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Large Cerebellar Infarct Complicated with Acute Hydrocephalus Required Emergency VP Shunt: A Case Report

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ABSTRACT: Acute hydrocephalus is a rare manifestation of posterior circulation ischemic strokes. Because it can lead to serious brain issues, this condition is seen as one of the most dangerous results of cerebellar infarction. Patients who suffer from cerebellar infarcts are challenging to treat since they typically exhibit vague symptoms and signs until consciousness severely deteriorates. Standard management by a dedicated stroke unit team or neurointensive care unit may not always be possible because of a lack of infrastructural facilities in rural areas and delayed presentation. Here we report a case of a 35-year-old male who presented to us with sudden deterioration of consciousness with a 4-day history of nonspecific headache and vomiting. Subsequently, he underwent an emergency VP shunt for acute hydrocephalus due to a large cerebellar stroke and recovered well without any neurological deficit.
Keywords: Cerebellar Infarction, Acute Hydrocephalus, Posterior Circulation Stroke.

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INTRODUCTION

Cerebellar infarctions account for about 2–3% of all ischemic strokes [1, 2]. One of the most dangerous side effects of cerebellar infarct is massive cerebellar edema with acute hydrocephalus brought on by brainstem compression or compression of the cerebrospinal fluid (CSF) flows. This condition can result in transforaminal and upward trans tentorial herniation and is an uncommon sign of posterior circulation stroke [3, 4]. The main complaints and findings seen in cerebellar infarcts are ataxia, vertigo, dysarthria, nausea, vomiting and headache [5]. In addition to these cerebellar dysfunction symptoms, there may be clinical worsening and coma. These can occasionally be caused by reversible causes, such as the development of acute hydrocephalus or brainstem compression [5 ,6]. In the development of dealing with ischemic stroke cases, the handling of patients with intravenous thrombolysis with recombinant tissue plasminogen activator (rtPA) within 4.5 h of the onset of symptoms is said to provide good clinical development results [7]. However, not all regions have such facilities, especially rural areas, which will have an impact that increases the morbidity and mortality rate [8]. A timely and careful approach will certainly prove to be life-saving when deciding on a shunt procedure in a patient developing obstructive hydrocephalus following cerebellar infarct [9]. Our patient underwent emergency VP shunt for acute hydrocephalus due to cerebellar infarct and had a complete recovery.

CASE REPORT

A 35-year-old man who had been experiencing nonspecific headache and vomiting for four days without

deterioration of consciousness was treated in the local hospital in a rural area. CT scan of the brain revealed a large cerebellar infarct without any Hydrocephalus (Figure 1). Upon deterioration of consciousness on the next day, the patient was referred to our centre for further management. The patient presented to us with an abrupt decline in consciousness recorded (E2V3M5). Repeat CT scan revealed the development of subtle signs of acute hydrocephalus, evidenced by dilated temporal 3rd ventricle and lateral ventricle (Figure 2). The patient did not receive any thrombolytic therapy. Subsequently, he underwent an emergency VP shunt for acute hydrocephalus due to a large cerebellar stroke and recovered well without any neurological deficit. On the 1st POD, the patient started to improve. On the 3rd POD, patient GCS recorded 15/15, without any neurological deficit (Fig05). Afterwards, the patient was referred to the stroke clinic for further management.

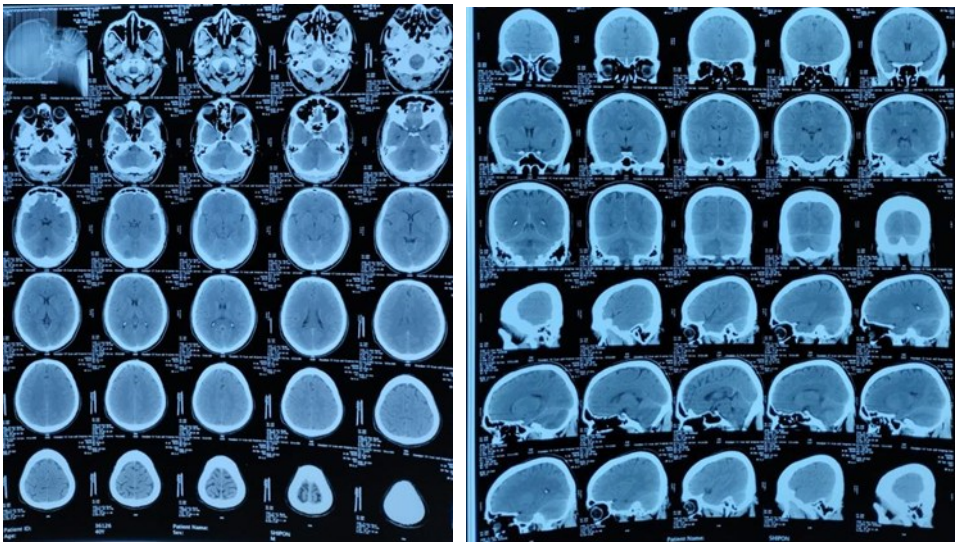

Figure 1: CT scan of the brain on the 2nd day of symptoms onset revealed right cerebellar infarct. No Hydrocephalus present

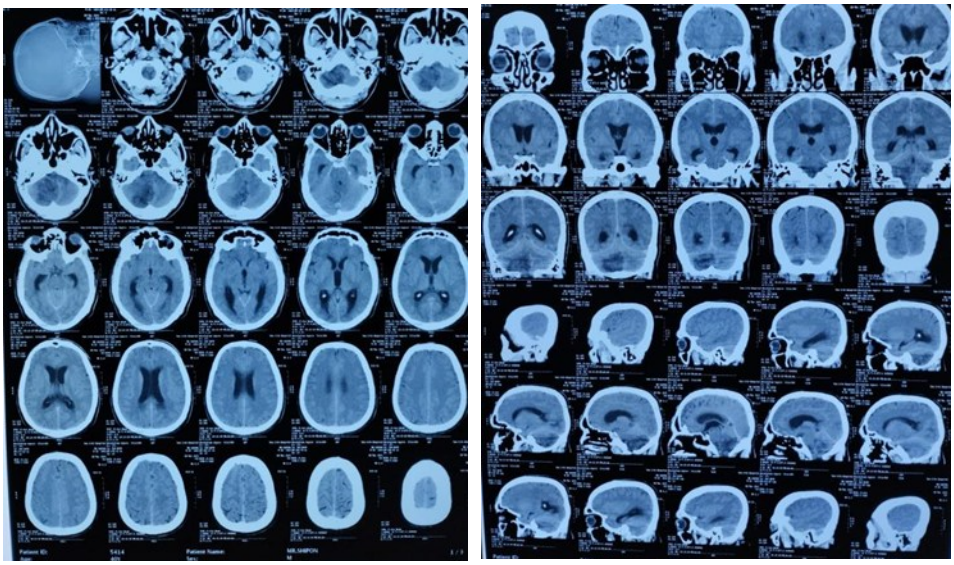

Figure 2: CT scan Brain on deterioration of consciousness revealed subtle signs of Acute hydrocephalus (Dilated temporal horn, 3rd ventricle, lateral ventricle) and a large right cerebellar stroke

Figure 3: Placement of ventricular catheter at keen's point during VP-shunt demonstrated high-pressure CSF flow

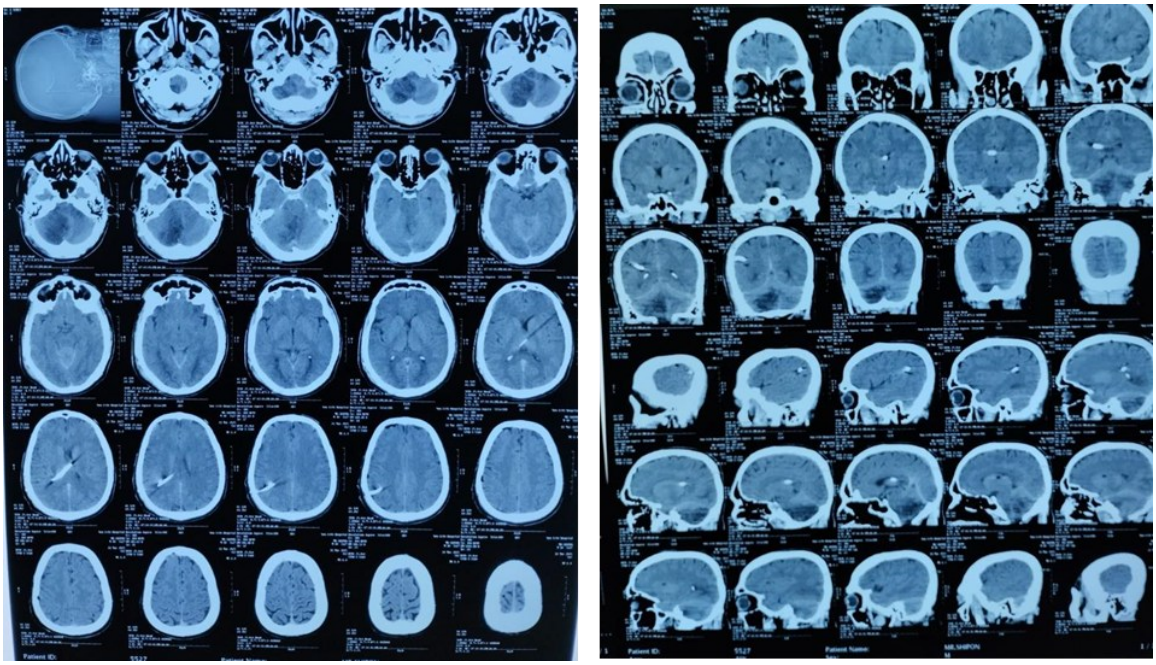

Figure 4: CT scan of the Brain on 3rd POD demonstrated resolved acute hydrocephalus with a ventricular catheter in situ

Figure 5: On 3rd POD Patient's GCS improved to 15/15 with no Neurological Deficit

DISCUSSION

The management of patients with cerebellar infarct remains a challenge for the physician because the patients usually present with non-specific complaints which continue until the patients lose consciousness. Even if in the conscious condition, the patient required treatment in the stroke unit or neuro-ICU and is medically treated with anti-thrombolytic intravenous therapy to improve the condition [10]. our patient presented to us with abrupt deterioration of consciousness, and CT scan of the brain revealed a large cerebellar stroke and the development of Acute Hydrocephalus. Before that, he had been suffering from nonspecific headache and vomiting without any deterioration of consciousness for 4 days. He has been treated symptomatically in a rural local hospital. In this period the patient did not receive any thrombolytic therapy. However, an Infarct in the posterior fossa is unique and the surgeon is faced with the possibility of worsening conditions from several mechanisms. First, the compression of the brainstem by the lesion could lead to transforaminal and upward transtentorial herniation. Second, compression of CSF flows might produce secondary obstructive acute hydrocephalus, which subsequently suppresses the brainstem and also might trigger transforaminal and upward transtentorial herniation or a mixture of both. In this case, emergency management must be taken [11]. Conservative management is not recommended in cases with severe mass effects, which tend to give unsuccessful in clinical practice. On the other hand, surgical treatment is widely accepted. One study mentioned a high survival rate in patients undergoing surgery, specifically around 81.6% in patients who underwent external ventricular drainage (EVD), 76.8% in patients who underwent SDC, and 77.5% who underwent EVD and SDC [12]. The other case report also reported a good outcome in the patient with cerebellar infarction complicated with acute hydrocephalus that underwent VP shunt only [13]. During the patient's first week in the hospital,observation in a neurologic intensive care unit may facilitate the timely recognition of neurologic deterioration and permit immediate repeated imaging to guide an appropriate and tailored surgical approach [14]. In our case, As the patient developed acute

hydrocephalus due to large cerebellar stroke with abrupt deterioration of consciousness, we performed emergency VP-shunt. Afterwards the patient made quick recovery with GCS of 15.

CONCLUSION

The patients with cerebellar infarct require close observation for general condition and neurological signs in the stroke unit or neuro-ICU for prompt diagnosis of life-threatening acute hydrocephalus, even when there is no life-threatening condition at initial presentation. In patients in whom surgery is indicated the choice of surgery with ventricular drainage by VP shunt might provide satisfactory results.

Conflicts of Interest

There were no conflicts of interest, according to the authors, during the planning and writing of this paper.

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