

# Third ventricular colloid cyst and organic hypomania

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**A colloid cyst is a cyst containing gelatinous material in the brain. Some colloid cysts result in acute onset of hydrocephalus and may lead to sudden death, and colloid cysts of the third ventricle frequently cause psychiatric disturbances leading to erroneous diagnosis of schizophrenia and neurosis. Here, Drs Javed and Dutta describe a case of third ventricle colloid cyst presenting with a seemingly functional psychiatric illness, which was treated neurosurgically and showed complete resolution of symptoms.**



Colloid cysts (also called neuroepithelial cysts) are relatively rare intracranial lesions located in the rostral aspect of the third ventricle. They comprise approximately 0.5–1% of primary brain tumours. They occur with equal frequency in men and women. Most reported cases occur in the third to fifth decades of life.<sup>1</sup>

Although colloid cysts are histologically benign, they may obstruct the foramina of Monro, causing obstructive hydrocephalus involving only the lateral ventricles. These lesions are a recognised cause of sudden death.<sup>2</sup> Overall mortality has been described as between 58% and 77%.<sup>3</sup> While the pathogenesis remains unclear, there are four tissues from which third ventricle colloid cysts may originate. These are the choroidal epithelium, ependymal cells, paraphysis and endoderm.<sup>4</sup> Genetic inheritance has been suggested in familial cases.<sup>5</sup>

Colloid cysts can present with or without hydrocephalus. Headache occurs in 68–100% of patients and is often the presenting symptom.<sup>6</sup> Other symptoms can include nausea, vomiting, seizures, vertigo, visual disturbances, drop attacks,

gait disorder, insomnia, memory loss and mental status changes. This usually occurs when the cyst is 1–2cm in size.<sup>4</sup> Colloid cysts frequently cause psychiatric manifestations including psychosis,<sup>7</sup> depression,<sup>8</sup> anxiety episodes, Korsakoff type presentations,<sup>9</sup> and dementia.<sup>10</sup> In a large proportion of these cases there was no hydrocephalus present. Surgical excision resolved the psychiatric manifestations. Discovery is often coincidental as many of these tumours are asymptomatic. MRI is the optimal diagnostic investigation.<sup>5</sup>

We report a case of a man with a hypomanic presentation to clinic following a psychotic episode associated with a third ventricular colloid cyst which remitted after surgical intervention.

## Case report

A 57-year-old man was brought by the police to the accident and emergency department, with paranoid delusional beliefs that he was being followed and ‘set up’. He described persecutory delusions that people wanted to attack him. On mental state examination he was dishevelled, distracted, agitated and whispering to himself. He was noted to have stood near to the door of the assessment room in a fearful state throughout the consultation. He was perplexed

and there was evidence of thought disorder. He had a history of a resolved depressive episode 15 years earlier and a previous history of alcohol dependence syndrome. There was no family history of psychiatric or medical conditions. He was not on any psychotropic medication.

As a result of his refusal to be admitted to hospital, he was detained under the Mental Health Act 1983. Neurological examinations revealed intact cranial nerves, and normal muscle power and tone. Sensation could not be tested well due to lack of cooperation. His gait and coordination were normal. The remaining physical examination was unremarkable. While there was a cognitive decline observed on initial clinical assessment, the patient would not engage in any formal cognitive assessment due to his presentation.

His blood investigations revealed normal kidney, liver and thyroid function, B<sub>12</sub> and folate. There was nothing to suggest alcohol misuse. Urine drug screen was negative. Due to his presentation, CT brain was performed. This revealed a 1cm colloidal cyst of the anterior third ventricle without hydrocephalus. He was discharged from hospital following limited improvement with oral olanzapine. When reviewed following

discharge, he remained paranoid that people had been trying to abuse and harass him. He had remained concordant with his medication.

Some weeks later he presented to clinic with what appeared to be a several-week history of a hypomanic state. He was gregarious, grandiose, over-familiar, over-energetic, and had pressured speech with evidence of flight of ideas. His sleep was reduced. He was referred for neurosurgical opinion on the risks of sudden death associated with colloid cyst, but he initially refused surgical treatment. However, he later agreed when the risks of sudden death were explained. A transcallosal approach was performed, and the colloid cyst was treated by

decompression and marsupialisation electively. The patient's post-operative recovery was uneventful. His oral olanzapine was discontinued. Follow up four months later revealed no further psychotic or affective symptoms. He reported feeling more settled after the surgery without any medication. Eventually, he was discharged from the mental health services.

### Discussion

To the best of our knowledge this is the first reported case of a third ventricle colloid cyst in a patient who presented with organic hypomanic disorder following a psychotic episode that remitted after the surgery.

Colloid cysts are rare intracranial lesions with an incidence of

1% per million person-years in epidemiological studies, and about 1 per 8500 persons in *post-mortem* series. This suggests that only a small percentage become symptomatic. As the colloid filling of the sphere increases, so does the size of the cyst. The origin of these cysts continues to be uncertain. Diencephalic ependymoma, invagination of neuroepithelium of the ventricle, or the respiratory epithelium of endodermal origin are hypothesised aetiological possibilities. These cysts may quietly sit in the brain during childhood, not making their presence known until the adult years (aged 20–50 years) when they finally reach a large enough size to cause symptoms.<sup>11–16</sup> The smooth-walled, spherical cysts vary in size from

Case study	Patient age	Sex	Preoperative clinical features	CT scan result	Postoperative outcome
Upadhyaya AK, <i>et al</i> (1988) <sup>7</sup> – a case report	42 years	Female	Erotomanic and persecutory delusions, delusions of reference, ideas of guilt with depressive symptoms	Colloid cyst at the anterior end of third ventricle with dilation of lateral ventricles	Brief recurrence of persecutory delusions 6 weeks after surgery resolved with chlorpromazine (400mg/day)
Jones AM (1993) <sup>8</sup> – a case report	42 years	Female	Sudden onset of atypical restlessness, poor concentration, insomnia, tearfulness, anger outburst, bizarre gait and poor self-care	Colloid cyst of third ventricle with slight dilatation of anterior horn of lateral ventricle	Symptoms resolved on removal of cyst. No recurrence of symptoms
Lobosky JM, <i>et al</i> (1984) <sup>9</sup> – case series	64 years	Female	3-year history of progressive gait difficulty, urinary incontinence with progressive dementia	Hydrocephalus with third ventricle mass	Improved mental state with improved cognitive abilities. No recurrence of symptoms
	33 years	Male	8-year history of intermittent 'anxiety attacks' with occasional headaches	2.0cm mass at anterior third ventricle without hydrocephalus	Follow up 10 months after surgery demonstrated no further 'anxiety episodes or memory difficulty'
	28 years	Female	2-year history of progressive paranoid ideations, depression, social withdrawal and impaired memory	Third ventricle cyst without hydrocephalus	Symptom free for 12 months but she later returned with paranoid ideations and hallucinations

**Table 1.** Summary of case studies and outcomes after surgery

3–40mm in diameter but may be larger. Cyst size does not appear to be a reliable predictor of outcome, as even small ones may result in sudden death.<sup>17</sup>

This patient's symptoms were characterised by the development of elevated mood, disturbed sleep, pressure of speech, flight of ideas and grandiosity. The finding of a colloid cyst was an incidental one. The patient was physically asymptomatic and no evidence of alcohol or drug misuse was found. This case adds to the current published case reports since hypomanic symptoms have not been reported in association with third ventricle colloid cyst. There have been previous case reports of affective and psychotic symptoms in the literature. Recurrent mania has been reported in association with third ventricle colloid cyst which remitted after the surgery.<sup>18</sup>

Three case studies reported psychiatric manifestations associated with colloid cyst with varied outcome (see Table 1).

In summary, the pathology behind psychiatric symptoms in cases of third ventricular colloid cyst remains unclear. Hypomanic or manic symptoms may be an initial presentation resulting in psychiatric consultation. A high index of suspicion for the diagnosis is important. If there is confirmation on MRI brain, it is important that the patient is promptly referred for neurosurgical opinion. Additionally, the

presence or absence of hydrocephalus should not be the deciding factor in removal.

### Conclusion

Colloid cysts are rare lesions arising in the superior third ventricle. The origin of colloid cysts continues to be a matter of debate; however, this case adds to the current published case reports since hypomanic symptoms have not been reported in association with third ventricle colloid cyst.

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### Declaration of interests

There are no conflicts of interest declared.

### Informed consent

Received.

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