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Teaching NeuroImage: Bloomy Rind Sign of Leptomeningeal Carcinomatosis

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Case Report

A 68-year-old woman presented vertigo, nausea, and vomiting for three days. She had lung adenocarcinoma with *EGFR* mutation (p.L858R) for one year, and was in remission after osimertinib treatment. Neurological examination revealed stiff neck, horizontal and vertical nystagmus, dysphagia, and bilateral Babinski sign. MRI revealed symmetrical hyperintensity along surface of midbrain, pons, and cerebellar peduncles in T2, FLAIR, and DWI (Figure 1). T1 and ADC were normal, and there was no contrast enhancement. No significant supratentorial anomaly was found. CSF cytology identified cancer cells carrying *EGFR* mutation (p.L858R). We added bevacizumab to osimertinib. MRI two months later revealed thickened lesions expanded to medulla and inner ears with hydrocephalus (Figure 2). The patient finally died due to respiratory failure. In leptomeningeal carcinomatosis, common MRI findings are linear enhancement of sulcus, leptomeningeal, and nerve root, while bloomy ring sign, possibly induced by tumor infiltration, cytotoxic edema, and microinfarction, is rare and characteristic.^{1,2}

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2. Mitsuya K, Nakasu Y, Deguchi S, Shirata K, Asakura K, Nakashima K, Endo M, Takahashi T, Hayashi N. FLAIR hyperintensity along the brainstem surface in leptomeningeal metastases: a case series and literature review. *Cancer Imaging.* 2020;20(1):84.

Figure legends

Figure 1. Symmetrical curvilinear abnormality along surface of midbrain (A), pons (B), and cerebellar peduncles (C) in axial brain MRI images, FLAIR sequences at admission (arrows), while medulla was relatively intact (D).

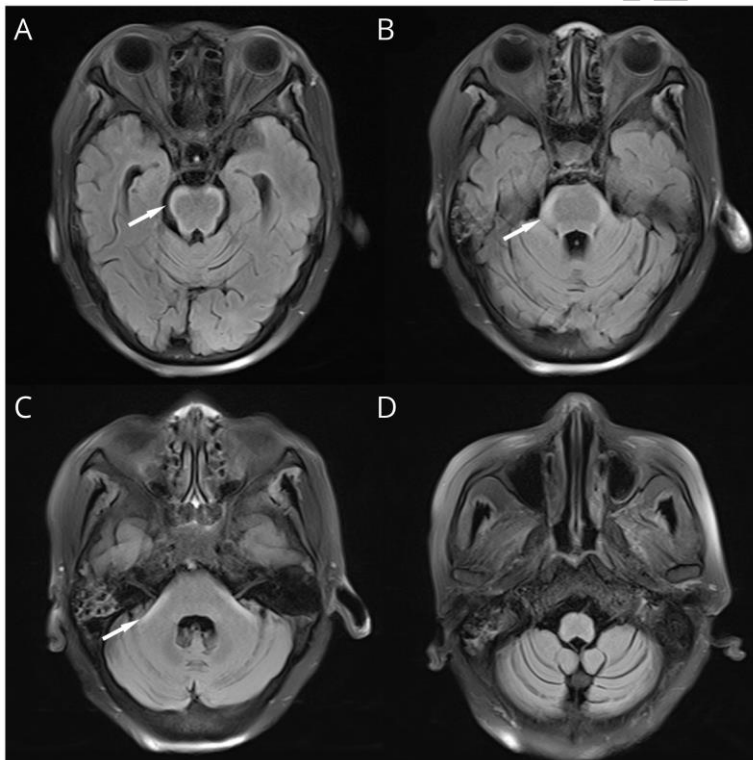
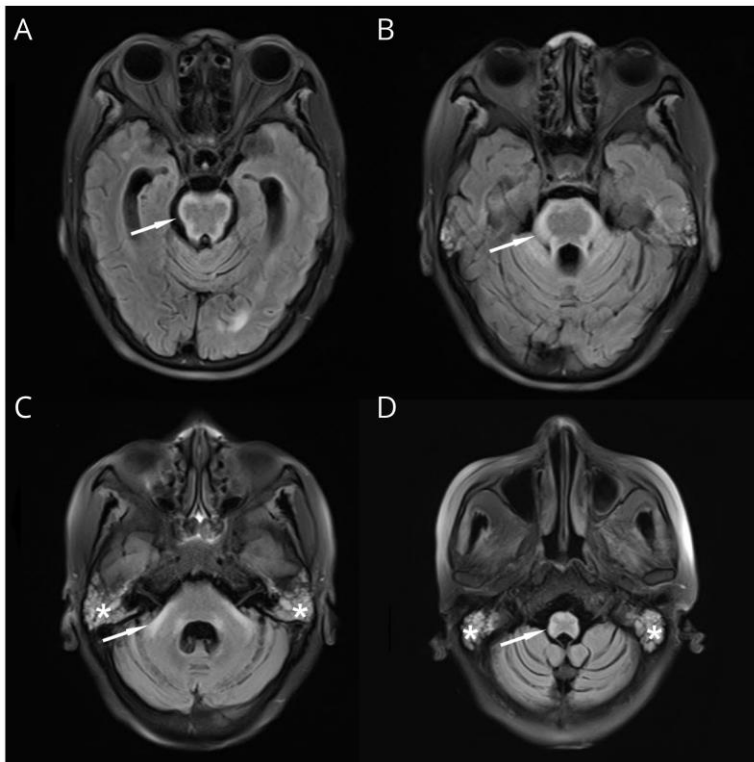


Figure 2. Thickened lesions along surface of midbrain (A), pons (B), and cerebellar peduncles (C) (arrows), which expanded to medulla and inner ears (D) (asterixes) in axial brain MRI images, FLAIR sequences at follow-up.



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