

Patient presenting with progressive altered mental status and hypertension

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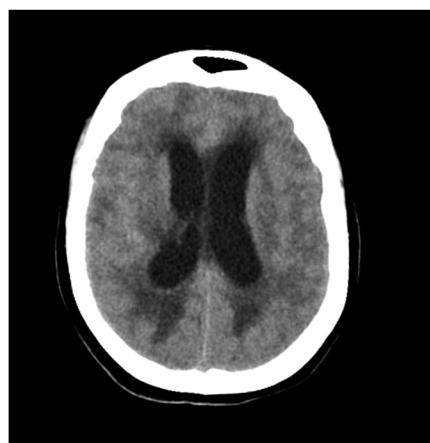
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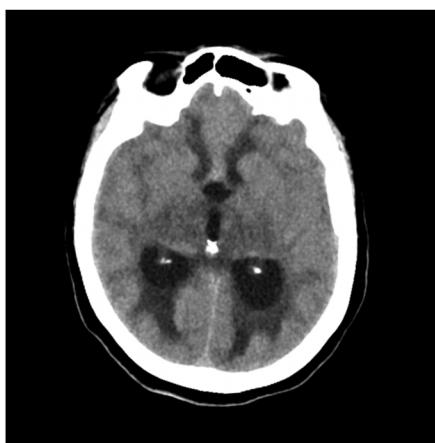
1 | PATIENT PRESENTATION

A 56-year-old female was brought to the hospital after 2 weeks of progressive altered mental status. Past medical history was significant for hypertension. On physical examination, she was confused with bilateral dysmetria. Her systolic blood pressure was 214 mmHg and her mean arterial blood pressure was 147 mmHg. Non-contrast head computed tomography (CT) scan showed obstructive hydrocephalus with effacement of the fourth ventricle (Figure 1A-C). Magnetic resonance

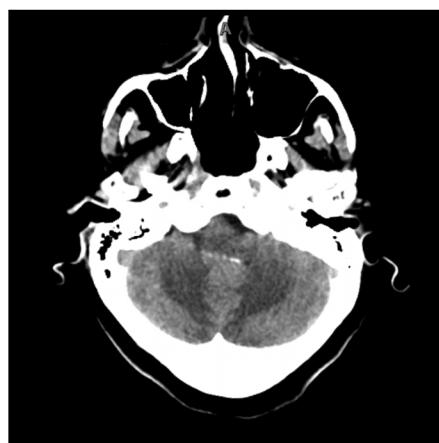
imaging (MRI) of the brain showed marked edema in the brainstem, cerebellum, and thalamus (Figure 2). A right frontal external ventricular drain (EVD) was placed. The intracranial pressures remained within normal limits, and the EVD was removed on hospital day 3. As the patient's blood pressure was treated, her confusion and dysmetria resolved. Repeat non-contrast head CT scan 3 days after admission showed resolution of the obstructive hydrocephalus (Figure 3). Repeat MRI of the brain 9 days after admission showed decrease in the FLAIR signal (Figure 4).



(A)



(B)



(C)

FIGURE 1 (A and B) Axial non-contrast head CT scan showing obstructive hydrocephalus (C) Axial non-contrast head CT scan showing fourth ventricular effacement. Abbreviation: CT, computed tomography.

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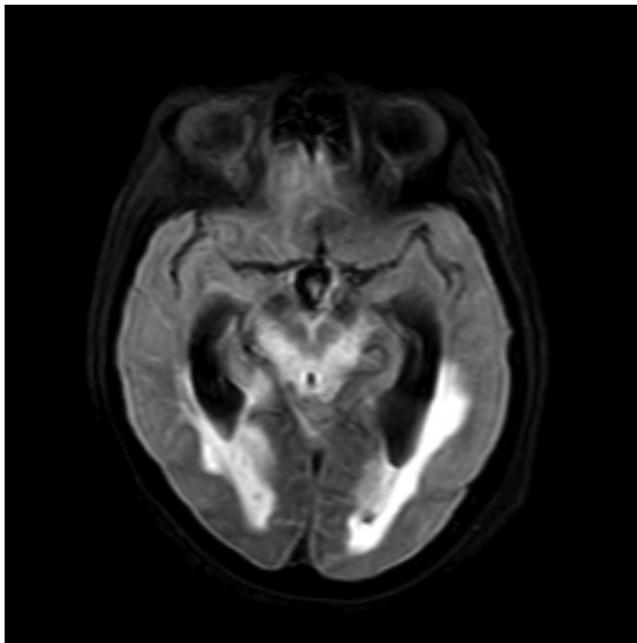


FIGURE 2 MRI brain T2W FLAIR showing marked edema throughout the brainstem. Abbreviations: FLAIR, fluid attenuated inversion recovery; MRI, magnetic resonance imaging.

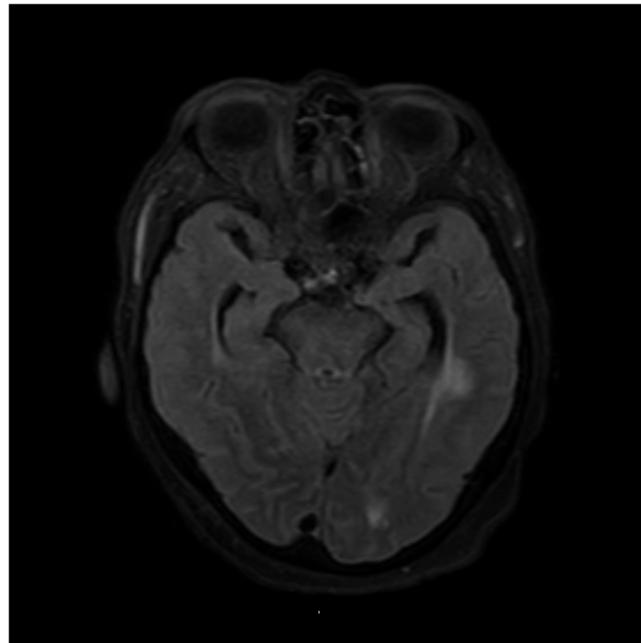


FIGURE 4 MRI Brain T2W FLAIR showing decrease in the edema. Abbreviations: FLAIR, fluid attenuated inversion recovery; MRI, magnetic resonance imaging.

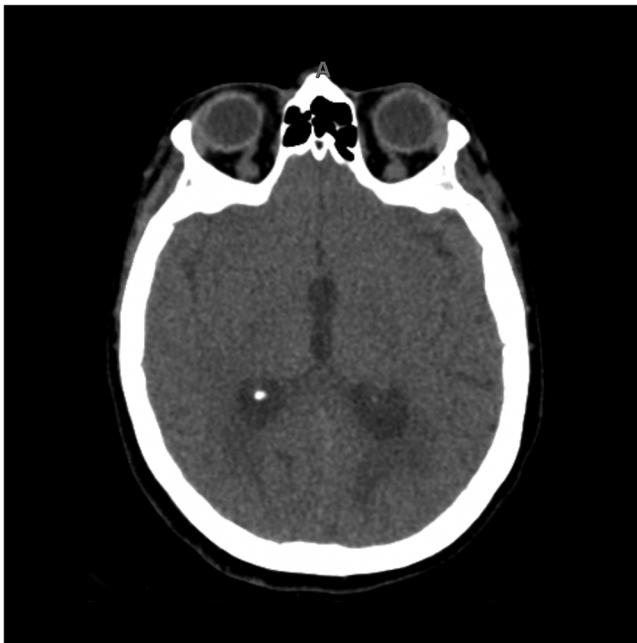


FIGURE 3 Axial non-contrast head CT scan showing normal ventricular system. Abbreviation: CT, computed tomography.

2 | DIAGNOSIS

2.1 | Brainstem hypertensive encephalopathy

The patient suffered from brainstem hypertensive encephalopathy, which is a subset of posterior reversible encephalopathy syndrome

(PRES).^{1,2} PRES is characterized by widespread vasogenic edema particularly in the parietal and occipital lobes.^{1,3} Patients can present with a wide variety of symptoms including headache and altered mental status.⁴ Brainstem hypertensive encephalopathy can cause reversible obstructive hydrocephalus.⁵⁻⁷ The mechanism is thought to be due to the failure of the autoregulatory capability of the brain vasculature to accommodate a sudden elevation in blood pressure.^{7,8} Treatment of hydrocephalus is achieved with blood pressure control and often temporary cerebrospinal fluid diversion is required.⁷

3 | PRIOR PRESENTATION

This case was presented as an oral presentation at the Georgia Neurological Society 2022 Annual Fall Meeting and Scientific Assembly on Saturday, December 4, 2022.

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