

Contact allergy to topical β -blockers is a well-recognized side-effect of glaucoma treatment. We report a case of allergic contact dermatitis due to the β -blocker betaxolol in eyedrops in a 59-year-old man with open-angle glaucoma. Patch-test result showed cross-sensitivity/co-reactivity to timolol.

Case Report

A 59-year-old man, with no history of atopy or allergy, had long been treated for open-angle glaucoma with eyedrops containing the β -blocker betaxolol (Betoptic®) when he developed acute eyelid dermatitis, associated with conjunctival hyperaemia (Fig. 1). His condition rapidly improved after withdrawing betaxolol and using topical corticosteroids.

Patch testing with the European baseline series, a preservatives series, and ophthalmic medicaments series (including no β -blockers) was negative. On patch testing with the patient's own ophthalmic medicaments and then with ophthalmic medicaments containing betaxolol or other β -blockers, the positive reactions in Table 1 were found.

Allergic contact dermatitis due to the β -blocker betaxolol in eyedrops, with cross-sensitivity to timolol

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Table 1. Patch-test results

	D2	D3	D4
Betaclar® (befunolol HCl)	–	–	–
Betoptic® (betaxolol HCl)	++	+++	+++
Timoptol® (timolol maleate)	+	++	++
Vistagan® (levobunolol HCl)	–	–	–
Befunolol 1% aq.	–	–	–
Betaxolol 1% aq.	++	++	++
Levobunolol 1% aq.	–	–	–
Timolol 1% aq.	+	++	++



Fig. 1. Local edema, erythema and blistering of the periocular region.

Comment

Contact allergy to topical β -blockers is a well-recognized side-effect of glaucoma treatment (1–4). Sensitization may be singly to agents such as timolol (5), befunolol (6), levobunolol (7), or, more rarely, to multiple β -blockers in a single patient (8). Our patient developed contact allergy after many years of betaxolol exposure and patch-test result showed cross-sensitivity/co-reactivity to timolol; this has not previously been reported.

In our case, a closed patch test, usually used in clinical practice for the diagnosis of allergic contact dermatitis, was sufficient to show betaxolol contact allergy. However, there may be difficulties in obtaining positive patch tests to β -blockers, as showed in earlier reports (9, 10). Poor penetration through intact skin on the back, where patch testing is normally applied, may be a factor. Scratch-patch testing, causing mechanical injury to the epidermis with a sterile skin prick lancet, compromises the stratum corneum, modifies epidermal barrier function, and enables enhanced penetration of substances into the skin (11, 12).

We recommend, in cases with a strong suspicion of contact sensitization to topical β -blocking agents and doubtful patch tests, to perform scratch-patch test or a repeated open application test (13) to show contact allergy.

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