Quadrigeminal cistern lipoma mimicking intracranial hemorrhage

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A 74-year-old female with diabetes mellitus was admitted with fever and altered sensorium for 2 days on a background of recurrent urinary tract infection. There was no history of headache or seizures. Her final diagnosis was septic encephalopathy. Magnetic resonance imaging (MRI) of the brain performed during evaluation showed a hyperintense lesion with smooth margins in T1, T2, and fluid-attenuated inversion recovery (FLAIR) images on the left side of the quadrigeminal cistern (6.5 mm × 6.4 mm × 8 mm) without any mass effect. There was blooming on susceptibility-weighted images, raising the possibility of blood or calcium (Fig. 1). Subsequent computed tomography (CT) of the head and fat-saturated images confirmed it as a lipoma.

Intracranial lipomas are very rare tumors with an incidence of 0.1–0.5% of all intracranial tumors. They tend to be placed at the midline, most commonly in the pericallosal cistern (50%). The quadrigeminal/superior cerebellar lipomas account for 25% of the cases, followed by suprasellar/interpeduncular (14%), cerebellopontine angle (9%), and Sylvian (5%) cistern lipomas. Quadrigeminal cistern lipomas may be associated with hypoplasia of the inferior colliculus or agenesis of the corpus callosum [1]. Intracranial lipomas are neither hamartomas nor true neoplasms but are thought to be malformations arising from the differentiation of the aberrant embryological meninx primitiva, the predecessor of the subarachnoid space. This explains why intracranial lipomas are seen in the subarachnoid space and why they may have parenchymal abnormalities and traverse structures. Most intracranial lipomas are asymptomatic, but they can present with symptoms such as headache and seizures [2].

Lipomas are hyperintense on T1, T2, and FLAIR images. They can mimic subacute hemorrhage if they show blooming in susceptibility-weighted imaging/gradient-recalled echo (SWI/GRE) images and can be a diagnostic pitfall in trauma settings. Fat-suppressed MRI images or CT scan will clarify the diagnosis [3,4]. There are only a few differential diagnoses for T1 hyperintense intracranial lesions [5] (Table 1). If an intracranial lesion shows T1 hyperintensity, blooming on SWI/GRE, and no surrounding edema or mass effect, intracranial lipoma should be considered, especially if it is located in the pericallosal, quadrigeminal, suprasellar, or interpeduncular cistern.

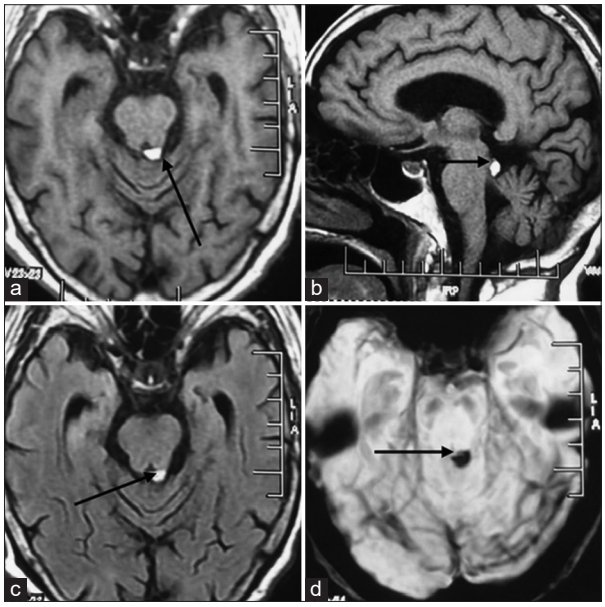


Figure 1: (a) Axial brain T1-weighted image showing hyperintensity in the quadrigeminal cistern; (b) sagittal T1-weighted image showing hyperintensity; (c) Axial fluid-attenuated inversion recovery image showing hyperintensity; (d) susceptibility-weighted imaging image showing uniform blooming

Table 1: Intracranial T1 hyperintense lesions

T1 hyperintense lesions	Example
Some stages of hemoglobin degradation	Meth hemoglobin
Some minerals	Calcium, Manganese, Copper
Lipid containing lesions	Lipoma, Dermoid
Lesions with high protein content	Colloid cyst
Gadolinium	
Melanin	Metastatic melanoma

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