

Letter to the Editor

Epidermoid tumor in the fourth ventricle

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The present patient is a 19-year-old girl who presented with headaches, and vertigo. On a magnetic resonance imaging (MRI) examination, a suspicious, small mass-like lesion was evident on T1- and T2-weighted images. No hydrocephalus was noted. There was no contrast enhancement. FLAIR (fluid attenuated inversion recovery), and gradient-echo constructive interference of steady state (CISS), and echo-planar diffusion MRI were added to the imaging protocol. The mass had a muddy appearance (intermixed high and low signal) on FLAIR images, and its overall signal was higher than that of cerebrospinal fluid (CSF). It also had a muddy appearance on gradient-echo CISS images, and its overall signal was lower than that of CSF (Fig. 1a). A tendency of extension of the tumor to a slightly dilated right foramen of Luschka was evident. Echo-planar diffusion imaging sequence revealed high signal in the tumor on $b = 1000 \text{ s/mm}^2$ images (Fig. 1b). The apparent diffusion coefficient (ADC) value in the epidermoid tumor was $0.51 \times 10^{-3} \text{ mm}^2/\text{s}$, lower than that of cerebellar parenchyma ($0.80 \times 10^{-3} \text{ mm}^2/\text{s}$), and CSF (2.90 and $3.55 \times 10^{-3} \text{ mm}^2/\text{s}$). The lesion was totally excised and the histopathological diagnosis favored epidermoid tumor.

Epidermoid tumor represents 0.2% to 1% of all primary intracranial tumors, and they usually occur in the subarachnoid cisterns. Rarely, they can be found

in intracerebral and intraventricular locations. In the intraaxial locations, their signal intensities on MRI are similar to the extraaxial epidermoids; that is hypointense on T1-weighted and hyperintense on T2-weighted images. These signal features of intraaxial epidermoids can cause them to resemble astrocytomas, and other gliomas, making the correct preoperative diagnosis extremely difficult [1–3]. There is a single report dealing with FLAIR, and gradient-echo CISS, and diffusion MRI of intraventricular epidermoids by Marin et al. [1]. They reported four patients with epidermoids of the fourth ventricle using FLAIR, CISS, and diffusion MRI, and cited that these sequences were useful to better characterize the lesions [1]. In the present patient, we had a similar experience. We noted that the overall signal of the intraventricular epidermoid tumor was higher than that of CSF on FLAIR, lower than that of CSF on CISS images, having a muddy appearance (intermixed high and low signal) on both of these sequences. With respect to diffusion MRI, previous reports on epidermoid tumors located in the subarachnoid cisterns revealed presence of high signal of the lesions on diffusion-weighted ($b = 1000 \text{ s/mm}^2$) images associated with low ADC values [1,2]. This represented a reduced diffusion pattern accounting for the viscosity of the contents. The findings in the current patient were similar. Thus, it is felt that FLAIR, CISS, and especially diffusion-weighted sequences allow the correct diagnosis of an intraventricular epidermoid tumor.

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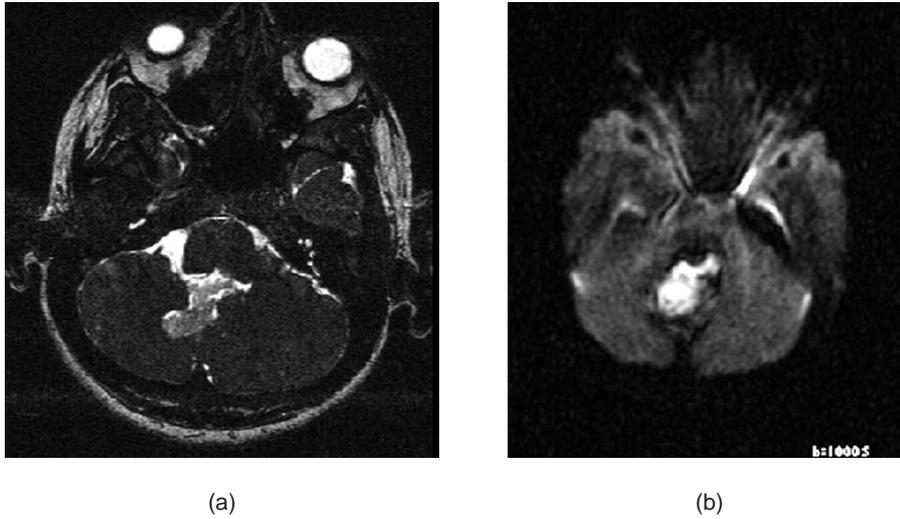


Fig. 1. (a) CISS image (TR = 12.25 ms, and TE = 5.9 ms) reveals a muddy appearance of the mass. Its overall signal is lower than that of CSF. Note a slightly dilated right foramen of Luschka. (b) Diffusion-weighted ($b = 1000 \text{ s/mm}^2$) image (TR = 4000 ms, and TE = 110 ms) reveals high signal of the tumor contents.

References

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