



A Young Boy With Lethargy After Shaking

Thian-Hwang Ho^{1,2}, Sai-Wai Ho^{1,2,*}

¹Department of Emergency Medicine, Chung Shan Medical University Hospital, Taichung, Taiwan

²Department of Emergency Medicine, Chung Shan Medical University, Taichung, Taiwan

To the Editor

A previously healthy 22-month-old boy was brought to the emergency department (ED) by his father because of progressive lethargy lasting for the past 12 hours after playing and unintentional vertical shaking by his father. No wound or ecchymosis was found on his body. At the ED, his Glasgow Coma Scale score was E2V3M4. His vital signs revealed a heart rate of 140 beats/min (normal upper limit 140 beats/min), blood pressure of 105/79 mm Hg (normal lower limit 75/50 mm Hg), respiratory rate of 35 breaths/min (normal upper limit 40 breaths/min), and body temperature of 36.2°C. The pulse oximetry level was 100%. The physical examination findings were unremarkable. Isocoric pupil and no neck stiffness were observed. Blood laboratory findings showed a white blood count of 6,490/mm³ and a hemoglobin level of 12.7 g/dL. The levels of blood glucose, C-reactive protein, lactic acid, aspartate aminotransferase, creatinine, and electrolytes were normal. A brain computed tomography (CT) was performed because of a suspicion of a shaken baby syndrome. However, the CT scan showed a right intraocular heterogeneous mass with calcifications and vitreous hemorrhage (Fig. 1). An ophthalmologist was consulted, and a diagnosis of retinoblastoma rupture with vitreous hemorrhage was made by ophthalmoscopy. After brain magnetic resonance imaging and lumbar puncture to exclude central nervous system diseases, he was transferred to other hospital for surgical enucleation. His father reported that the patient recovered consciousness after the surgery.



Fig. 1. Non-contrast computed tomography image showing right intraocular calcification (long arrow) and vitreous hemorrhage (short arrow).

Altered mental status (AMS) is a common condition that leads to the admission of pediatric patients to the ED for prompt diagnosis and management. The differential diagnoses of AMS are numerous, ranging from common benign disorders to life-threatening diseases. Although the mnemonic AEIOU TIPS (alcohol, encephalopathy, insulin, opiates, uremia, trauma, infection, poisoning, and seizure) is a useful tool for organizing differential diagnoses,¹ and herein, we encountered a case of AMS which was caused by ophthalmic disease. Retinoblastoma is not an uncommon disease in infants and young children. Of all cases,

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*Corresponding author: Sai-Wai Ho, PhD, Department of Emergency Medicine, Chung Shan Medical University Hospital, No. 110, Sec. 1, Jianguo N. Rd., South Dist., Taichung City 402306, Taiwan. E-mail: hswk@ymail.com

75% are unilateral and 80% develop before the age of 3 years.² Leukocoria and strabismus are two typical presenting manifestations.³ Other symptoms include eye pain, heterochromia, hyphema, orbital cellulitis, and proptosis. However, because of the inability of children to verbalize complaints, some children may be presented with an abnormal pupillary reflex (10%), AMS (8.8%), and nystagmus (7.5%) when vitreous hemorrhage developed.⁴ This case report describes a rare presentation of retinoblastoma and highlights that ophthalmic disorders may cause AMS in young children. Therefore, ED physicians should pay attention to the ophthalmic condition such as leukocoria, strabismus, abnormal pupillary reflex, and nystagmus in pediatric patients with AMS. Furthermore, for comatose children with a suspicion of shaken baby syndrome or child abuse, the ED physician should always

consider the ophthalmological consultation to identify retinal hemorrhage.

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