

Clinical Image

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A case of cerebral edema following hyponatremia correction

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Description

A 52-year-old woman with mental retardation and diabetes mellitus was hospitalized for a bronchial asthma attack. As the wheezing subsided with dexamethasone, empagliflozin was restarted on the second day, leading to polyuria and an increase in serum sodium to 191 mEq/L by the fourth day. Following discontinuation of empagliflozin, her Na level dropped to 145 mEq/L by the 11th day, but she remained unsteady. On the 13th day, a head Magnetic Resonance Imaging (MRI) showed high-signal areas in the middle cerebellar peduncles on diffusion-weighted images and disappearance of cerebral sulci on fluid-attenuated inversion recovery, suggesting cerebral edema

due to hyponatremia correction (Figure 1). Her symptoms improved with rehabilitation, and a repeat MRI on the 30th day showed resolution (Figure 2). In adults, it is generally recommended that hyponatremia correction should not exceed 12 mEq/L per day [1]. However, this guideline is derived from observational studies in infants and children, with limited direct evidence in adults. Reports suggest that even when sodium levels are corrected faster than 12 mEq/L per day in adults, no consistent associations with mortality, seizures, altered consciousness, or cerebral edema have been observed [2]. Nevertheless, slow correction of hyponatremia in adults may be prudent to minimize potential risks.

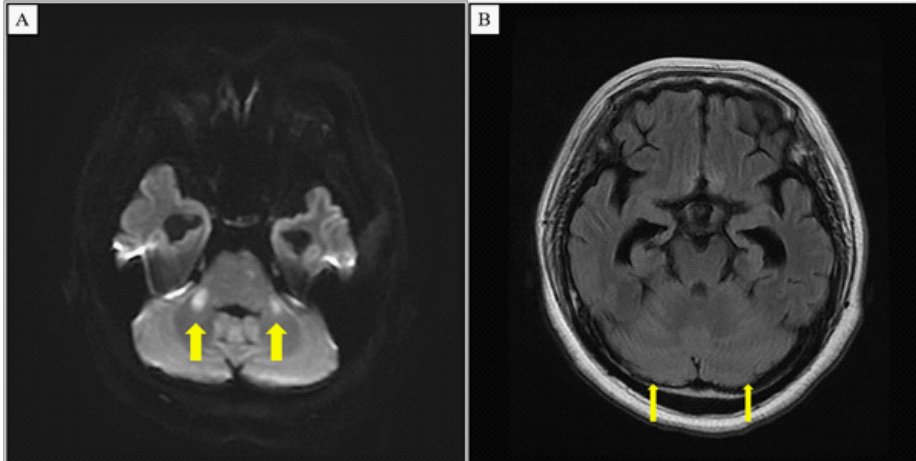


Figure 1: (A) Diffusion-weighted Magnetic Resonance Imaging (MRI) of the head shows high-signal areas in the middle cerebellar peduncles (yellow arrows). (B) On the fluid-Attenuated Inversion Recovery (FLAIR) sequence of the head MRI, a disappearance of the cerebral sulci is observed (small yellow arrows).

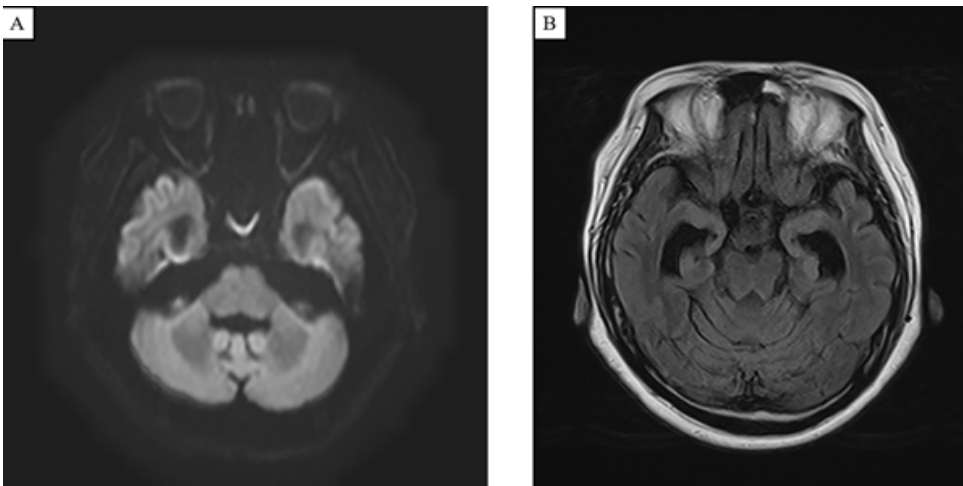


Figure 2: (A) The high-signal areas in the middle cerebellar peduncles observed on diffusion-weighted MRI of the head have disappeared. (B) The sulci that had disappeared on the FLAIR image of the head MRI normalized, suggesting an improvement in brain edema.

References

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