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Huge colloid cyst of the third ventricle associated with calcification in the cyst wall

Nurullah Yüceer, Mustafa Başkaya, and Hamit Z. Gökalp

Department of Neurosurgery, Ankara University, School of Medicine, İbn-i Sina Hospital, Ankara, Turkey

Abstract

Giant or huge colloid cysts of the third ventricle up to of more than 3 cm in diameter are extremely rare. The patient presented with symptoms of increased intracranial pressure, including headache, vomiting, and papilledema. Computerized tomographic (CT) scan revealed a hypodense, huge colloid cyst of the third ventricle associated with calcification in the cyst wall. Both hypodensity and calcification are uncommon roentgenological findings for colloid cysts of the third ventricle. The patient was operated on by the transcortical/transventricular approach and the colloid cyst was completely excised.

Keywords: Calcification, colloid cyst, computerized tomography, third ventricle.

1 Introduction

Colloid cysts are typically encountered in the roof of the third ventricle. They usually range from 1 to 3 cm in diameter. Clinically, they can cause hydrocephalus due to obstruction of the foramen of Monro [12]. The typical CT picture of a third ventricular colloid cyst consists of a homogenous, round lesion in the antero-superior part of the third ventricle, generally of increased density.

We report a case of hypodense, huge third ventricular colloid cyst associated with calcification in the cyst wall.

2 Case report

A 25-year-old man was admitted with headache, vomiting, and paroxysmal attacks with short periods of obtundation or loss of consciousness of nine months duration. On admission the patient had papilledema. Axial CT scan revealed a homogeneous, round, hypodense lesion, which was approximately 5 cm in size and located at the level of the foramen of Monro. It was associated with calcification in the wall, which showed slight enhancement following intravenous contrast injection (Figure 1a, b).

The patient underwent a right frontal craniotomy. The right frontal horn was entered through a cortical incision of the middle frontal gyrus. A bluish coloured cyst wall was visible through the enlarged foramen of Monro. The cyst was punctured, and the cyst material was aspirated. Then, total excision of the cyst wall was performed by gently dissecting the wall from the choroid plexus. Histopathological examination revealed a colloid cyst. The patient's postoperative course was uneventful. Six months after the operation, an axial CT scan revealed that the excision was total and that lateral ventricles had returned to normal size (Figure 2). The patient was symptom-free and neurologically normal two years after the operation.

3 Discussion

Colloid cysts of the third ventricle make up 0.3–15% of all brain tumors [1, 3, 7, 8, 10, 14, 16]. They origi-

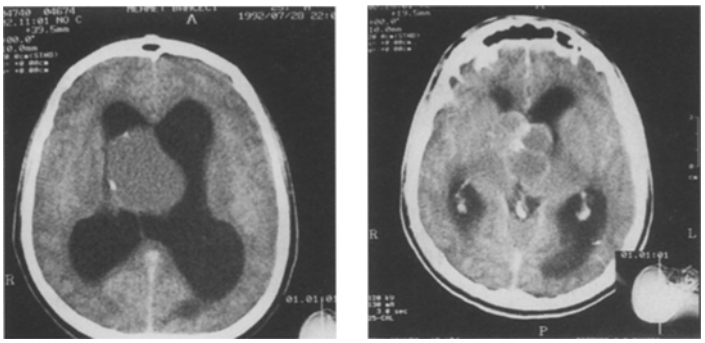

Figure 1. (a) Axial CT scan: A hypodense, homogeneous, smooth, 5 cm in diameter mass with calcification of the cyst wall is demonstrated at the anterosuperior region of the third ventricle in precontrast study. **(b)** Axial CT scan: The mass shows slight enhancement following intravenous contrast injection.

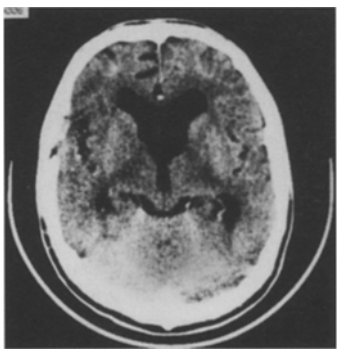

Figure 2. Axial CT scan shows no mass lesion and improved hydrocephalus 6 months after the operation.

nate in the primitive neuroepithelium that forms the roof plate of the telachoroidea. Symptoms are related to acute or intermittent obstruction of the foramen of Monro [19]. KELLY [12] described three types of presentation:
(a) headache and papilledema without neurological signs,
(b) fluctuating or progressive dementia,
(c) classical features such as episodic headaches and drop attacks.

In our case, even though there was a paroxysmal drop attack, the symptoms seemed to be related to increased intracranial pressure.

The diagnosis of the colloid cyst depends on accurate radiological evaluation. Plain X-rays of the skull are not usually helpful, but may show marks of increased intracranial pressure and calcification. CT scan is now the preferred diagnostic technique. Characteristic CT findings include a hyperdense nodular lesion with a smooth outline at the level of the foramen of Monro. Colloid cysts consist generally of increased density (up to 80%), less commonly of isodensity (20–30%), and in rare instances, of low density relative to brain (as in our patient). Slight or no enhancement is observed following intravenous contrast injection [4]. Calcification of the colloid cyst of the third ventricle is exceptional [6, 9, 10, 11, 15, 20]. CT scan differentiates colloid cysts from other third ventricular tumors, such as ependymoma, choroid plexus papilloma, astrocytoma, and craniopharyngioma, as well as from aneurysms of the tip of the basilar artery. Magnetic resonance imaging (MRI) has proven to be superior to CT in the evaluation of cystic lesions of the brain. Usually colloid cysts are hyperintense on T1-weighted images and strongly hypointense on T2-weighted images [4, 21]. CT and MRI demonstrate the exact location, size and extent of the lesion, as well as degree of ventricular enlargement. Angiography provides information about the anatomy of the venous system, which is particularly relevant when a transcallosal approach is adopted.

There are several treatment modalities for colloid cysts of the third ventricle such as transcortical /transventricular, transcallosal/transventricular, transcallosal/interfornicial, transventricular/subchoroidal. CT-assisted stereotaxic aspiration and endoscopic aspiration [1, 2, 5, 12, 13, 17, 18]. In our

case, transcortical/transventricular approach allowed easy identification of landmarks within the ventricle including the thalamostriate, septal and caudate veins, and the choroid plexus.

4 Conclusion

Hypodense appearance on CT scan, a size of 5 cm in diameter, and calcification of the cyst wall make our case unique. We suggest that microsurgical excision via transcortical/transventricular approach may be the treatment of choice for the colloid cyst of the third ventricle which is up to 3 cm in diameter.

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Prof. Dr. Hamit Z. Gökalp
Ankara Universitesi Tıp Fakültesi
Ibn-i Sina Hastanesi
Nörosirürji Anabilim Dalı
06100 Sıhhiye
Ankara
Turkey