

**ALLERGIC REACTION TO TROPICAMIDE EYE DROPS- A CASE REPORT**<sup>1</sup>\*Tharini Senthamizh and <sup>2</sup>Subashini Kaliaperumal<sup>1</sup>Senior Resident, Department of Ophthalmology, JIPMER, Puducherry.<sup>2</sup>Professor & Head, Department of Ophthalmology, JIPMER, Puducherry.**\*Corresponding Author: Dr. Tharini Senthamizh**

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**ABSTRACT**

Tropicamide is a commonly used eye drop in ophthalmology clinic to enable detailed examination of eye structures. Allergy to this drug is not so common and is often overlooked. Although most allergies reported were due to preservative component of the eye drops, tropicamide per se can also cause serious allergic reaction. Diagnosis of such allergic reactions can be done by clinical examination and skin patch testing. When we are so sure of the allergy clinically but skin test turns out to be negative for that drug, conjunctival challenge test can be used to confirm the diagnosis. We report a case of tropicamide allergy which showed negative skin testing but positive conjunctival challenge test, thus proving the usefulness of the test in clinical setup.

**KEYWORDS:** Tropicamide, Allergy, Conjunctival Challenge test.**INTRODUCTION**

Tropicamide is a short acting anti-cholinergic drug which produces mydriasis and cycloplegia in the eye. It is commonly used in ophthalmological examination of lens and retina. Adverse drug reaction to tropicamide or other eye drops used in ophthalmological set up are not so common. Yet, allergic reaction to such drugs has been reported which were mainly due to preservatives in these drops, commonly phenylephrine.<sup>[1]</sup> These allergic reactions are diagnosed using skin prick tests routinely. There are instances where skin patch test may be negative and does not add up to our clinical diagnosis. In such cases, conjunctival challenge test can be helpful to establish diagnosis and prevent further incidences. We report a case of allergic reaction to tropicamide eye drops, which was confirmed using conjunctival challenge test.

**CASE REPORT**

A 65-year-old female presented to ophthalmology clinic with swelling and itching around both the eyes for one day. There was history of applying eyedrops the day before for ophthalmic examination. The swelling was sudden in onset, painless and progressive in nature. She gave no history of fever or generalised anasarca or giddiness. External examination revealed edema and erythema around both eyes extending from below her eyebrows till malar area and extending up to the ears. Skin over the swelling was erythematous with pustules all over the area. She had lid edema and mucous discharge in both the eyes. (Fig 1) Her best corrected visual acuity was 6/6 in right eye and 6/60 in left eye. There was conjunctival congestion in both the eyes. Rest of the anterior and posterior segment examination of both the eyes was normal.

**Fig 1:** shows erythema, edema around the lids with pustules on the overlying skin.

We examined the eyedrops which was plain tropicamide 1% with Chlorbutol as preservative. We started her on Intravenous Hydrocortisone and topical steroids and she improved in two days.(Fig 2) Meanwhile, dermatology opinion was obtained. Skin patch test was found to be negative for both tropicamide and chlorbutol. So, we went ahead with conjunctival challenge test. After obtaining written consent from the patient, we applied the eyedrops ( 1:6 dilution) suspected in the allergy of about 20 microlitre in the outer inferior quadrant of

bulbar conjunctiva and a control solution ( saline 0.9%) was used in the other eye. Any development of itching, watering, chemosis and congestion was noted which was positive in this patient. The test was repeated after 2 weeks and a similar reaction was noted. The negative skin patch test and conjunctival test for tobramycin and anaesthetic eyedrops containing chlorbutol as preservative ruled out chlorbutol allergy. Allergy to tropicamide component was confirmed and patient was instructed to avoid tropicamide drug usage in the future.



**Fig 2: showing reduction in erythema and swelling on day 2.**

## DISCUSSION

Allergic reaction to mydriatic eyedrops is often overlooked. Most of the cases reported till now were due to phenylephrine allergy<sup>[4-6]</sup> followed by preservatives like benzalkonium chloride, thiomersal, ethylene-diamine and atropine sulphate. Adverse reaction to tropicamide, the active component in mydriatic eyedrops has also been reported.<sup>[7]</sup> Tropicamide is a synthetically prepared derivative of tropic acid and belongs to parasympathomimetic group of drugs like atropine. Systemic absorption can occur through the conjunctiva, nasal mucosa, or after passing down the nasolacrimal duct to gastrointestinal tract and can produce manifestations of systemic toxicity. Wahl *et al* reported a child who had anaphylactic shock immediately after administration of tropicamide eyedrops.<sup>[8]</sup> Our patient did not develop any signs of systemic toxicity.

Skin patch test helps in determining the specific allergen in contact dermatitis by placing patches containing diluted allergen over the back of the patient and removed after 48 hours to look for any rash or papulo-vesicles. However, demonstration of topical medications as allergens is difficult in skin testing.<sup>[9]</sup> This may be due to low concentration of antigens in topical medications.<sup>[10]</sup> Conjunctival challenge test has been used as a simple tool to diagnose or confirm allergens triggering ocular symptoms.<sup>[11]</sup> This test has been reported to be useful when there is a discrepancy between clinical history and allergen sensitization data like skin prick test and IgE levels. A report by Elisa *et al*<sup>[12]</sup> has proved conjunctival challenge test as a diagnostic

tool in eyedrop induced drug allergy and skin tests were negative in their patients. This case is similar with negative skin testing to both tropicamide and chlorbutol but conjunctival provocation test was positive. This case report highlights the importance of conjunctival challenge test to identify the drug causing allergic reaction although drug allergy was ruled out in skin testing.

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