

# Bilateral acute angle closure glaucoma precipitated by over the counter oral decongestant

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**Dear Sir,**

We hereby report a case of bilateral acute angle closure glaucoma secondary to a systemic decongestant containing pseudoephedrine freely available over the counter. Acute angle closure glaucoma is an ocular emergency. Delayed recognition and treatment inevitably leads to permanent visual impairment. Acute angle closure occurs as a result of obstruction to aqueous drainage by blockage of the trabecular meshwork by the iris. Typical presenting symptoms include acute onset of ocular pain, headache and blurred vision. On clinical examination, it is characterized by a markedly raised IOP of above 21 mm Hg together with corneal oedema, an unreactive pupil and a shallow anterior chamber. General risk factors for acute angle closure glaucoma include increasing age, female gender and East Indian ethnicity. Certain individuals are more prone to angle closure due to anatomical predisposing factors such as hypermetropia, thick crystalline lens, plateau iris configuration or innately narrow drainage angles <sup>[1]</sup>. Many drugs are capable of triggering acute angle closure, mostly via pupil dilatation.

A 60-year old gentleman presented to the eye casualty with a 2d history of bilateral brow pain, blurred vision and nausea. Prior to the onset of his symptoms, he had been taking an over the counter oral cold and flu remedy Contac™ (active

ingredients paracetamol 1g and pseudoephedrine hydrochloride 30 mg) over 5d for a runny nose. He had no past ocular history of note apart from wearing hypermetropic glasses. On examination, his visual acuities were hand movement on the right and 3/60 on the left. Both corneas were oedematous while both pupils were mid dilated and unreactive to light stimulus. Gonioscopy revealed closed angles in both eyes. The intraocular pressures were 60 mm Hg and 72 mm Hg right and left respectively.

A diagnosis of acute angle closure glaucoma was made and he was treated with intravenous acetazolamide 500 mg, timolol 0.5 % eye drops and Maxidex (dexamethasone) eye drops stat. Pilocarpine 2% were administered 30min later to both eyes. He was re-examined one hour later and his corneas were clearer, both his pupils were miosed and the intraocular pressures were 18 mm Hg and 32 mm Hg right and left respectively. He was given a further dose of oral acetazolamide 500 mg and was started on pilocarpine and maxidex four times a day. The intraocular pressures were 12 mm Hg and 17 mm Hg an hour later. The next morning, visual acuities were 6/6 both eyes, the corneas were clear and both pupils were miosed. Repeat gonioscopy revealed narrow angles with a steep approach of the iris. A bilateral YAG peripheral iridotomy was subsequently performed.

Various local and systemic drugs are known to have induced acute angle closure. These include adrenergic, cholinergic and anticholinergic, sulfa-based, antidepressant and anticoagulant medications <sup>[2]</sup>. In this case, the patient presented with bilateral acute angle closure glaucoma after self-administering a non-prescription pseudoephedrine-containing decongestant for a runny nose. Pseudoephedrine is a selective alpha-1 adrenergic receptor agonist, which can induce angle closure by mydriasis. It was noted on the product labeling that the medication was contraindicated in patients with glaucoma. In fact, it should also be avoided in patients with inherently narrow drainage angles. However, it is unlikely that the patient would have been aware of this, given that he had no significant past ophthalmic history. Therefore, the product information should also strongly recommend patients to stop taking the medication and seek help should they develop headaches, blurred vision or nausea

after taking decongestants containing pseudoephedrine, all readily available over the counter.

To our knowledge, there are only a few case reports of acute angle closure glaucoma precipitated by over the counter medications. Barrett and Jordan<sup>[3]</sup> reported a case of unilateral acute angle closure glaucoma induced by a flu remedy containing phenylpropanolamine, also known as the stereoisomer norpseudoephedrine. Two previous reports showed that nasal phenylephrine and naphazoline, which are both adrenergic sympathomimetics, are capable of inducing bilateral acute angle closure<sup>[4,5]</sup>. Rudkin *et al*<sup>[6]</sup> reported a case of bilateral acute angle closure induced by a cold and flu medication, which contained active ingredients of the atropa belladonna plant. The mechanism of acute angle closure was attributed to its anticholinergic properties. Moreover, a prospective study by Lai *et al*<sup>[7]</sup> reported that 24% of patients presenting with acute angle closure attacks had upper respiratory tract infections, 36% of whom had taken anti-cough remedies prior to the attack. The diagnosis in these patients can be challenging as presenting symptoms such as headache, blurred vision, nausea and vomiting can be confused with typical flu symptoms. However, onset of visual disturbance and a mid-dilated pupil are indications of acute angle closure.

The case illustrates the importance for clinicians to be aware of drugs that have the potential to induce acute angle closure. It also highlights the importance of reviewing both prescribed and non-prescribed medications in patients presenting with acute angle closure glaucoma.

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