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A Newborn with an Arachnoid Cyst has the Syndrome of the Bobble-Head Doll

Dr. Oday Jouni*

Department of Pediatrics, Faculty of Medicine, Tishreen University Hospital, Lattakia, Syria

Abstract

Background: A rare and distinctive movement disease called bobble-head doll syndrome most frequently affects children under the age of five. It is distinguished by periodic or continuous movement at a frequency of 2–3 Hz. Bobble-head doll syndromes' precise mechanism is still unknown. The best treatment is an endoscopic ventriculocisternostomy. Less than 75 cases of bobble-head doll syndrome with suprasellar arachnoid cyst were found in a survey of the literature.

Present a case: We describe a case of a 1.5-year-old Asian-Syrian girl who presented with a 3-month history of excessive head nodding that got worse when she was walking, feeling stressed, or emotional, got better when she was concentrating, and went away while she slept. She had no medical history and was found to be awake and healthy. Both the ophthalmological examination and laboratory analysis were normal. The foramina of Monro were blocked by a well-defined, thin-walled suprasellar arachnoid cyst measuring 3 cm by 5 cm by 7 cm, leading to hydrocephalus and ventriculomegaly. For the suprasellar arachnoid cyst, the patient had endoscopic cystoventriculostomy and cystocisternostomy. The head bobbing stopped totally throughout the six months of follow-up, and her growth was typical.

Conclusion: Bobble-head doll syndrome is uncommon, yet it is nevertheless thought to be a serious ailment that needs to be explored early to identify the cause and treated right away to prevent consequences

Keywords: Bobble-head doll syndrome; Newborn; Growth

Introduction

Bobble-head doll syndrome (BHDS) is a rare and distinctive movement disease that most frequently affects children under the age of five. It is characterised by periodic or continuous head movements that oscillate between yes and no, or occasionally between no and yes, at a frequency of 2-3 Hz. These motions stop with volitional activity and don't happen while you're sleeping. Less than 75 paediatric cases of the BHDS have been documented since Benton originally identified the condition in a kid with hydrocephalus brought on by third ventricle cysts in 1966. According to a 2018 literature review, the third ventricle's dilation is frequently attributed to a lesion in or around it.

Third ventricular or suprasellar arachnoid tumours are the most frequent lesions, followed by aqueductal stenosis. Other causes include third ventricle choroid plexus papillomas, communicating hydrocephalus, cavum pellucidum and interpositum cysts, developmental cerebellar abnormalities, trapped fourth ventricle, and hydrocephalus with communication. Developmental delay, macrocephaly, ataxia, optic disc pallor or atrophy, tremors, hyperreflexia, endocrine problems (obesity, precocious puberty), headache, and vomiting are among the most typical symptoms and signs, in addition to involuntary and repetitive movements. It is yet unclear what precise mechanisms underlie this movement problem. There are two primary competing hypotheses. According to the first theory, BHDS is linked to dorsomedial compression [1-6] brought on by an irregular fluid flow (Figure 1) to the medial side of the thalamic nuclei, which was first proposed by Russo and Klindt in 1974. This idea, however, has a large number of detractors since not all third ventricle enlargement result in BHDS and because the extrapyramidal stiffness symptom is not always present. According to the second theory put forth by Wiese et al. in 1985, a motor automatism has been created to lower the pressure inside the cyst. The best imaging techniques for identifying cerebrospinal fluid (CSF) channels and soft tissue are computed axial tomography (CT) and magnetic resonance imaging (MRI), which can be performed with or without contrast.

Materials and Method

The main complaint of a 1.5-year-old Asian-Syrian child who visited the paediatric clinic was gradual onset of head nodding (side-to-side movement) for three months. Walking, emotions, and stress all cause an increase in movement. Concentration causes a decrease in movement, while sleep results in no movement at all. Other problems like headaches were nonexistent. There was no other noteworthy history. Delivery and pregnancy were both typical. The toddler was

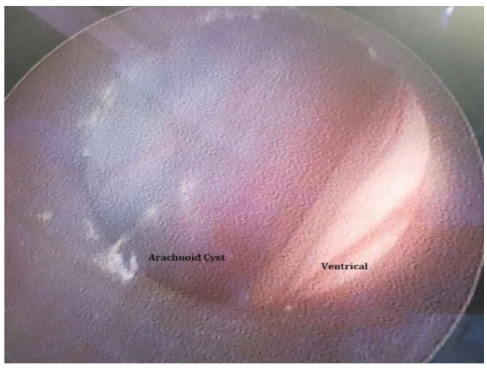

Figure 1: An arachnoid cyst with ventricle was discovered via endoscopic imaging.

***Corresponding author:** Dr. Oday Jouni, Department of Pediatrics, Faculty of Medicine, Tishreen University Hospital, Lattakia, Syria, E-mail: Jouni@gmail.com

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aware and showed appropriate cognitive function during a physical assessment. A neurological evaluation came out clean. She grew normally (weight 8 kg, length 72 cm, head circumference 44.5 cm). Initial laboratory evaluations of the CBC, hepatic, renal, and endocrine functions, as well as other tests, were all normal. A papilledema-free ophthalmological examination revealed normal eye movements. The foramina of Monro were blocked by a massive left-hemispheric cystic process with a midline shift and a well-defined suprasellar arachnoid cyst measuring 3 5 7 cm, leading to [7-9] hydrocephalus ventriculomegaly. The diagnosis of a suprasellar arachnoid cyst with BHDS was made on the basis of the cranial MRI and the patient's symptoms. For the suprasellar arachnoid cyst, the patient had endoscopic cystoventriculostomy and cystocisternostomy. Through a little para coronal burr hole on the right side of the skull, the procedure was carried out. The endoscopic trocar was inserted, and it revealed clear CSF that appeared to be under pressure. Because of the significant intracystic pressure, the cyst moved fast in the direction of our lens. The back pressure of the CSF appeared to have offset this high pressure. The fenestration was completed in a flash. The cyst fluid appeared to be under pressure and was quite transparent. We dismantled a sizable portion of the wall with the bipolar probe.

Discussion and Result

Because many arachnoid cysts may remain asymptomatic throughout life, it is impossible to determine the actual occurrence. However, as the cysts expand or bleed, symptoms may appear. About 1% of all cerebral lesions have been documented, and 9% of these are suprasellar. Although relatively uncommon, the relationship between BHDS and suprasellar arachnoid cysts has been [10] documented in the medical literature. The majority of cases in the literature review had head movements as a symptom; this may be because the cysts were so large or because the diagnoses were made later. Surgery is typically used to treat BHDS because it is dependant on how the primary lesion is handled. It was treated by open marsupialization or persistent ventriculoperitoneal or cystoperitoneal draining before to the development of neuroendoscopic methods.

Conclusion

Due to their good outcomes and reduced invasiveness, neuroendoscopic procedures with ventriculocystocisternostomy have grown in popularity as a promising therapeutic option for arachnoid cysts. In conclusion, we describe our effective experience treating arachnoid cysts in a baby with BHDS using neuroendoscopic procedures and ventriculocystocisternostomy. Despite the BHDS's rarity, it is thought to be a serious ailment that needs to be studied early to identify the cause and treated right away to prevent consequences.

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Declaration of conflicting interests

No potential conflicts of interest were disclosed by the author(s) with regard to the research, writing, or publication of this paper.

Ethical approval

For reporting individual instances or case series, our institution does not require ethical approval.

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