CASE REPORT

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Colloid cyst presenting with acute hydrocephalus in an adult patient: Case report and review of literature

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ABSTRACT

Colloid cysts (CC) are rare cystic lesions with a wide clinical spectrum including the asymptomatic cysts that are coincidentally diagnosed and the cysts leading to sudden death. The symptoms in CC are usually caused by obstructive hydrocephalus. The most common symptom for CC is headache. CC rarely cause intracranial herniation and death. In this study, we aimed to present our experience in the diagnostic and treatment process of a 57-year-old male patient with CC who presented to the emergency service with sudden severe headache, vomiting and confusion.

Key Words: Colloid cysts, acute hydrocephalus, ventriculoperitoneal shunt

Introduction

Colloid cysts (CC) are slow-growing benign tumors and are also known as neuroepithelial cysts. CC are mostly located at the third ventricular roof posterior to the foramen of Monro. CC account for 0.55-2% of all intracranial tumors (1,2). Although they generally present as asymptomatic and small-sized lesions, CC may lead to high mortality and morbidity due to the importance of their localization and their potential for causing hydrocephalus by impairing the cerebrospinal fluid (CSF) flow (3,4). CC are more common in men compared to women. The most common symptom for CC is headache, followed by nausea, vomiting, disorders of consciousness, eye disorders and vision disorders. These symptoms typically occur secondary to hydrocephalus in middle-aged individuals. CC generally have thick, gelatinous material or denser content. Following the detection of the signs of hydrocephalus on computed tomography (CT), magnetic resonance imaging (MRI) (gradient echo, diffusion) should be performed to better visualize the cyst and its content (5).

Case report

A 57-year-old male patient presented to the emergency service with the complaints of sudden severe headache, vomiting and confusion. The patient had a Glasgow coma score of 12 and the fundoscopic ophthalmic examination revealed papilledema as an indicator of increased intracranial pressure. The cranial CT detected acute hydrocephalus caused by the growth of lateral ventricles. The cranial MRI, revealed a 12-mm nodular mass lesion suggestive of colloid cyst, which was located posterior to foramen of Monro at the level of the third ventricle, centrally hyperintense on T1-weighted sequences, peripherally hypointense, centrally hypointense on T2-weighted sequences, peripherally hyperintense and showed no contrast uptake after the intravenous contrast administration (Figure 1-2). High signal areas secondary to CSF extravasation were seen in the peri-supraventricular white matter. Due to the presence of acute hydrocephalus, the patient was operated on under emergency conditions. An adjustable ventriculoperitoneal (VP) shunt was inserted (Figure 3). In the early postoperative period, the consciousness of the patient was recovered and the complaints were reduced; however, two days later, headache became more severe and vomiting restarted and thus cranial CT was performed again and it showed acute subdural effusion and cerebral edema in the right temporoparietal region (Figure 4). These complications were caused by the intracranial pressure and were percutaneously treated by manually reducing the pressure of the VP shunt (Figure 5-6). The patient was advised to undergo surgery under elective conditions due to the presence of colloid cyst but the patient

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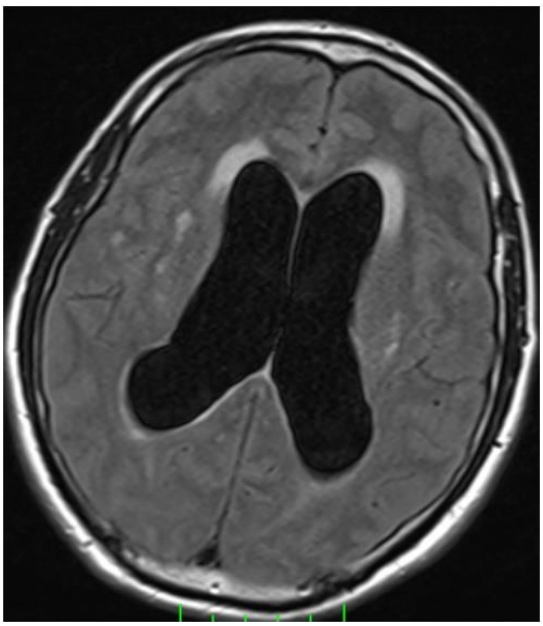

Fig. 1. Preoperative cranial CT image.

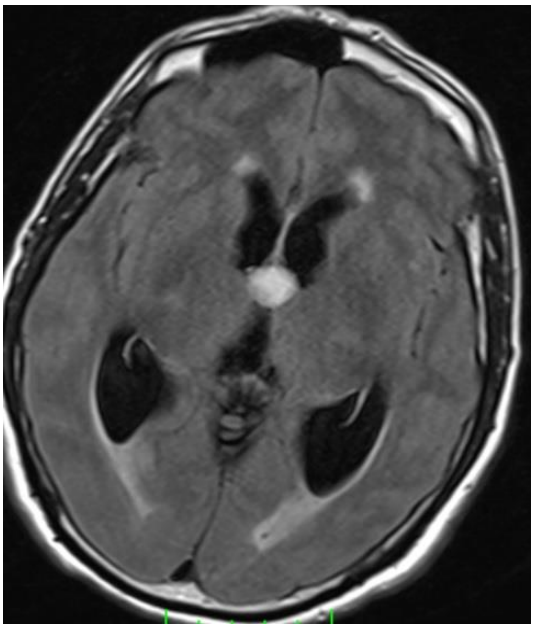

Fig. 2. Preoperative cranial MRI image (IV.Ventrucule normale).

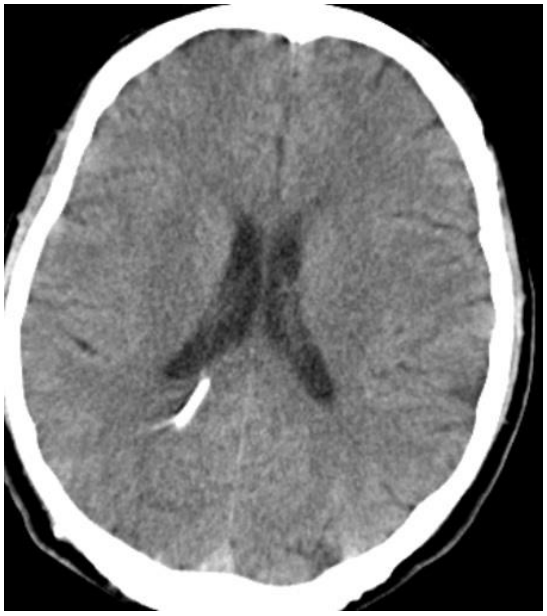

Fig. 3. Early postoperative CT image.

rejected the surgery. Later the patient was operated in the external center and reported as a pathologic colloid cyst.

Discussion

Third ventricle cysts are rare lesions of benign character and are usually small sized; however they may lead to high mortality and morbidity due to their critical location (4,6,7). CC are mostly presented between the 3rd and 5th decades with no difference between genders (8). The most common presenting symptom is frontal headache which is short and intermittent and accompanied by nausea (9). The clinical presentation of CC may be limited to headache or may be asymptomatic, or may be accompanied by a number of conditions including confusion, coma, seizure, ataxia and blurring of vision (10).

CC, due to their variable content and density, exhibit different imaging characteristics. On CT, 2/3 of CC may be hyperdense compared to normal brain parenchyma and 1/3 of them may be isodense. On MRI, CC may present different

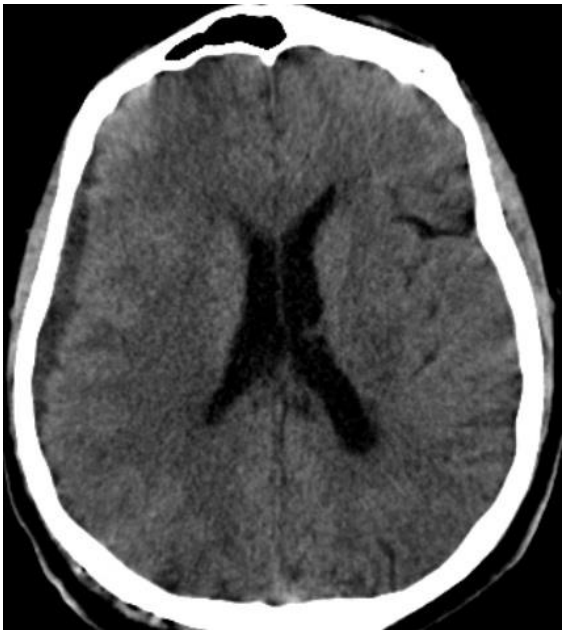

Fig. 4. Postoperative cranial MRI image. Acute subdural effusion is detected in the right temporoparietal region.

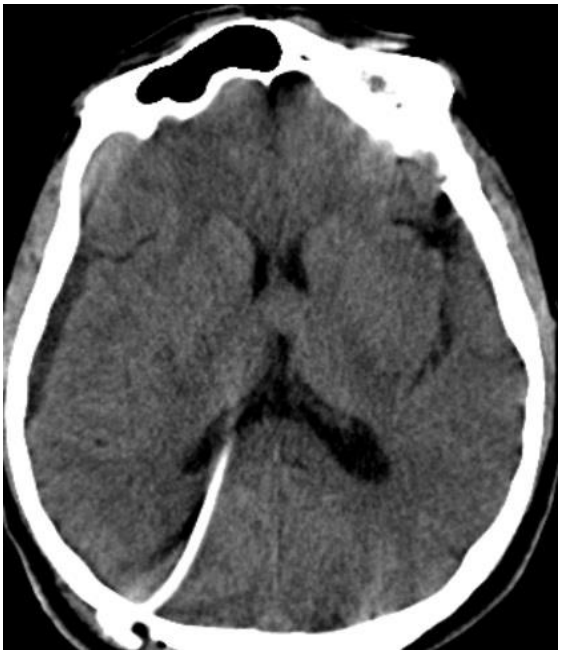

Fig. 5. Postoperative cranial CT image Subdural effusion is removed following the adjustment of the pressure on the VP shunt.

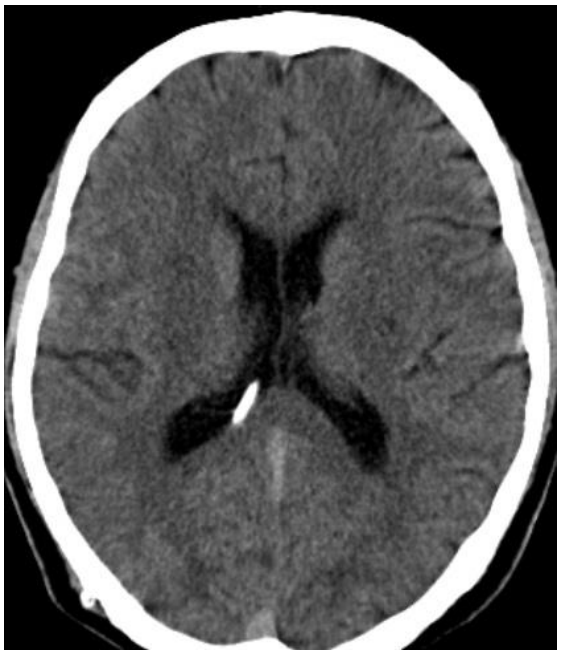

Fig. 6. Cranial MRI image at postoperative after month 7.

features due to the variation in signal characteristics and cystic content and density. On T1-weighted sequences, 2/3 of CC may be hyperintense and 1/3 of them may be isointense, depending on their cholesterol content. On T2-weighted sequences, CC are mostly isointense due to their water content (3,11). On MRI, CC appear hyperintense on T1-weighted sequences and hypointense on T2-weighted sequences due to a high protein and cholesterol content and CC have been shown to exhibit a low-grade response to aspiration due to high viscosity. However, endoscopic-stereotactic approach is not advised (12,13). In our case, the imaging characteristics of

the lesion were consistent with the ones commonly reported in the literature.

A colloid cyst localized in the third ventricle was first defined by Wallman in 1858 during the autopsy of a patient with gait abnormality and incontinence (14).

CC may lead to sudden death due to their critical location and their potential for causing hydrocephalus by impairing the CSF flow. In literature, this outcome has been reported in two cases by Büttner et al. (6) and in one case by Skerbinjek et al. (4). In our case, these complications might have occurred if the patient had not been promptly intervened. Considering that current imaging techniques are widely and frequently used in clinical practice, CC are highly likely to be coincidentally diagnosed before growing and leading to complications such as hydrocephalus.

Differential diagnosis of CC may include choroid plexus lesions, other tumoral lesions, pituitary adenoma, craniopharyngioma, vertebrobasilar ectasia and CSF flow artefact.

The treatment of CC is performed using different methods including ventriculoperitoneal shunt, transcortical-transcallosal approach, stereotactic cyst aspiration, neuroendoscopic surgery and anterior transcallosal microsurgery. In addition, the posterior transcallosal approach was first performed by Dandy in 1921 for a patient with CC. In the patients with no hydrocephalus and a CC of <1.5 cm, follow-up is advised rather than surgery (15).

In conclusion, colloid cysts located in the third ventricle are rare entities and thus differential diagnosis should be considered in patients presenting with headache, nausea and vomiting. It should also be kept in mind that mortality may occur in the patients with hydrocephalus if no surgical intervention is performed. The patients presenting with small-size cysts with no hydrocephalus should be followed up with imaging techniques.

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