study of descriptive type of a period of four (4) years from June 1, 2017 to May 31, 2021.

Our study included all records of patients hospitalized in the Neurology Department for hemorrhagic stroke during the study period. We conducted an exhaustive recruitment of all patients hospitalized for cerebellar hematoma during our study period whom we subjected to our selection criteria. We recorded 33 patients hospitalized for cerebellar hematoma. All patients hospitalized during our study period for cerebellar hematoma confirmed by cerebral CT scan were included in our study. Patients who did not undergo brain imaging or who had other cerebral hematoma locations were not included in this study.

Results

Out of 340 patients hospitalized for hemorrhagic stroke. We recorded 33 patients with cerebellar hematoma, representing a hospital frequency of 9.7% for all ages. The average age of our study population was 60 years, with extremes ranging from 33 to 82 years. The age group most affected was 53 years to 62 years, with a frequency of 30.3%, followed by 63 years to 72 years, with 9 patients (27.3%).

In our study, 23 men (69.7%) were predominant, compared with 10 women (30.3%). Headache, dizziness and vomiting were the main reasons for consultation, with 90.9%, 81.8% and 60.6% respectively. 51.5% of our patients came for consultation after a 24-hour delay in onset of symptoms,

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followed by 36.4% with a delay of between 6 and 24 hours, and only 12.1% with a delay of less than 6 hours. The onset of symptoms in this study was abrupt in 100% of cases.

High blood pressure was the most frequent vascular risk factor (87.9%), followed by diabetes (15.2%), but other rare antecedents were also noted, such as antiplatelet agents and anticoagulants. The location of the hematoma within a cerebellar hemisphere was the most represented with a frequency of 90.9% of cases, compared with the vermillion location in 6.06% of cases. Complications were dominated by inhalation pneumonitis (21.21%), followed by bedsores (9.09%) and urinary tract infections (3.03%).

Favorable outcome with no sequelae was observed in 18.2% of patients and 54.5% with minor to severe sequelae. Mortality was 27.3%, high in young subjects. The factor most associated with favorable outcome in our study was an ICH score ≤ 2 (p-value=0.004) (Figure 1).

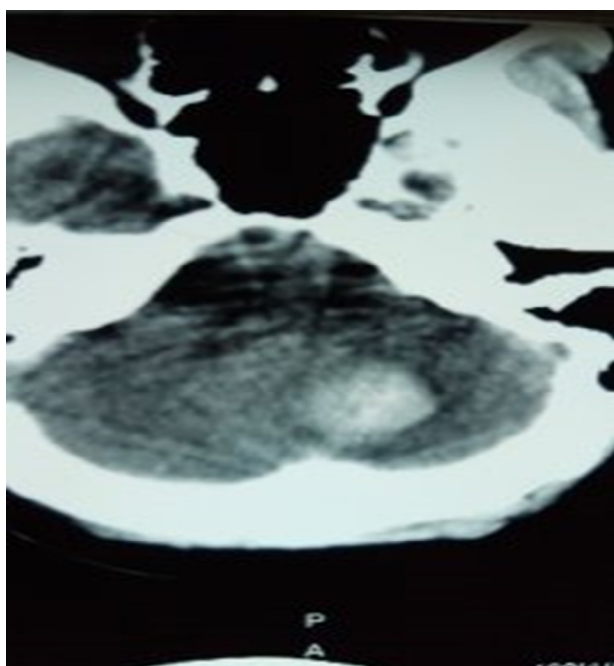


Figure 1. Cerebral CT scan in axial section without injection of contrast medium, performed on the same day as his symptomatology, revealed hyperdensity in the left cerebellar hemisphere with peri-lesional oedema

Discussion

This study enabled us to identify the prognostic factors of cerebellar hematoma in our context. Out of 340 patients hospitalized for hemorrhagic stroke. We identified 33 patients with a cerebellar hematoma, representing a hospital frequency of 9.7% for all ages.

This result is in line with the literature: Cerebellar hematomas account for 5 to 10% of hemorrhagic strokes, and their incidence increases with age (two-thirds of patients are over 60), and is explained by arterial lesions secondary to hypertension, which accounts for the occurrence of intracerebral hematomas [1,2].

Headache, dizziness and vomiting were the main reasons for consultation, with 90.9%, 81.8% and 60.6% respectively. This result differs from that of Labauge R et al. who report that the onset of symptoms was vomiting in 95% of cases, headache (73%) and dizziness in 55% of cases [6].

51.5% of our patients came for consultation after 24 hours of their symptoms, followed by 36.4% whose delay was between 6 and 24 hours, and 12.1% less than 6 hours. This delay can be explained on the one hand by patients' long journey through several health facilities before consulting the neurology department, the unavailability of an emergency medical

service (SAMU), and on the other hand by the CHU's geographical location in the urban area, which houses the only neurology department dealing with neurological pathologies in our country.

The onset of symptoms in this study was abrupt in 100% of cases. This result could be explained by the fact that cerebrovascular pathologies are generally of abrupt onset. High blood pressure was the most frequent vascular risk factor, followed by diabetes. It is generally accepted by authors that high blood pressure is the main risk factor for intracranial haemorrhage, and around 60%-70% of cases can be attributed to high blood pressure.

Improved control of chronic hypertension has been shown to reduce the incidence of cerebral haemorrhage, which is more often implicated in the development of spontaneous cerebral haematoma, as it increases the likelihood of haemorrhagic stroke by a factor of 8. This is generally linked to the high frequency of hypertension and poor control of vascular risk factors.

The location of the hematoma within a cerebellar hemisphere was the most represented, with a frequency of 90.9% of cases, compared with the vermillion location in 6.06% of cases. This result is similar to that of Rivieres M et al. who reported that 86.5% of cerebellar hematomas were located in a cerebellar hemisphere, and 3% in a vermillion hemisphere.

In our study, very low Glasgow scores and high ICH were more often associated with the extension of the hemorrhage and compression of the brain stem by the hematoma after the onset of symptoms during the course of the cerebellar hematoma. Since the late 1990s, it has been known that the volume of the hematoma continues to increase in the first few hours after the initial bleeding. In the hours following the onset of symptoms, around 40% of patients have a volume increase of more than 33 (or more than 12.5 cm³). Even in the absence of coagulopathy, more than 70% of patients experience hemorrhagic expansion within the first 24 hours. Bleeding expansion is rare after the 24th hour, except in patients on VKAs.

Complications were dominated by more frequent inhalation pneumopathy, followed by bedsores. This result could be explained by the fact that, during our study, patients were fed by the nursing staffs, who were not or insufficiently informed about feeding methods for brain-damaged patients.

Mortality was 27.3% high in young subjects (under 60), as reported by several authors, and could be explained by the intracranial hypertension responsible for death. Most of the patients who died had a modified Rakin at re-entry equal to or greater than four (4), sometimes associated with an ICH equal to or greater than three (3), and lack of financial means was also a factor in poor prognosis.

Favourable outcome without sequelae was observed in 18.2% of cases, and 54.5% with sequelae (minor and major). According to the literature, despite a very high mortality rate in the first month after the accident, patients surviving a hemorrhagic stroke recover faster and better than those who have suffered an ischemic stroke. This is particularly true in the aftermath of cerebellar hematoma, which can be complicated by deep coma linked to hydrocephalus or brainstem compression, with very good recovery after resorption of the hemorrhage and edema.

The limitations and difficulties of this study were: The failure to perform cerebral angiogram and cerebral MRI angiography in the search for aetiology (AVM); the failure to perform haemostasis tests (prothrombin time, TCK, fibrinogen, INR); the scarcity of literature data for discussion of the results on this subject; and some incomplete patient records.

Conclusion

Cerebellar haematoma is a diagnostic and therapeutic emergency, as it is immediately life-threatening and exposes the patient to long-term functional sequelae. The prognosis is based on certain factors of severity: Age, altered state of consciousness indirectly reflected by the destructive

lesions created by the haemorrhage, haematoma volume, mass effect and ventricular flooding. On the other hand, prognosis is difficult to establish in the intermediate forms, which are the most numerous. Analysis of these factors, enabling an individual prognostic approach, could be an aid to therapeutic decision-making.

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Conflict of Interest

The authors did not receive any funding or benefits in relation to this study.

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