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CASE PRESENTATION

A 10-month-old boy was admitted to the emergency department due to a sudden onset of left unilateral mydriasis (figure 1). His medical history was unremarkable. A minor head trauma 2 days before was reported, without alarming signs or symptoms. His mother was putting him to sleep, after coming back from work, when she noticed a different pupil size and promptly went to the ED with her husband. The parents denied any use of medications, including nebulised therapy or direct contact with plants. The child was well appearing and his vital signs were within the standard age limits. His extraocular motility was normal as well

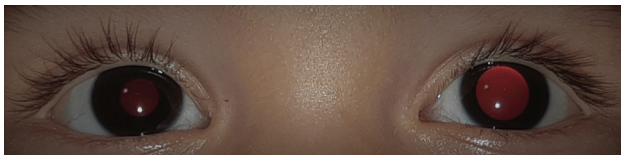


Figure 1 Left unilateral mydriasis.

as the rest of his neurological and physical examination. Parents' behaviour was somehow remarkable. Even though the child was not suffering, the mother seemed very worried while the father was nervous and aggressive, repeatedly asking for a discharge.

Questions

1. What is the most likely diagnosis based on this clinical presentation?
 - A. Local contact with a mydriatic substance
 - B. Intracerebral haemorrhage
 - C. Brain tumour
 - D. Third nerve palsy
2. What would be the next step in the investigation to confirm this diagnosis?
 - A. Brain CT
 - B. Brain MRI
 - C. Fundus oculi examination
 - D. Toxicological screening of urine
3. How is this condition managed, and what is the prognosis?

Answers can be found on page 117

ANSWERS TO THE QUESTIONS ON PAGE 116

Answer to question 1

An isolated anisocoria in a well appearing and asymptomatic child with an unremarkable history can be challenging and cause diagnostic difficulties. While pupillary dilation can be the first and only sign of severe intracranial pathologies such as bleeding or tumour¹ different causes of pharmacological mydriasis are also well known and reported in the literature.

A fixed and dilated pupil could be caused by nebulised treatment with ipratropium bromide, scopolamine patch application, or contact with plants such as *Atropa Belladonna* and Angel's trumpet plant (*Datura suaveolens*).²⁻⁶ Remarkably, local contact with cocaine powder can also induce acute and transient mydriasis. Cocaine use has increased over the last decades, and passive exposure in children living with drug addicts has been documented.^{7,8} For this reason, while conducting the differential diagnosis of anisocoria, local cocaine contact should also be considered.

Answer to question 2

Contact-induced mydriasis can be isolated without other signs of cocaine assumption such as tachycardia, agitation, seizures or gastrointestinal symptoms. In case of eye contact the drug is traceable in the urine for a few days only.⁵ A urine toxicological test is a rapidly available diagnostic tool and, together with a detailed history and an accurate neurological and ophthalmological evaluation, may avoid a sedation and an irradiating head CT scan.

Children with a positive urinary test should eventually undergo a blood test to confirm the diagnosis and a hair test to rule out a chronic exposure. Breast feeding should be also considered as a possible cause of intoxication.

Answer to question 3

This condition presents a spontaneous remission. Treatment with antihistamine ophthalmological drops can be prescribed for pruritus.⁹ Physicians should contact the judicial authority and social services to promptly confirm potential drug use by caregivers and organise family follow-up.¹⁰

PATIENT OUTCOME

The patient presented a positive cocaine screening of urine. He underwent a 72-hour clinical observation, and his mydriasis spontaneously improved within 24 hours. No other signs or symptoms were detected. Social services and judicial authority were activated.

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