Case Report

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Sudden Death in an Adolescent Due to Anterior Third Ventricular Colloid Cyst

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Abstract

We present a sixteen years old girl who presented with sudden neurological deterioration due to colloid cyst of the third ventricle resulting in death in spite of the neurosurgical intervention. This report details the case and a short review of the clinical behavior, radiology and management of the childhood colloid cysts.

Key words: Colloid cyst; Adolescent; Aggressive behavior; Death.

Introduction

Colloid cysts account for 0.2 to 2.0 percent of all brain tumours. In 1858 Wallmann[21] published the first description of a colloid cyst in an autopsy. Since then there have been various theories regarding the origin of these challenging lesions.[8,9] Colloid cysts are frequently seen in third to fifth decade and their occurrence in the pediatric age group is less common. These pediatric colloid cysts can have aggressive and varied behavior compared to adults.

Case Report

A 16 years old female presented with history of episodic headache and vomiting of one month duration for which no medical attention was sought. She developed sudden deterioration in her neurological status and was brought to the emergency room in altered sensorium, and decerebrate posturing. On examination she was deeply unconscious and her pupils were dilated, unreacting to light with fundus showing grade IV papilloedema. Her CT scan brain done elsewhere showed a hyper dense, contrast enhancing anterior third ventricle lesion causing gross hydrocephalus (Fig 1 a, b, c). She was intubated, ventilated and was shifted to the operation theatre, where a right frontal burr hole and an external ventricular drain was inserted. The CSF was clear and was under high pressure, 32 cms H_20. Postoperatively she was managed with ventilation, and controlled CSF drainage. Inspite of the active neurosurgical intervention she expired four hours later. Autopsy was not possible as the attenders did not give consent for the same.

Discussion

Colloid cysts as benign, true epithelium lined cysts of the central neuraxis. These generally occur in 3rd to 5th decade, but they can present at both extremes of ages. Pediatric colloid cysts were rarely reported.[12,15] The rate of growth of the cyst is uncertain and when these cysts eventually become symptomatic is unclear. Most of the colloid cysts present with headache and vomiting associated with papilloedema suggestive of raised intracranial

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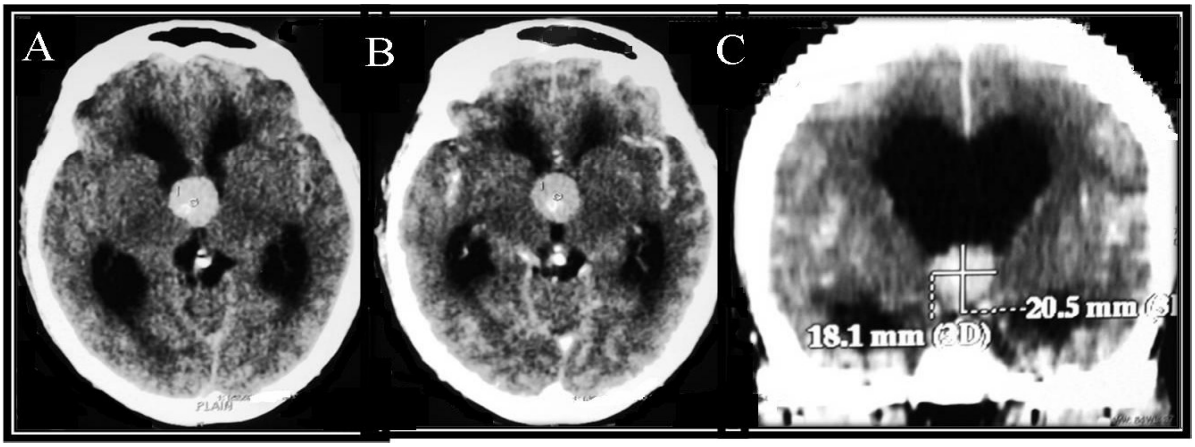
Fig 1a: CT scan brain plain study showing hyperdense lesion in the anterior third ventricle. Gross hydrocephalus is seen, b) post contrast study showing the lesion c) CT reconstruction coronal study showing the size of the lesion and hydrocephalus



pressure.[4,11,12,14,17] The headaches are classically intermittent, episodic, sometimes intense and severe. Kelly et al[11] stated that though the above symptoms were not specific for colloid cyst, as any midline mass may present similarly, these are a strong indication of a colloid cyst and high clinical suspicion is warranted, since these can present with varied clinical presentation. They can be asymptomatic or can have occasional unnoticed headaches and can have rapid deterioration in sensorium, herniation and death. Such incidences where patients had only headache and rapidly deteriorated in symptoms and died were rarely reported in the literature.[2,5,10,13,16,19,20] Opeskein et al[18] reported sudden death in a 13 years old boy with colloid cyst and emphasized the need for CT scan brain before doing a lumbar puncture in a child with headache, vomiting.

The exact mechanism of sudden death in colloid cyst patients was poorly understood. Many theories like sudden block at the foramen of Monro leading to development of acute hydrocephalus[3], hemorrhage into the cyst cavity[6], sudden increase in sagittal sinus pressure provoking acute brain swelling and ultimately a series of events leading to death[7] or due to the reflex effects involving the cardiovascular centers near the third ventricle contributing to the sudden death.[19] The rapid development of clinical manifestations in children may be related to rapid enlargement of cyst due to higher water content within them. Similar findings of hyperdensity of the lesion on CT scan and the aggressive feature was reported by Alnaghmoosh.[1] Though favorable outcome was reported by authors like Farooq et al,[6] Vijender et al[12] and Maqsood et al,[15] our case was a disappointment. Probably early detection and intervention would have saved the child. Craniotomy and transcallosal and transforaminal approach is the gold standard procedure in treating the patients with third ventricular colloid cyst. In patients with gross hydrocephalus, and rapid deterioration in the neurological status where craniotomy takes time, emergency diversion procedure like burr hole and external ventricular drainage (EVD) can arrest the deterioration. This was our intention for taking the patient for doing EVD procedure, in spite of which this fatal incidence occurred.

Conclusion

Children with colloid cyst may complain only of severe intermittent headache. Their rapid clinical deterioration and threat of sudden death makes these condition a special diagnostic problem to treat. High a very clinical suspicion and prompt diagnosis using computed tomography (CT) or magnetic resonance imaging (MRI) is essential in

diagnosis these lesions. This should remain in the differential diagnosis of headaches in children and young adults, since timely diagnosis and treatment of this benign lesion can give gratifying results.

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