

# Allergic contact dermatitis to dorzolamide and benzalkonium chloride

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Dorzolamide is a topical carbonic anhydrase II and XII inhibitor that can be administered topically, directly into the eye, as a 2% water solution [1]. Common side effects are conjunctivitis, erythema and eyelid edema [2]. To the best of our knowledge, true contact dermatitis to Dorzolamide is rare and only a few cases have been reported in the literature [3]. We hereby report a case of contact dermatitis to both Dorzolamide and its excipient benzalkonium chloride.

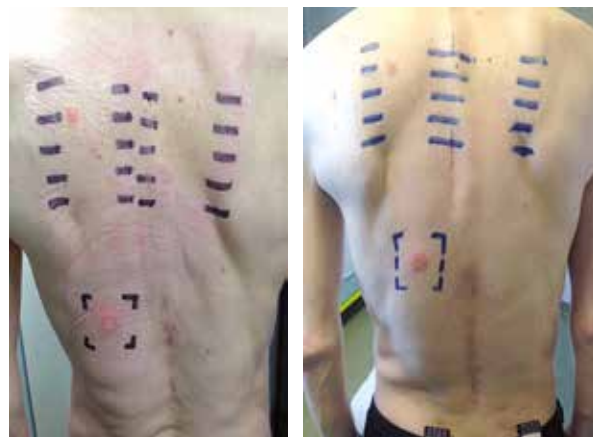
A 64-year-old man presented to our Dermatology Department due to the presence of bilateral palpebral erythema and swelling for 2 months. Upon clinical examination, both the superior and inferior eyelids appeared erythematous with fine scaling (Figure 1). The reaction was symmetrical and extended to the zygomatic arch on either side with no visible involvement of the conjunctiva. The only symptom the patient complained of was intense itching.

Past dermatologic history was negative for atopic dermatitis, psoriasis or any other dermatologic condition. The patient's medical history included type 2 diabetes mellitus, in treatment with metformin 500 mg tid, and a new diagnosis of open-angle glaucoma only recently in treatment with dorzolamide 2% eye drops (1 drop tid). All the previous therapies including low-power topical corticosteroids and topical pimecrolimus had given only mild results with constant relapse of the symptoms.

Given the suspicion of contact dermatitis, patch tests and patch by patch with 2% Dorzolamide eye drops were carried out according to the SIDAPA guidelines. The tests were removed after 48 h and standard readings were carried out at 48 (T1) and 72 h (T2). The patch by patch with dorzolamide 2% eye drops in paraffin was positive, with erythema and edema (++) at T1 and vesico-pustules (+++) at T2, while the standard patch test was positive to benzalkonium chloride 0.1% (+ at T1 and ++ at T2) (Figure 2).



**Figure 1.** Both the superior and inferior eyelids appeared erythematous with fine scaling



**Figure 2.** The patch by patch with dorzolamide 2% eye drops in paraffin was positive, with erythema and edema (++) at T1 and vesico-pustules (+++) at T2, while the standard patch test was positive to benzalkonium chloride 0.1% (+ at T1 and ++ at T2)

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Considering the test results we diagnosed the patient with allergic contact dermatitis due to both the active drug, Dorzolamide, and the excipient benzalkonium chloride 0.1%. The eye drops were suspended and switched to an alternative therapy as per the ophthalmologist's advice and complete remission of symptoms was obtained in 2 weeks. Topically applied carbonic anhydrase inhibitors, such as Dorzolamide, in eye drop solutions are commonly used to treat glaucoma [4]. A few cases of true allergic contact dermatitis to Dorzolamide have been reported [5, 6] but, to our knowledge, this is the first report of an allergy to both the active drug and the excipient. Moreover, contact sensitization to benzalkonium chloride alone is rare [7].

We believe our case is interesting because benzalkonium chloride is the most common preservative in glaucoma medications [8] and the combination of sensitization to both Dorzolamide and its excipient has rarely been reported in the literature. For this reason, it should be considered when evaluating any form of suspect contact dermatitis in a patient in treatment with any kind of topical therapy for glaucoma as in our case. Recognition of the offending agent is of fundamental importance to obtain complete clinical resolution of the disease.

### Conflict of interest

The authors declare no conflict of interest.

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