

Sudden Death Due to a Colloid Cyst: A Postmortem Case

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ABSTRACT

A 17-year-old female patient came to the emergency room (ER) complaining of dizziness, vomiting, and severe headache for 2 months. The patient's family did not bring their underage daughter to the hospital except for 2 times in 2 months. The patient was misdiagnosed with migraine and the ER physician discharge the patient after he prescribed for her pain killers. No computed tomography scan was requested for the patient. After 5 h of leaving the hospital, the patient passed away suddenly.

Key words: Aspiration, colloid cyst, malpractice, neglect, postmortem, third ventricle

INTRODUCTION

Colloid cysts rarely cause death specifically in a young age healthy patient. The colloid cyst will cause mild headaches which can't be recognized sometimes. There are few cases published about patients who died due to having a colloid cyst in the 3rd ventricle. This post-mortem case will highlight the clinical presentations and radiologic findings of this case to avoid losing another patient to a simple treatable condition.

CASE REPORT

A 17-year-old female patient came to the ER complaining of dizziness, vomiting, and severe headache for 2 months. The patient's family did not bring their underage daughter to the hospital except for 2 times in 2 months. The patient was misdiagnosed with migraine and the emergency room (ER) physician discharge the patient after he prescribed for her pain killers. No computed tomography (CT) scan was requested for the patient. After 5 h of leaving the hospital, the patient passed away suddenly. This case is a forensic case of neglect and medical malpractice. A pan CT was done postmortem to

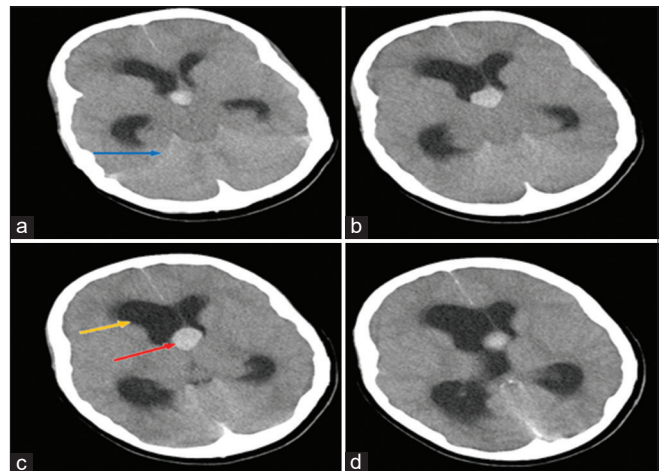


Figure 1: A 17-year-old female corpse with a colloid cyst in the third ventricle. Findings: Axial contrast non-enhanced computed tomography of the brain demonstrates a hyperdense lesion seen based in the third ventricle (red arrow) which most likely to a colloid cyst (measurements 18 × 18 mm) with a subsequent moderate to marked hydrocephalus (orange arrow), interstitial brain edema, and brainstem transtentorial herniation (blue arrow). There is no evidence of any fresh blood density. Technique: Axial CT, 250 mAs, 130 kV, 1 mm slice thickness, brain window

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Table 1: Summary table for colloid cyst

| | |
|---------------------|---|
| Etiology | Ruminants of choroid plexus, ependyma, or primitive neuroectodermal derivatives. |
| Gender ratio | 2 to 3:1 |
| Age predication | Middle age from 30 to 40 years. |
| Risk factor | <ul style="list-style-type: none"> • Asymptomatic colloid cyst <7 mm in diameter. • Anatomical risk zone close to the area from lamina terminals to mammillary body or close to the area from the inlet cerebral aqueduct rostral to the superior part of the tegmentum of the midbrain to the posterior part of the third ventricle. |
| Treatment | <p>Surgical:</p> <ul style="list-style-type: none"> • Transcallosal resection approach. • Endoscopic resection or aspiration. • Stereotactic aspiration. |
| Prognosis | Increase in size gradually with time. |
| Findings on imaging | <p>Round and sharp lesion at foramen of Monro (anterior superior the third ventricle) with average size of few to 4 mm.</p> <p>On CT scan: Hyperdense typically. Iso or hypodense cysts are less common. Unilocular. Calcified are less common.</p> <p>On MRI scan: On T1, 50% appears high signal and the rest appears iso to hypodense to the adjacent brain. On T1 with contrast rarely shows rim enhancement and commonly show the septal veins. On T2 usually shows a low T2/T2* signal, but sometimes colloid cysts show low T2 signal in the center and high T2 signal in the peripheral part. As well, sometimes colloid cysts appear homogenous. FLAIR is similar to T2.</p> |

Table 2: Differential diagnosis for colloid cyst

| Differential diagnosis | Imaging features | | Clinical presentation |
|-------------------------------------|---|--|--|
| | CT | MRI | |
| Calcified meningioma | <p>Non-contrast 60% are homogenous and 20–30% are calcified. With contrast 70% are bright and homogenous.</p> | <p>On T1 90% isointense to gray matter and hypointense 10%. On T1 with contrast homogenous. On T2 isotense to gray matter 50%.</p> | Headache, paresis, and change in mental status. |
| Giant cell astrocytoma | Hypodense to gray matter with calcifications, hemorrhage, and may be hydrocephalus. | <p>On T1 heterogonous and hypointense to gray matter. On T1 with contrast shows marked enhancement. On T2 heterogonous and hyperintense to gray matter with a hypointense calcified components.</p> | Asymptomatic, but when symptoms appear with obstructive hydrocephalus. |
| Pilocytic astrocytoma | Variable | <p>On T1 solid component iso to hypointense to closer brain tissue. Cystic component fluid's signal unless blood. On T1 with contrast the wall enhanced in 50% of the cases. On T2 solid component hyperintense than surrounding brain. Cystic component with high signal.</p> | Bulbar or cerebellar symptoms |
| Bleeding in the foramen of Monro. | Hyperdense material like "cast." | On FLAIR within 48 h, the blood appears hyperintense. | Onset headache or stroke-like symptoms. |
| Masses arise from foramen of Monro. | Vary | Vary | Depend on the clinical presentation and the association with other diseases and age. |

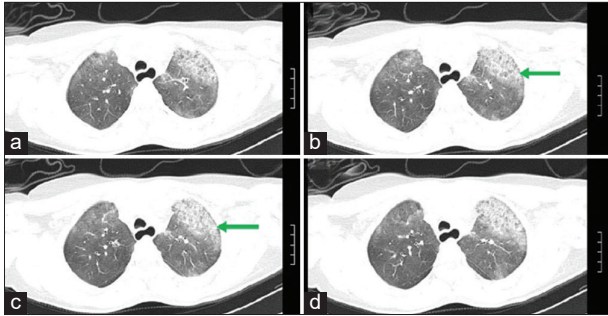


Figure 2: A 17-year-old female corpse with aspiration of stomach contents. Findings: Axial contrast non-enhanced computed tomography of the chest demonstrates a bilateral lung ground-glass opacities (green arrow). There is no sign of plural effusion, pneumothorax, or pneumomediastinum. The tracheobronchial tree is patent. Technique: Axial CT, 250 mAs, 130 kV, 1 mm slice thickness, lung window

determine the cause of the death. The brain CT showed a colloid cyst in the third ventricle which caused hydrocephalus and pressure on the brainstem see [Figure 1]. The brainstem has all the vital centers for the rate of breathing, the rate of heartbeat, and the diameter of blood vessels. The chest CT showed a ground-glass opacities which may cause by aspiration of the stomach content during death see [Figure 2]. The neck, entire spine, and abdomen CT did not show any abnormality.

DISCUSSION

A colloid cyst is commonly a benign brain tumor that arises from the third ventricle close to the foramen of Monro. The colloid cyst detailed etiology and differential diagnosis [Tables 1 and 2]. If a healthy adolescent passed away suddenly,

it will raise too many questions for the family and the physician who was in charge of the case. A colloid cyst rarely causes death, especially in a young age.^[1-4] Colloid cysts are benign tumors, may originated from choroid plexus, ependyma, or ruminant of primitive neuroectodermal derivatives.^[5]

TEACHING POINTS

Colloid cysts rarely cause death, especially in a young age. Its symptoms usually confused with migraine. Even though, any case with similar criteria a CT scan should be requested for the patient to detect any life-threatening condition.

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