Cureus
Part of SPRINGER NATURE

Open Access Case Report

Small Cyst, Cautious Approach: Risk-Stratified Conservative Management of a Third Ventricle Colloid Cyst

Review began 10/05/2026
Review ended 10/24/2026
Published 11/01/2026

© **Copyright** 2026
Ahmed et al. This is an open access article distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

DOI: 10.7759/cureus.118933

Hosham Ahmed [1], Jasveen Singh [2], Mohammed Elamin [3]

1. Medicine, University Hospital of Wales, Cardiff, GBR 2. Geriatrics, Ysbyty Ystrad Fawr, Ystrad Mynach, GBR 3. General Surgery, Royal Glamorgan Hospital, Cardiff, GBR

Corresponding author: Hosham Ahmed, hosham.a95@gmail.com

Abstract

A colloid cyst is a rare, congenital, typically slow-growing brain tumour that is predominantly located within the third ventricle next to the foramen of Monro. It is imperative to recognise that these cysts in the third ventricle, albeit small on presentation, may grow in size and, due to their close proximity to the foramen of Monro, can block the flow of cerebrospinal fluid between the lateral and third ventricles, leading to acute obstructive hydrocephalus and its potential life-threatening sequelae.

We report a case of a 30-year-old woman who presented with several weeks' history of headache and blurring of vision (after having finished treatment with antibiotics for sinusitis). Imaging identified a small (5.6 × 5.6 mm) third ventricle colloid cyst without hydrocephalus. Despite its size, application of the Colloid Cyst Risk Score identified her as moderate-risk, warranting urgent MRI and ophthalmology assessment. She was ultimately managed conservatively with structured interval imaging rather than surgical intervention. This case highlights that cyst diameter alone is an unreliable indicator of risk and that risk-stratified conservative management can be an appropriate pathway once hydrocephalus has been excluded.

Categories: Neurology, Radiology, Neurosurgery
Keywords: acute hydrocephalus, colloid cysts, mri brain scan, persistent headache, third ventricle cyst

Introduction

Colloid cysts are an uncommon cause of obstruction within the ventricular system [1]. Cerebrospinal fluid (CSF) is produced by the choroid plexus lining the ventricles of the brain [2]. CSF flows from the lateral ventricles into the third ventricle via the foramen of Monro [2]. From the third ventricle, CSF passes into the fourth ventricle via the aqueduct of Sylvius. CSF then exits the fourth ventricle via the foramina of Magendie and Luschka into the subarachnoid space around the brain and spinal cord, where it is eventually reabsorbed into the dural venous sinuses via the arachnoid granulations [2].

A colloid cyst comprises one fluid-filled cavity, the contents of which consist of gelatinous material made up of mucin, blood, cholesterol and ions, surrounded by an epithelial layer [3]. Colloid cysts involving the third ventricle make up around 0.5-2% of all intracranial tumours [3,4]. An overwhelming majority of colloid cysts occur in the third ventricle adjacent to the foramen of Monro, and due to its position, it can impede CSF flow, causing obstructive hydrocephalus [3]. The peak incidence of colloid cysts is between 30 and 50 years of age; however, cases have been reported in as early as infancy [3,4]. It is reportedly more prevalent in men than women [4]. The chief complaint is typically a transient frontal headache, which can be severe but is often detected incidentally [3,4]. Interestingly, it has been reported that the headache associated with colloid cysts may improve when lying down, which is contrary to the headache one experiences when associated with raised intracranial pressure, which tends to worsen with prolonged supine position [4]. Apart from headache, it is essential to look out for symptoms of raised intracranial pressure, such as blurring of vision, nausea, vomiting and reduced conscious levels [3]. When hydrocephalus progresses insidiously, other symptoms such as urinary incontinence, gait abnormalities, falls and memory deficits may occur [3]. Typical features, as mentioned earlier, include intermittent frontal headache, while atypical presentations include gait disturbance, falls and memory impairment; however, many patients are asymptomatic [3]. The most serious risk is sudden obstruction of the foramen of Monro, causing acute hydrocephalus and rapid neurological deterioration, which can occur with little warning [3].

It can mimic other conditions such as idiopathic intracranial hypertension, especially in young women [5]. Both these conditions present with headache and visual disturbance, and neuroimaging is key to distinguishing between them.

Physical examination signs include those of acute and chronic hydrocephalus such as impaired conscious level, brisk reflexes, upward gaze palsies, ataxia, papilloedema and frontal release signs [3]. A thorough neurological examination is thus required to identify neurological deficits [3].

Brain imaging such as computed tomography (CT) and magnetic resonance imaging (MRI) remain the mainstay for visualising and subsequently diagnosing a patient with a third ventricle colloid cyst [3]. It is identified as a hyperdense lesion at or near the foramen of Monro on CT and has variable characteristics on MRI. Imaging assessment should record the size of the cyst and its position relative to the foramen of Monro and should look for ventriculomegaly or periventricular changes that suggest raised intracranial pressure, including intermittent obstruction [3,6].

Neurosurgical referral is the next step after the visualisation of a third ventricle colloid cyst on brain imaging with concomitant ophthalmology assessment. Ophthalmology assessment is important because papilloedema and visual field loss are objective evidence of raised intracranial pressure and may be present when other signs are subtle. It should be urgent, and immediate if raised pressure is suspected [3].

Colloid Cyst Risk Score (CCRS) is an assessment tool used to determine the level of risk of developing hydrocephalus [7]. The CCRS combines age, presence of headache, cyst diameter, fluid-attenuated inversion recovery (FLAIR) hyperintensity (on MRI) and anatomical location. One point is given for each positive component. For age, the patient must be under 65 years to be awarded a point. Anatomic risk zone is the principle used to determine whether the location of a colloid cyst carries any extra significance. Zones can be 1, 2 or 3. Cysts in zone I (anterior to mammillary bodies and massa intermedia) or zone III (posterior near the cerebral aqueduct inlet) are awarded a point. A point is given to a cyst size of 7 mm or more.

A total score between 0 and 2 indicates a low risk, a score of 3 indicates an indeterminate (moderate) risk and a score of 4 or more is high risk. Prognosis is good following complete surgical resection of the colloid cysts as these cysts rarely recur [3].

Case Presentation

In this case, we discuss a previously fit and independent 30-year-old woman with a background history of anxiety, bereavement, psoriasis and past laparoscopic appendicectomy, who presented to the medical assessment unit of a District General Hospital in Wales with the chief complaint of persistent headaches for the past three to four weeks. The patient initially presented to the GP with frontal headaches and a recent history of upper respiratory tract symptoms. The patient was initially treated for sinusitis and given a course of antibiotics and steroid nasal sprays. The symptoms did not resolve, and the patient was thereafter referred to the medical assessment unit for further assessment and investigation.

On further history-taking, the patient reported frontal headaches for the past three to four weeks, described as constant pressure with a pain score of 7-8/10 that did not vary with position. The patient felt a little unsteady on their feet but had no problems with ambulation. The patient also reported general blurring of vision and difficulty bringing objects into focus. The patient did not report any photophobia symptoms, vomiting, weakness or numbness.

Clinically, on presentation to the medical assessment unit, the patient was normotensive, mildly tachycardic with a pulse rate of 100-105 beats per minute, afebrile, not tachypnoeic and saturating >95% on room air. Cardiorespiratory examination was unremarkable. There was no ophthalmoplegia, diplopia or nystagmus on eye examination. Both pupils were equal and reactive to light. Visual fields were grossly intact. Bilateral upper and lower limb tone and power were normal. The patient did, however, appear to have brisk reflexes in both upper and lower limbs. Coordination was normal. Cerebellar signs including past pointing, intention tremor and dysdiadochokinesia were negative. Sensation was intact. Ankle clonus was negative. Babinski reflexes were inconclusive bilaterally (i.e., neither plantar flexion or dorsiflexion was clearly observed). Gait was normal. Romberg and pronator drift were negative.

Her blood tests were essentially unremarkable on both occasions with no cause for concern (Table *1*).

Blood counts and biochemistry	Day 1 (initial presentation)	Day 3 (MRI assessment)	Normal range
White blood cell count	11.5x 10^9/L	10.7 x 10^9/L	4-11 x 10^9/L
Haemoglobin	144 g/L	143 g/L	130-180 g/L
Platelets	265 x 10^9/L	244 x 10^9/L	150-400 x 10^9/L
C-reactive protein	<10 mg/L	<10 mg/L	<5 mg/L
Urea	4.4 mmol/L	4.0 mmol/L	2.5-7.8 mmol/L
Sodium	140 mmol/L	139 mmol/L	133-146 mmol/L
Potassium	3.9 mmol/L	3.9 mmol/L	3.5-5 mmol/L
Creatinine	83 mmol/L	69 mmol/L	58-110 mmol/L
eGFR	87 mL/min/1.73m^2	70 mL/min/1.73m^2	>60 mL/min/1.73m^2

TABLE 1: Blood investigation results of the patient during initial presentation to hospital and during follow-up for MRI assessment.

eGFR, estimated glomerular filtration rate

A non-contrast head CT (Figure *1*) was performed, which showed the presence of a 5.6 x 5.6 mm colloid cyst in the third ventricle in the absence of hydrocephalus or intracranial haemorrhage. The Neurosurgery team was consulted, who advised that the patient should undergo an urgent outpatient MRI of the head and an urgent ophthalmology assessment as part of further investigation.



FIGURE 1: Axial CT of the head highlighting a colloid cyst.

The yellow arrow points towards a 5.6 × 5.6 mm cyst at the level of the foramen of Monro.

The patient was subsequently referred to a tertiary hospital for an urgent MRI of the head (Figure *2*) and ophthalmology assessment. Ophthalmology assessment did not reveal any signs of raised intracranial pressure such as papillodema. Formal visual acuity and visual field assessments, as well as colour vision testing, were normal.

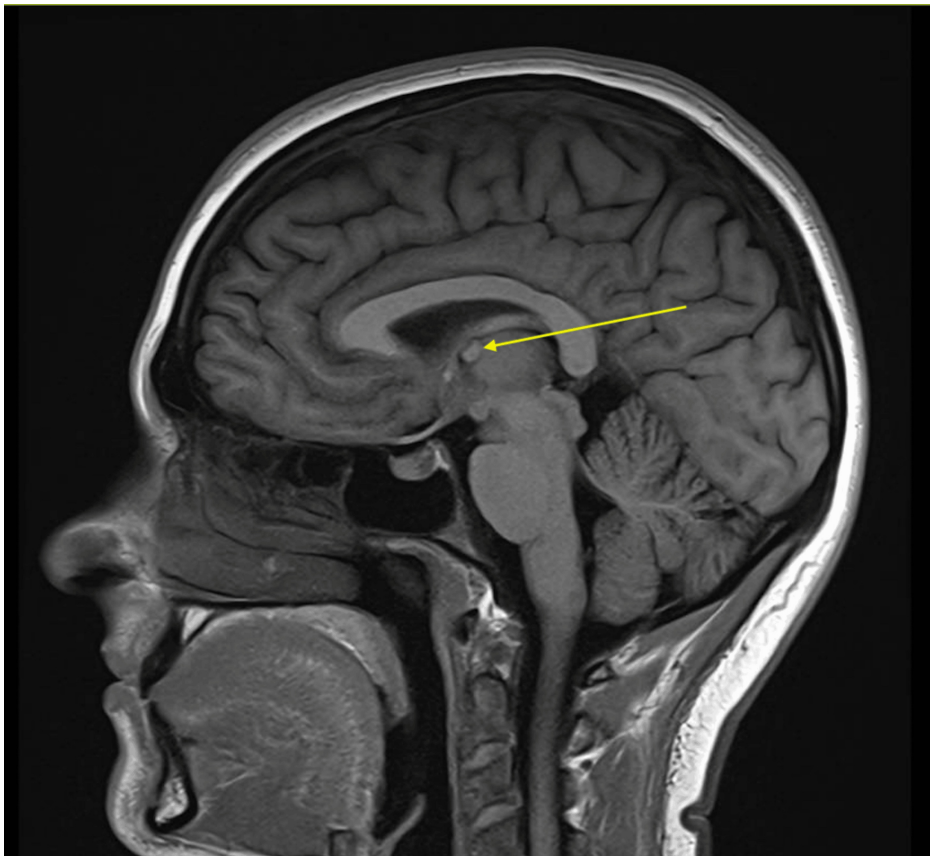


FIGURE 2: T1-weighted sagittal MRI of the head demonstrating a hyperintense, well-defined colloid cyst.

The yellow arrow points towards a 5.5-mm non-enhancing structure.

The MRI of the head performed showed a hyperintense non-enhancing structure, likely a colloid cyst, measuring 5.5 mm within the third ventricle without evidence of hydrocephalus (Figure *3*). After review of the MRI of the head and ophthalmology input, the Neurosurgery team advised, despite her CCRS of 3, a conservative approach with outpatient follow-up and a 12-month MRI of the head for imaging surveillance to assess for any interval change in the size of the colloid cyst. Specifically, our patient scored 1 point for her age, 1 point for headache and 1 point for anatomical location on MRI. The neurosurgical team awarded 0 points for FLAIR hyperintensity and cyst diameter.

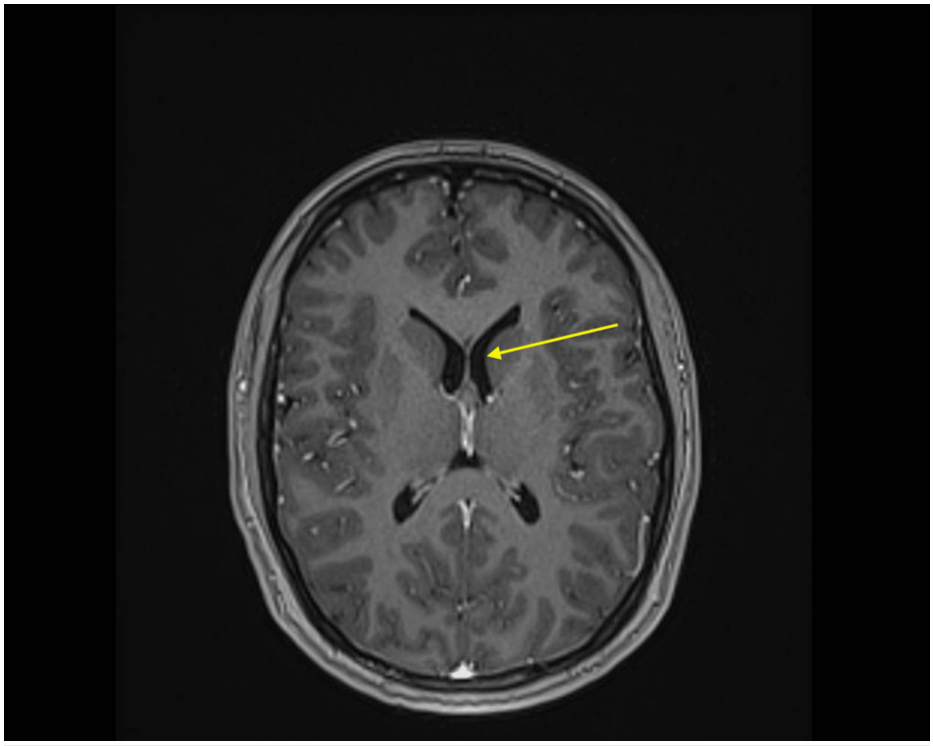


FIGURE 3: Axial T1-weighted post-contrast MRI of the head showing normal-sized lateral ventricles, with no evidence of hydrocephalus.

The yellow arrow points towards the lateral ventricle.

A follow-up telephone consultation with the patient was held, which fortunately revealed that her headache, albeit still present, had improved and importantly not interfering with her daily activities of living.

Discussion

Colloid cysts of the third ventricle are rare, typically presenting in the third to fifth decades of life with headache as the cardinal symptom [1,3]. Our patient's age and presentation are consistent with this pattern, though her visual disturbance also raises idiopathic intracranial hypertension as a differential, a mimicker specifically described in young women with colloid cysts [5].

A key teaching point is the initial assumption that her headache is due to sinusitis. This is a recurring and important pitfall in the literature: colloid cysts have repeatedly been misdiagnosed as sinusitis or migraine, occasionally with fatal outcomes when acute hydrocephalus goes unrecognised [8]. Persistent headache unresponsive to standard treatment, particularly in a young adult, therefore warrants a low threshold for neuroimaging.

Notably, at 5.6 × 5.6 mm, this cyst fell below the size generally considered a risk factor for progression: the CCRS itself only awards a point for an axial diameter of 7 mm or more, and most reported symptomatic cysts are considerably larger [7]. Her CCRS of 3 was therefore driven by the non-size criteria - her age (<65 years), the presence of headache and anatomical location - rather than by cyst diameter [7]. Location is as important as size here, where even a small cyst has the potential to obstruct CSF outflow. This is an important distinction: it demonstrates that a cyst can be "small" by conventional radiological standards and still prompt urgent specialist referral, underlining that diameter alone should not be used to reassure against risk and that composite scoring captures risk factors that size-based assessment alone would miss.

Wetzel and Boswell reported a case of a 24-year-old woman presenting with several months of headache, nausea, photophobia and visual obscuration, initially assessed by an optometrist, who found bilateral papilledema and suspected idiopathic intracranial hypertension [5]. CT subsequently revealed a 1.3 × 1.4 × 1.8 cm colloid cyst causing obstructive hydrocephalus, and she was admitted to neuro-intensive care for emergency endoscopic resection.

Our patient shares the key demographic and symptomatic profile - a young woman with headache and visual disturbance, initially misattributed to a benign cause - but the two cases diverge sharply on severity. Wetzel

and Boswell's patient had a cyst nearly 20 times larger by volume, established obstructive hydrocephalus and papilledema on examination, necessitating immediate surgery. Our patient showed no evidence of hydrocephalus or papilledema, and with a CCRS of 3, was managed conservatively with urgent MRI, ophthalmology review and planned interval imaging rather than undergoing surgery.

This contrast illustrates that a moderate CCRS does not automatically mandate surgery. It supports closer surveillance and specialist input, not a fixed treatment pathway. Reported cohorts have shown that even some cysts meeting CCRS high-risk criteria can remain stable or asymptomatic on longitudinal follow-up, supporting conservative management with structured re-imaging in appropriately selected, non-hydrocephalic patients [7].

This is reflected in current practice, where management is ultimately guided by symptomatology and the presence or absence of hydrocephalus. Once hydrocephalus is established, as in the comparator case, urgent surgical decompression is unequivocally indicated, with both endoscopic and microsurgical resection being established approaches. When hydrocephalus is not developed, as in our case, a period of close radiological and clinical follow-up is a reasonable and evidence-supported alternative to immediate resection, reserving surgery for cysts that enlarge, become symptomatic or develop hydrocephalus on subsequent imaging [3,7].

It is worth explicitly questioning whether this cyst was in fact responsible for her headache, rather than assuming causation simply because it was found on imaging performed for that symptom. Colloid cysts are frequently incidental findings, most commonly detected on imaging obtained for unrelated or non-specific complaints rather than as a proven cause of the presenting symptom [3]. Our patient's clinical course arguably supports, rather than excludes, this possibility. Her headache had already been present for several weeks and initially investigated and treated as sinusitis before cross-sectional imaging was obtained, and thus the temporal relationship between symptom onset and the imaging finding does not itself establish a causal link. Furthermore, she had no hydrocephalus, no papilledema and no other examination findings typical of CSF outflow obstruction - the mechanism by which colloid cysts are classically thought to cause headache.

Conversely, causation cannot be excluded: colloid cysts are understood to be capable of producing intermittent, subclinical obstruction at the foramen of Monro without necessarily progressing to overt ventriculomegaly [3]. This diagnostic uncertainty is, in practice, difficult to resolve at a single time point and is itself an argument for the conservative approach taken here: rather than assuming causation and proceeding to intervention, clinical and radiological correlation over time allows the two possibilities to be distinguished. Resolution of her headache independent of any change in the cyst would support an incidental finding, whereas persistence of symptoms alongside cyst enlargement or evolving imaging features on follow-up would support a genuine causal relationship warranting reconsideration of surgical management.

This case reinforces that colloid cysts, though rare, warrant a low threshold for imaging in young adults with atypical or treatment-resistant headache, that a small cyst can still carry a clinically significant risk score through non-size criteria and that conservative management with structured follow-up - rather than reflexive surgical intervention - is an appropriate pathway once hydrocephalus and high-risk imaging features have been excluded.

Conclusions

Third ventricle colloid cysts are rare, but they can present with symptoms that closely resemble far more common conditions. Our patient, a 30-year-old woman with several weeks of frontal headache and blurred vision, was initially treated for sinusitis. Her presentation also overlapped with idiopathic intracranial hypertension, a recognised mimic in young women.

This case also illustrates the limits of using cyst size alone to judge risk. At 5.6 × 5.6 mm, the cyst was well below the diameter generally associated with progression, yet the patient still reached a CCRS of 3 through the non-size criteria. A composite score therefore captures risk that diameter-based reassurance would miss, although a moderate score marks the need for closer surveillance rather than mandating surgery.

It should also be acknowledged that a causal relationship between the colloid cyst and the patient’s headache has not been established in this case; the cyst may represent an incidental finding rather than the definitive cause of her symptoms. Longitudinal follow-up, assessing symptom evolution against cyst behaviour on serial imaging, will help distinguish between these possibilities.

More broadly, for colloid cysts meeting CCRS high-risk criteria in the absence of hydrocephalus, the existing literature supports a minimum period of structured radiological surveillance, with surgery reserved for cysts that enlarge, become symptomatic or develop hydrocephalus on follow-up imaging. Typically, this conservative management involves repeat neuroimaging every 6 to 12 months, with total surveillance lasting up to 5 to 10 years or longer depending on each individual case.

Whether this conservative strategy proves appropriate in our patient's specific case remains to be confirmed by her ongoing clinical and radiological follow-up, and this case should be read as hypothesis-generating rather than as evidence that conservative management is safe in all similarly scored, non-hydrocephalic patients. Larger series with longer follow-up are needed to define which patients can be observed safely and for how long.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Hosham Ahmed, Jasveen Singh, Mohammed Elamin

Acquisition, analysis, or interpretation of data: Hosham Ahmed, Jasveen Singh

Drafting of the manuscript: Hosham Ahmed, Jasveen Singh, Mohammed Elamin

Critical review of the manuscript for important intellectual content: Hosham Ahmed, Mohammed Elamin

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

References

1. Bk P, Shrivastava A, Goel G, Panwar H, Kapoor N: A rare, yet classic case of colloid cyst of third ventricle . Cureus. 2021, 13:e16406. 10.7759/cureus.16406
2. Khasawneh AH, Garling RJ, Harris CA: Cerebrospinal fluid circulation: what do we know and how do we know it?. Brain Circ. 2018, 4:14-8. 10.4103/bc.bc_3_18
3. Tenny S, Thorell W: Colloid brain cyst. StatPearls [Internet]. StatPearls Publishing, Treasure Island, FL; 2026.
4. Spears RC: Colloid cyst headache. Curr Pain Headache Rep. 2004, 8:297-300. 10.1007/s11916-004-0011-2
5. Wetzel DJ, Boswell K: A colloid cyst masquerading as idiopathic intracranial hypertension in a young woman: a diagnostic pitfall. Cureus. 2025, 17:e95584. 10.7759/cureus.95584
6. Kopal A, Preis J, Ungermann L, Ehler E, Štětkářová I: Colloid cyst of the third ventricle: a case report . Acta Medica (Hradec Kralove). 2024, 67:91-5. 10.14712/18059694.2025.4
7. Alford EN, Rotman LE, Shank CD, Agee BS, Markert JM: Independent validation of the colloid cyst risk score to predict symptoms and hydrocephalus in patients with colloid cysts of the third ventricle. World Neurosurg. 2020, 134:e747-53. 10.1016/j.wneu.2019.10.188
8. Shaktawat SS, Salman WD, Twaij Z, Al-Dawoud A: Unexpected death after headache due to a colloid cyst of the third ventricle. World J Surg Oncol. 2006, 4:47. 10.1186/1477-7819-4-47