

A Rare Case Report of Conjunctival Cyst

KAVITA MALLIKARJUN SALAGAR¹, M. R. PUJARI², CHETHAN N MURTHY³

ABSTRACT

A conjunctival cyst is a thin-walled sac or vesicle that contains fluid. This vesicle may develop either on or under the conjunctiva. It develops due to variety of causes such as infection, inflammation, retention cyst and rarely drug induced. The authors aimed to report a case of conjunctival cyst in a 34-year-old male following instillation of anti-allergic topical drugs for over period of one year. Conjunctival cyst developing due to chronic use of anti-allergic topical drugs containing preservatives is one of the complications associated with it. Presence of a preservative in an ocular medication has often been considered in damaging the epithelium. Inclusion of a preservative is equally necessary, especially in multiple-drug therapy in order to protect against dangerous organisms accidentally gaining access during instillation. Benzalkonium chloride (BAK), chlorobutanol, chlorhexidine acetate (CHA) and phenylmercuric nitrate or acetate are some commonly used preservatives in eye drops.

CASE REPORT

A 34-year-old male patient presented to Basaweswar Teaching and General Hospital (MRMC) Eye OPD Kalburgi, with the complaints of swelling in the lateral bulbar conjunctiva since one year, associated with redness. Patient noticed the swelling one year back, which gradually progressed to the present size. The swelling was not associated with pain. There was no history of discharge and difficulty in ocular movements. There was no history of trauma. There was a history of chronic irritation of both eyes left eye more than the right for over one year, for which he had purchased over the counter anti allergic topical drugs (containing chlorpheniramine maleate 0.01%, Naphazoline Hydrochloride 0.1%, Benzalkonium Chloride Solution 0.02%, HPMC-0.2%) and had used for the period of one year which was taken without consulting any ophthalmologist. Patient had relief of symptoms for few days, and relapsed on and off. Patient started noticing a small swelling in left eye, which he neglected and continued using topical anti allergic for irritation. Swelling gradually increased in size.

Patient presented to our OPD with above complaints seeking medical attention. On examination, patient was examined thoroughly, and informed written consent was taken and ethical committee approval taken. Visual Acuity – was found to be 6/6 in both eyes, on slit lamp examination, a discrete solitary well defined limbal nodule was found, of size approximately 5mm X 4mm. It was firm in consistency, non-tender, with well-defined margins superiorly and inferiorly, medially it was up to limbus, and lateral margin was not well made out. There was a well demarcation between upper and lower half of the swelling by a fibrous band of tissue. Swelling was immobile, non-compressible [Table/Fig-1].

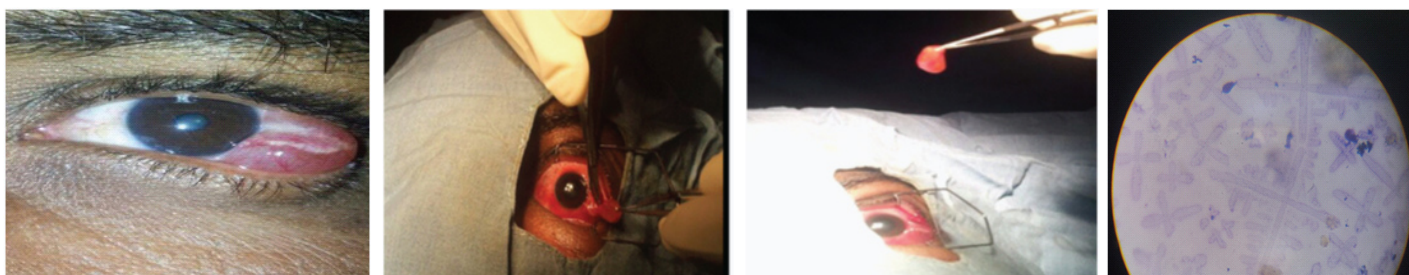
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All the differential diagnosis of limbal nodule was considered. Routine lab investigations were done, all parameters were normal. ESR count was 30mm. Mantoux test was negative. Chest x-ray was normal. HIV, HBsAg were Negative. USG scan also revealed no intraocular extension.

Patient was treated with excision of the cyst and sent to histopathology, microbiological, analysis [Table/Fig-2,3] (After taking ethical committee clearance and patient's Informed and written consent). Histopathology report showed a lining epithelium and lymph mononuclear infiltrates with no evidence of malignancy. Microbiology report showed multiple needle shaped crystals, stained with grams stain with budding pattern. Growth was negative for fungi and bacteria [Table/Fig-4]. Patient was followed up postoperative after 1week and 1 month and showed no recurrence. Hence diagnosis of: *Drug induced (Preservative) Conjunctival cyst* was made.

DISCUSSION

Various ocular conditions like allergic conjunctivitis, conjunctival cyst, and dry eye due to conjunctival goblet cell loss are known to occur as side effects of topical medications. Preservatives related with formulation are known to cause toxic effects if used for prolonged treatment [1,2]. In ocular tissue, preservative turnover is known to be very slow, and quaternary ammonium particles can be retained in ocular tissues for up to 7 days as can be seen in studies by Burstein [3]. Instantly topical use, lipophilicaction of preservative binds to the ocular tissues like topically applied Benzalkonium chloride (BAK), which is most commonly used in eye preparations, it can interrupt the corneal and conjunctival epithelium at higher concentrations, evidence suggests that of BAK may change the ionic resistance of



[Table/Fig-1]: Conjunctival Cyst on presentation **[Table/Fig-2]:** Excision of cyst **[Table/Fig-3]:** After Excision **[Table/Fig-4]:** Biopsy slide showing BAK crystals under 25X after gram stain

the corneal and conjunctival epithelium in eye preparations by adding into cellular membranes, which results in increased permeability [4].

Three types of mechanisms have been described: Detergent effects causing loss of tear film stability, toxic effects to the corneal and conjunctival epithelia, anti immunoallergic reactions [3]. Several studies have established the participation of preservatives in induction of ocular surface inflammation [5,6] allergy [6], fibrosis [4], and dry eye syndrome [7,8]. It has been shown that BAK is a robust pro-apoptotic agent in Chang conjunctival cells [9].

Benzalkonium chloride

BAK is a quaternary ammonium compound commonly used preservative in eye drops [10]. The approval from FDA and its use is in more than 70% of multi drug combination of eye drops. While the effectiveness of BAK is well known, many studies manuscript the damaging effects of BAK [11]. Benzalkonium is known to bring damage (at concentrations of 0.05–0.1%) and cellular degenerations (at concentrations of 0.01%) by way of disturbing the cellular membrane in bacterial cells [12]. In one study, it has been shown that ocular cells frequently exposed to BAK can overexpress the cell marker Apo 2.7, which has been implicated in apoptosis [12].

Chronic application of detergent preservatives can lead to chronic lymphocytic infiltration in conjunctival stroma in accumulation to harmful changes to corneal epithelium and tear film instability.

In recent study, the researchers have related the toxicity due to preservatives, which immortalized human conjunctival and corneal epithelial cells, BAK (0.01%) exhibited a significantly higher toxicity than most of its alternatives, and the order of toxicity was as follows: thiomersal (0.01%) > BAK (0.01%) > chlorobutanol (0.5%) > methylparaben (0.01%) > sodium perborate (0.02%) = ethylenediamine tetraacetic acid (EDTA) [12]. Incidence of secondary inclusion cyst in a recent study was found to be 15% [13]. In other study Conjunctival epithelial inclusion cysts include 6-13% of conjunctival lesions and 80% of conjunctival cystic lesions [14].

CONCLUSION

At present, despite the numerous anti-allergic medications and artificial tears, antibiotics drops and ointments in the market, none is risk-free. In the future, manufacturers may reformulate existing products with less-toxic preservatives, offer less- concentrated forms of current preservatives, or develop new ones, and avoid using preservative containing drops/ointments in case of compromised cornea and conjunctiva.

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PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Ophthalmology, Basaveshwar Teaching and General Hospital, Attached to M.R. Medical College, Gulbarga, India.
2. Professor and HOD, Department of Ophthalmology, Basaveshwar Teaching and General Hospital, Attached to M.R. Medical College, Gulbarga, India.
3. PG Resident, Department of Ophthalmology, Basaveshwar Teaching and General Hospital, Attached to M.R. Medical College, Gulbarga, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Kavita Mallikarjun Salagar,
Rutugana, Dhanavantri Layout, Kusnoor Road, Gulbarga-585105, India.
E-mail: kavita.salagar@gmail.com

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