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Visual Diagnosis in Emergency Medicine

ANISOCORIA FROM COCAINE EXPOSURE: A CASE REPORT

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CASE REPORT

Anisocoria from cocaine exposure is currently rare but has been documented. We present a case of a patient who came in with anisocoria from topical cocaine exposure. A 22-year-old woman presented to the emergency department (ED) with a 1-day history of blurry vision and pruritus of her left eye. She began having left eye pain the previous night, which prompted her to remove her contact lenses. The patient denied any eye discharge, swelling, or redness. She also denied recent eye drop use, medications, a change in contact lens solution, recent eye trauma, or any ocular exposures. She admitted to occasional recreational drug use. Her medical history was significant for left eye conjunctivitis 3 months earlier that was treated with topical ophthalmic antibiotics. The remaining review of systems was noncontributory. Her vital signs were stable. The physical examination findings were significant for a fixed, dilated 9-mm left pupil that was nonreactive to light and a reactive right pupil from 5- to 3-mm (Figure 1). Extra ocular movements, visual acuity, visual fields, intraocular pressures, fluorescein examination, funduscopic examination, and a neurologic examination were all within normal limits. She was evaluated by ophthalmology in the ED and upon further questioning of illicit drug use, the patient admitted to snorting cocaine the day before the ED visit; she subsequently rubbed her left eye, causing anisocoria. The patient's anisocoria resolved within a few hours without further medication or the development of complications.

DISCUSSION

Anisocoria is defined as a difference in pupil sizes, and there are a wide variety of causes. Almost 20% of normal individuals have physiologic anisocoria with pupil size differences ≤1 mm (1). Causes for pathologic anisocoria include trauma, inflammation, Horner syndrome, migraines, nerve palsies, and pharmacologic agents (1,2). Patients who present with anisocoria, a nonreactive pupil, and a normal ocular examination typically have either oculomotor nerve palsy or pharmacologic-induced mydriasis or miosis. A careful history of parasympathetic or sympathomimetic medications and plant exposures should be elicited, and examination of pupillary size and extraocular movements should be performed in all cases (1,2).

Cocaine acts by inhibiting the reuptake of norepinephrine and dopamine within a nerve synapse, contracting the dilator pupillae muscle and thus dilating the pupil (2). Cocaine also has anesthetic effects, by inhibiting excitation of nerve endings and blocking conduction in peripheral nerves (3).

Ophthalmic cocaine exposure causes conjunctival vessel vasoconstriction, lid retraction, and pupillary

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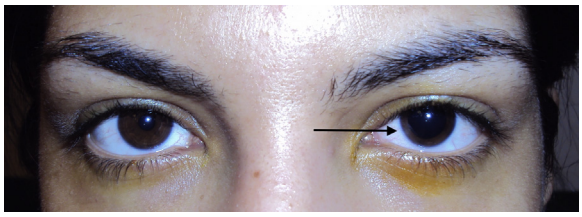

Figure 1. Anisocoria with mydriasis from topical cocaine exposure. The arrow points to the dilated pupil (published with the patient's permission).

dilation in healthy subjects (1,4). Corneal sensitivity and visual acuity may also be impaired (4). Our patient lost the ability to accommodate because of persistent pupillary dilation, resulting in blurry vision. She also reported pruritus from eye irritation after exposure.

Treatment for ophthalmic cocaine exposure is supportive, with topical ophthalmologic antihistamine drops to relieve pruritus. Follow-up is recommended to evaluate for possible complications, including corneal infiltrates or ulcerations, mydriasis leading to angle-closure glaucoma, systemic hypertension, stroke, and intracranial hemorrhage (2). Patients should also be provided drug counseling and seek emergent medical care for any systemic side effects of cocaine use.

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