



Disponible en ligne sur

**ScienceDirect**  
[www.sciencedirect.com](http://www.sciencedirect.com)

Elsevier Masson France

**EM|consulte**  
[www.em-consulte.com](http://www.em-consulte.com)


## Letter to the editor

### Hypothalamic glioma mimicking colloid cyst: A case report and review of the literature



#### 1. Introduction

Hypothalamic gliomas are rare tumors that occur more frequently in children than in adults. They account for 10–15% of supratentorial tumors in the pediatric age group. The most common age of presentation is 2–4 years. Patients often present with visual problems and growth hormone dysfunction [1,2]. Radiological examination finds hypointensity on T1-weighted sequences and hyperintensity on T2-weighted FLAIR sequences [2]. Extension into the ventricle may cause an aspect of intraventricular tumor. Due to the variable radiological aspect of colloid cysts, hypothalamic glioma with intraventricular extension may be misdiagnosed as colloid cyst if the radiological images are not thoroughly examined. The present manuscript presents a case of hypothalamic glioma radiologically appearing as a colloid cyst, together with a review of the literature.

#### 2. Case Report

A 39-year-old female patient presented with intermittent headache. Neurological examination was normal. Fundus examination showed no papilledema. Cranial MRI with contrast enhancement revealed a 26 × 18 × 18 mm space-occupying lesion in the midline at the third ventricle with extension to left and right, showing as hypointense on T1-weighted sequences (minimally less intense than cerebrospinal fluid [CSF]) and hyperintense on T2-weighted FLAIR sequences, with no enhancement after intravenous contrast medium injection, suggestive of a colloid cyst. There was asymmetric widening of right lateral ventricular structures and increased intensity due to bilateral periventricular transependymal CSF passage, more prominent on the right side (Fig. 1). The patient's complaint of intermittent headache was also consistent with a colloid cyst, of which it is a typical presenting symptom in clinical practice. Colloid cyst excision was scheduled by neuronavigation-guided interhemispheric surgery. Surprisingly, no colloid cyst could be visualized during surgery. A biopsy was obtained from the intra-axial mass lesion through the ventricular surface at which neuronavigation showed the mass. Histopathological examination suggested low-grade glioma.

#### 3. Discussion

Colloid cysts account for 2% of all intracranial tumors (0.5–3%) and 15–20% of intraventricular mass lesions [3–5]. In 99% of cases these benign cystic structures are located in the foramen of Monro

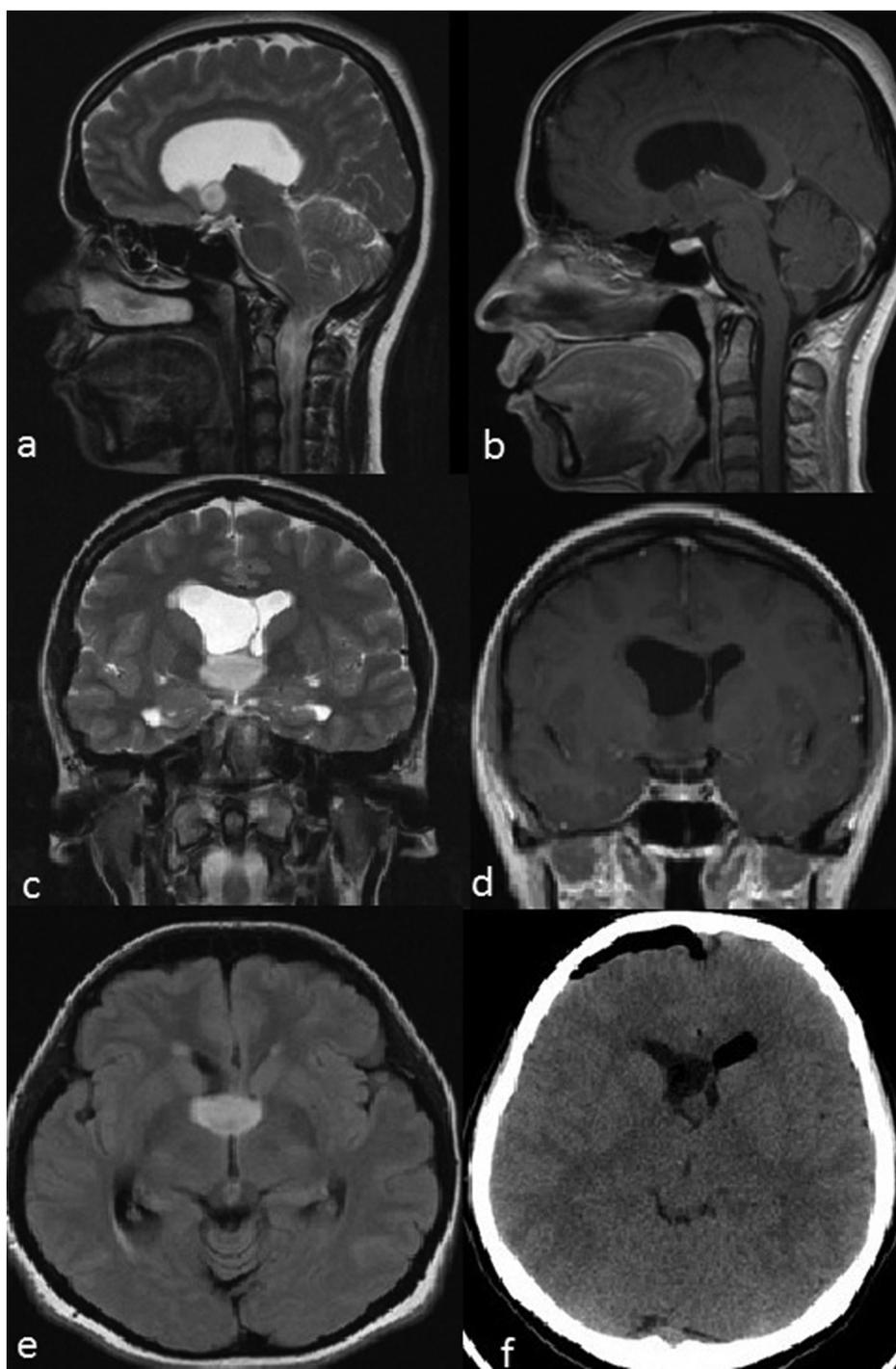
[4]. Most cases are diagnosed at an age of 30–40 years, and 8% in the pediatric age group [3]. Most cases of colloid cyst are asymptomatic and detected serendipitously. They are attached to the wall of the third ventricle and may cause hydrocephaly by obstructing the foramen of Monro when sufficiently enlarged. Intermittent headache occurs due to hydrocephaly, and positional change may relieve headache. Sudden increase in intracranial pressure may occur due to increased hydrocephaly. Colloid cysts are well-defined round unilocular lesions located at the roof of the third ventricle, and appear hyperdense on CT due to the cholesterol component. Isodense, hypodense or calcified appearance is rare [5]. On MRI, signal characteristics vary according to the sequence. On T1-weighted sequences, they can show 50% high signal or appear iso-hypointense with respect to the brain, and the cystic component is rarely enhanced by contrast medium. Although sometimes variable on T2-weighted sequences, they often show low signal at the center surrounded by high signal due to the cystic content, and sometimes show homogeneous high signal. Cysts showing low signal on T2-weighted sequences may be isointense with respect to the CSF on FLAIR sequences, and distinguishing these cysts may be challenging [6].

Although rare, mass lesions located at the foramen of Monro can be misdiagnosed radiologically as colloid cysts. Similarly, there are cases in the literature of meningioma [7], metastasis [8], neurocysticercosis [9] and xanthogranuloma [10] that were misdiagnosed as preoperative colloid cysts. In the present case, hypothalamic glioma was misdiagnosed preoperatively as colloid cyst. The major cause of this confusion is the variable signal characteristics of colloid cysts on MRI. Hypothalamic glioma can be misdiagnosed as craniopharyngioma if it extends toward the skull base and sellar region rather than into the ventricle. Vyas et al. [2] reported that cystic hypothalamic glioma was initially misdiagnosed as craniopharyngioma in their case report.

Colloid cysts are benign masses that are eligible for total resection. Total resection is not preferred for hypothalamic glioma, due to serious associated complications in the postoperative period. Thus, preoperative misdiagnosis can significantly affect surgical attitude and strategy. High signal characteristics are the most prominent radiological feature of low-grade gliomas on FLAIR sequences. It is therefore important to examine each MRI image and sequence meticulously in order to avoid misdiagnosis.

#### Informed consent

Additional informed consent was obtained from all individual participants for whom identifying information is included in this article.



**Fig. 1.** a: preoperative T2 sagittal sequence shows iso-hyperintense lesion; b: preoperative T1 sagittal sequence, iso-hypointense lesion; c: preoperative T2 coronal image shows homogeneous iso-hyperintense lesion; d: reoperative T1 coronal sequence shows homogeneous iso-hypointense lesion; e: reoperative FLAIR axial sequence shows homogeneous hyperintense lesion; f: postoperative CT image shows isodense intraventricular lesion (biopsied).

#### Disclosure of interest

The authors declare that they have no competing interest.

#### References

- [1] Saleem SN, Said AH, Lee DH. Lesions of the hypothalamus: MR imaging diagnostic features. *Radio Graphics* 2007;27:1087–108.
- [2] Vyas S, Prabhakar N, Tewari MK, Radotra BD, Khandelwal N. Hypothalamic glioma masquerading as craniopharyngioma. *J Neurosci Rural Pract* 2013;4(3):323–5.
- [3] Kornienko VN, Pronin IN. *Diagnostic Neuroradiology*. Berlin: Springer Verlag; 2008.
- [4] Osborn AG, Preece MT. Intracranial cysts: radiologic-pathologic correlation and imaging approach. *Radiology* 2006;239(3):650–64.
- [5] Waggenspack GA, Guinto FC. MR and CT of masses of the anterosuperior third ventricle. *Am J Roentgenol* 1989;152(3):609–14.
- [6] Armao D, Castillo M, Chen H, Kwock L. Colloid cyst of the third ventricle: imaging-pathologic correlation. *Am J Neuroradiol* 2000;21(8):1470–7.
- [7] Lee YY, Lin SR, Horner FA. Third ventricle meningioma mimicking a colloid cyst in a child. *Am J Roentgenol* 1979;132:669–71.
- [8] Gupta A, Nadimpalli SP, Cavallino RP. Intraventricular neurocysticercosis mimicking colloid cyst. Case report. *J Neurosurg* 2002;97:208–10.

- [9] Meneses MS, Arruda WO, Ramina R. Third ventricular cysticercal cyst mimicking a colloid cyst: case report. *Neurosurgery* 1996;39:623.
- [10] Tatter SB, Ogilvy CS, Golden JA, Ojemann RG, Louis DN. Third ventricular xanthogranulomas clinically and radiologically mimicking colloid cysts. Report of two cases. *J Neurosurg* 1994;81:605–9.

A. Akay<sup>a,\*</sup>

<sup>a</sup> Department of Neurosurgery, Kent Hospital, 8229/1  
Street No: 56, 35630 Çiğli, İzmir, Turkey

C. Eraslan<sup>b</sup>

<sup>b</sup> Department of Radiology, Ege University Faculty of  
Medicine, İzmir, Turkey

\* Corresponding author.

E-mail address: [dr.aliakay@gmail.com](mailto:dr.aliakay@gmail.com) (A. Akay)

Received 15 May 2019

Received in revised form 30 May 2019

Accepted 30 May 2019

Available online 20 June 2019