

## Special Article - Ophthalmology: Clinical Cases and Images

# Transient Mydriasis Due to Opcon-A

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## Abstract

Opcon-A (pheniramine maleate/ naphazoline hydrochloride) is a topical decongestant and antihistamine combination that is used to treat ocular allergies. It is sold as an over the counter eye drop and is generally associated with very few side effects. It may, however, cause mydriasis in some patients, though this is not a well-recognized occurrence. We present three cases in which transient mydriasis was attributed to Opcon-A use and emphasize consideration of this drug in the differential diagnosis of temporary pupillary dilation.

**Keywords:** Transient mydriasis; Anisocoria; Naphazoline; Pheniramine; Opcon-A

## Case Reports

### Case 1

A 29-year-old man was seen in Ophthalmology Clinic for a dilated left pupil which he had noted a few hours earlier on the day of presentation. He had no other acute complaints. His past medical history was notable for asthma for which he occasionally used an inhaler. His review of systems and family history were unremarkable. He was a soft contact lens user. On examination the pupils measured 3 mm on the right and 7 mm on the left in light and 5 mm on the right and 8 mm on the left in dark. The left pupil did not constrict with accommodation. There were no other abnormalities noted on slit lamp examination or full neuro-ophthalmic examination. There was minimal response of the left pupil to topical application of 1% pilocarpine and the patient was diagnosed as having a pharmacologically dilated pupil. Upon questioning he reported having used Opcon-A to treat redness in the affected eye earlier that morning. He was advised to discontinue the eyedrop and the dilation was noted to have resolved by the time of follow-up examination the next day.

### Case 2

A 55-year-old man was seen in Ophthalmology Clinic the day following an episode of transient left pupillary dilation that had lasted a number of hours. The patient's past medical history was notable for diabetes mellitus and metastatic pancreatic cancer. His review of systems and family history were unremarkable. Ophthalmic examination at the time of his presentation to our clinic was within normal limits with round, symmetric pupils that were reactive to light and accommodation bilaterally. Despite any history of trauma, another doctor who had examined the patient while the pupil was dilated had started him on prednisolone eye drops for presumed traumatic iritis. In addition, despite the lack of any accompanying symptoms, his work-up prior to presentation to our clinic had included an unremarkable magnetic resonance imaging study of the brain. Upon questioning, the patient reported that before the pupillary dilation began, he had used Opcon-A in the affected eye to treat redness that he felt had resulted from a piece of dust getting into

the eye. Based on this history and his normal exam he was diagnosed with pharmacological mydriasis. He was advised not to use Opcon-A and his pupillary dilation did not recur.

### Case 3

A 24-year-old woman was seen in Ophthalmology Clinic for three separate episodes of transient right pupillary dilation lasting a few hours each over the previous three months. She had no significant past medical history. Her review of systems and family history were also unremarkable. She did have an ophthalmic history notable for prior LASIK surgery and subsequent dry eye symptoms bilaterally. A full ophthalmic examination was within normal limits. Upon questioning, the patient noted that she had used Opcon-A in the affected eye prior to each of the episodes of pupillary dilation. The mydriasis did not recur following discontinuation of Opcon-A.

## Discussion

Unilateral mydriasis can be an alarming finding for many patients and practitioners. The most common causes of isolated unilateral pupillary dilation are migraine, Adie's tonic pupil, benign episodic unilateral mydriasis and pharmacological dilation [1]. A carefully extracted history and physical examination can elucidate the etiology in most cases, avoiding the need for expensive imaging.

In migraine-associated unilateral pupillary dilation, the mydriasis is an isolated finding and occurs ipsilateral to the headache. Adie's tonic pupil is characterized by light-near dissociation, slow/tonic near response with slow redilation and denervation-induced hypersensitivity to dilute pilocarpine. Benign episodic unilateral mydriasis is a little more difficult to diagnose but is characterized again by pupillary dilation as the only physical exam finding, with or without concurrent headache, blurred vision, photophobia and eye redness, usually in a young woman with a history of prior episodes [2]. A subset of these patients have history of migraines. Pharmacological dilation is the most common of the causes of isolated unilateral mydriasis listed above and history of use of an agent and/or lack of response to application of 1% pilocarpine can confirm the diagnosis [3].

There are only two single case reports of transient mydriasis attributed to use of Opcon-A in the literature [4, 5], but we believe that this side effect may occur commonly. Naphazoline can cause dose-dependent mydriasis that may last up to five hours following topical administration to the eye. It may cause mydriasis through two mechanisms: the first mechanism is a direct sympathomimetic effect and the second is indirect via parasympathetic blockage, similar to the mechanism that has been proposed for migraine-associated mydriasis [6]. Studies on the local administration of pheniramine have shown that it may cause mydriasis when used in combined ocular preparations [7]. It is possible that coexistent corneal or conjunctival irritation, as may have been present for each of the patients described above, could allow for increased penetration of topical agents in some patients. As Opcon-A is a widely available medication, practitioners should be mindful in cases like those described above to query patients about its use and to consider it in the differential diagnosis of isolated pupillary mydriasis.

## Literature Search

The authors searched PubMed on August 8<sup>th</sup>, 2014, for English-language articles (1950-present) using the following search terms: *Opcon-A*, *pheniramine*, *naphazoline*, *pharmacological mydriasis*, *anisocoria*.

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