

Colloid Cyst of Third Ventricle in Pregnancy: A Rare Cause of Maternal Mortality

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Abstract

Background: Colloid cysts, rare benign growths in the third ventricle, can lead to obstructive hydrocephalus, as exemplified by a fatal case in pregnancy due to cyst enlargement. **Case Report:** Mrs. X, a 30-year-old multiparous woman in her fifth month of pregnancy, was admitted to our hospital unconscious and could not be revived despite CPR efforts. Upon evaluation, her medical history revealed a progressive increase in headache intensity over the preceding three days, followed by vomiting, dizziness, and eventual sudden collapse. Postmortem examination revealed a sizable colloid cyst in the third ventricle, exerting pressure on brain tissue and causing herniation of the cerebellar tonsils. **Conclusion:** This case emphasizes the importance of thorough investigation into the causes of persistent headaches during pregnancy. Failure to diagnose such insidious yet potentially severe conditions can have life-threatening consequences.

Keywords: Colloid cyst, Pregnancy, Headache, Obstructive hydrocephalus, Maternal Mortality.

Introduction

Colloid cysts, benign intra-ventricular tumors with uncertain origins, are believed to arise from embryonic remnants or structural formations within the third ventricle or near the foramen of Monroe [1]. Although first observed in autopsies in 1858, successful surgical excision wasn't achieved until 1921 [2,3]. Typically, asymptomatic until later in life, these cysts can lead to obstructive hydrocephalus when they obstruct the foramen of Monroe [4]. Despite their benign histology, they can precipitate life-threatening emergencies by causing acute intraventricular pressure increases, potentially resulting in cerebral herniation or cardiac arrest.

Pregnancy-induced hemodynamic and hormonal changes can exacerbate the growth and vascularity of pre-existing brain tumors [5]. Diagnosis of colloid cysts during pregnancy can be challenging due to overlapping symptoms

with common pregnancy-related complaints like headache and vomiting. In rare instances, a previously asymptomatic cyst can rapidly enlarge during pregnancy, leading to acute intraventricular pressure rises and fatal outcomes. We present a case of an undiagnosed colloid cyst causing acute obstructive hydrocephalus in a pregnant woman, resulting in maternal mortality.

Case Report

A 30-year-old multigravida at 25 weeks gestation was brought unconscious to the emergency department. Her husband reported persistent headache, dizziness, and repeated vomiting prior to her loss of consciousness. On admission, she exhibited unrecordable vital signs, absent carotid pulses, and dilated, unreactive pupils. Despite 30 minutes of cardiopulmonary resuscitation, she remained unresponsive. A detailed history revealed she had three previous normal vaginal deliveries and one spontaneous abortion, with one antenatal

visit in her current pregnancy and no chronic medical conditions. Over the past three days, she experienced worsening frontal headaches, dizziness, and vomiting, unrelieved by prescribed pain relief. Shortly before losing consciousness, she complained of shortness of breath. Physical examination revealed a gravid uterus at 24 weeks gestation with absent fetal heart sounds.

Given the unexplained cause of death, a postmortem examination was conducted with family consent. The autopsy revealed an oval greenish cystic mass measuring 4×3 cm in the third ventricle, containing clear fluid. Sulci were narrowed, gyri flattened, and there was tonsillar herniation, alongside edematous brain tissue. Vital organs displayed signs of congestion, and the uterus contained a deceased male fetus weighing 1.3 kg and measuring 37 cm. The autopsy concluded that death was due to shock resulting from an intracranial space-occupying lesion.

Discussion

Brain tumors are not uncommon during pregnancy, and certain types, such as meningiomas, prolactinomas, cerebral gliomas, and acoustic neuromas, may enlarge due to hormonal, metabolic, and immunological changes, potentially leading to increased vascularity, cerebral edema, or elevated intracranial pressure. However, maternal mortality from such tumors is rare. For instance, in a study by Barnes and Abbott *et al.*, only one maternal death was reported among 17,517 live births due to co-existing intracranial tumors [6]. Colloid cysts, rare benign epithelial retention cysts of the third ventricle, account for 2% of all intracranial tumors, with an incidence of 3.2 per million per year [4]. While more than half of these cysts are asymptomatic and incidentally discovered, they can cause intermittent symptoms due to obstruction of the foramen of Monroe, leading to hydrocephalus and associated symptoms such as headache, gait disturbance, and memory issues. Rarely, acute obstructive hydrocephalus can lead to sudden loss of consciousness or death [7].

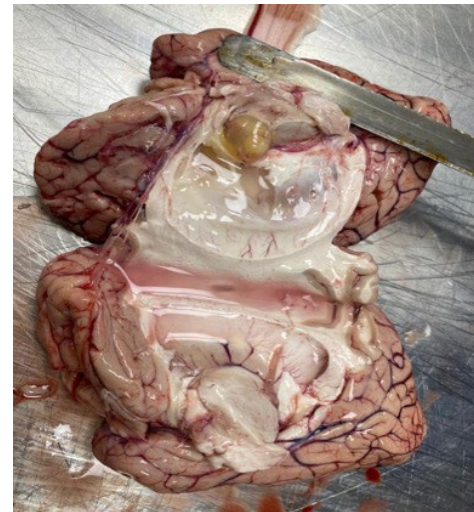


Fig.1,2: Oval 4×3 cm, cystic mass in third ventricle containing clear transparent fluid.

Our patient presented with frontal headaches and vomiting, consistent with previous reports of colloid cyst cases in pregnancy. Timely intervention, such as ventriculoperitoneal shunting, has been shown to be life-saving in similar cases [8]. Additionally, there are instances of colloid cysts mimicking symptoms of other pregnancy-related conditions, such as pre-eclampsia, underscoring the importance of considering intracranial pathology in pregnant women with atypical symptoms [9]. While colloid cysts complicating pregnancy are rare, they can have grave consequences if not promptly diagnosed and managed.

Studies have identified factors associated with symptomatic colloid cysts, including patient age, cyst size, ventricular dilation, and signal strength on MRI [10]. A risk scoring system has been proposed to predict the likelihood of developing obstructive hydrocephalus in patients with colloid cysts, with high-risk patients requiring close monitoring and timely intervention [10]. Physical examination may be unremarkable in asymptomatic patients but may reveal neurological signs in symptomatic cases. Neuroimaging, particularly MRI, is essential for diagnosis, although CT may be preferred in emergencies or during pregnancy due to safety considerations [11].

Conclusion

Headache is a common complaint among pregnant women, but those presenting with associated symptoms such as vomiting, vision changes, or papilledema warrant thorough evaluation to exclude intracranial pathology. While intracranial tumors may initially be asymptomatic, they can rapidly progress during pregnancy. Timely diagnosis and appropriate management are crucial in preventing adverse outcomes. The case emphasizes the importance of considering intracranial pathology in pregnant women with atypical symptoms and underscores the need for vigilant monitoring and prompt intervention to prevent potentially catastrophic consequences.

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