

Acute bilateral simultaneous angle closure glaucoma after Buscopan administration: a case report

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Abstract

A case report of a 62 year-old male who developed bilateral severe visual loss 3 days after beginning oral buscopan therapy. His best-corrected visual acuity (BCVA) was 20/400 in both eyes (OU). Intraocular pressures (IOP) were 58 mm and 56 mmHg in right and left eyes respectively, with conjunctival chemosis, corneal edema, shallow anterior chamber and closed angles on gonioscopy. Oral buscopan was stopped and aggressive antiglaucoma therapy was initiated consisting of intravenous and topical medications and peripheral iridotomies. The IOP returned to normal values and the visual acuity improved to 20/60 in both eyes four days later. A high index of suspicion is recommend for patient presenting with AACG with a history of Buscopan use. Timely treatment can result in mitigating the risks of AACG and preserving vision.

Key Words: bilateral acute angle-closure glaucoma, pupillary block, Buscopan.

Introduction:

Several classes of drugs, including sympathomimetics, anticholinergics, selective serotonin re-uptake inhibitors, tricyclic antidepressants and anti-histamines may induce acute angle closure glaucoma, especially in predisposed individuals who have narrow anterior chamber angles.^{1,2} Hyoscine butyl-bromide (scopolamine butylbromide) [Buscopan®] is an antispasmodic drug indicated for the treatment of abdominal pain associated with cramps induced by gastrointestinal (GI) spasms. Hyoscine butyl-bromide is an anticholinergic drug with high affinity for muscarinic receptors located on the smooth-muscle cells of the GI tract. Its anticholinergic action exerts a smooth-muscle relaxing/spasmodic effect. Blockade of the muscarinic receptors in the GI tract is the basis for its use in the treatment of abdominal pain

secondary to cramping. All anticholinergics present a risk of precipitating angle closure glaucoma.^{1, 2} However there is a previous report of Buscopan-induced glaucoma.³ Here we report, a case of bilateral acute angle closure glaucoma (AACG) following oral Buscopan.

Case report

A 62-year-old male with diabetes, hypertension and renal colic presented to the Emergency Department at King Khaled Eye Specialist Hospital (KKESH) with complaints of sudden painful decrease of vision bilaterally (which started as blurring of vision) with severe frontal headache, red eyes, nausea and vomiting. He had started Buscopan tablets for renal colic three days prior to presentation to the emergency department. There was no

history of similar episodes decreased vision in the past or a history of similar complaints in any of his first-degree relatives. The patient had no known allergies to medications.

Ocular examination indicated visual acuity of 20/400 OU. Anterior segment examination of both eyes demonstrated bilateral circumciliary congestion, corneal oedema, shallow anterior chambers (Von Hericks grade one), normal iris pattern, mid-dilated, oval shaped non-reacting pupils, immature senile cataracts and closed angles on gonioscopy. Fundoscopy was not clear bilaterally. Applanation tonometry indicated intraocular pressures (IOP) of 58 mmHg OD and 56 mmHg OS. The patient was diagnosed with bilateral AACG and he was treated with 20% intravenous mannitol followed by topical 2% pilocarpine q.i.d., 0.5% timolol b.i.d., and 1% prednisolone acetate q.i.d. in both eyes. The IOP decreased to 25 and 28 mmHg in right and left eyes respectively and bilateral laser peripheral iridotomies (PI) were performed. Gonioscopy showed grade II angle closure without peripheral anterior synechiae. She was advised to stop Buscopan.

On day four, visual acuity improved to 20/60 with resolution of the conjunctival chemosis and corneal edema. Intraocular pressures were controlled and the anterior chamber was deep. Fundus examination showed cup to disc ratios of 0.2 bilaterally and was otherwise unremarkable. Topical aqueous suppressants were discontinued.

Discussion:

Abdominal pain is one of the most common reasons for people seeking medical care, and is often due to spasm of intra-abdominal visceral organs. Hyoscine butylbromide (HBB) is a quaternary ammonium compound, which blocks the action of acetylcholine at the parasympathetic sites (both muscarinic and

nicotinic receptors) in smooth muscle, and in secretory glands. It causes decreased motility of the gastrointestinal tract and the urogenital tracts, and is useful in the treatment of spasms in these regions.⁴

As might be expected based on the anticholinergic effect of the drug, potential ocular side effects include pupil dilatation and paralysis of accommodation, the former constituting the risk of a significant increase in intraocular pressure in those with unduly shallow anterior chambers.

Anticholinergics can induce an attack of acute angle-closure glaucoma in susceptible patients.^{5,6} Bilateral simultaneous angle closure has been reported in patients after general anaesthesia for non-ocular surgery.^{6,7,8} Sung *et al.*⁹ reported one case of an 80-year-old female with acute angle closure glaucoma precipitated by oxybutynin, which has a pharmacological profile similar to Buscopan. Zakir *et al.*¹⁰ also reported one case of a 50-year-old female with bilateral simultaneous acute angle closure glaucoma caused by flavoxate.

Medical practitioners should be aware of patients with abdominal cramp who have not been evaluated by an ophthalmologist but are at risk of developing angle closure glaucoma due to shallow anterior chambers. They should avoid both overestimating drug induced glaucoma, as this would unnecessarily restrict treatment modalities, and underestimating drug induced glaucoma, as in the worse cases this may even lead to blindness. It is necessary to explain symptoms of glaucoma to patients, such as severe pain in the eyes, headache, 'red-eyes' and visual loss. They should seek early medical advice, to avoid the rare crisis of acute glaucoma.

Conclusion:

This report highlights the need for a high index of suspicion when dealing with acute angle closure glaucoma in patients using buscopan, as this condition is reversible and treatment is typically supportive. Thus, patients should be cautioned about this potential side-effect, and instructed to seek attention should they develop blurred vision and/or eye pain following initiation or dose escalation of buscopan.

Abbreviations

IOP – Intraocular Pressure

OD – Ocular Dexter

OS – Ocular Sinister

OU – Ocular Utrique

BCVA – Best-corrected visual acuity

PI- Peripheral iridotomy

Competing interests

The author(s) declare that they have no competing interests.

Authors' contributions

NS identified the case and directly participated in management. They also revised the manuscript and verified its intellectual content.

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