European Journal of Ophthalmology / Vol. 16 no. 4, 2006 / pp. 627-629

**SHORT COMMUNICATION**

# Allergic contact dermatitis caused by latanoprost ophthalmic solution

*C.-H. LAI[1], I.-C. LAI[2], C.-C. CHI[3,4]*

[1]Department of Ophthalmology, Chang Gung Memorial Hospital - Chiayi
[2]Department of Ophthalmology, Chang Gung Memorial Hospital-Kaohsiung
[3]Department of Dermatology, Chang Gung Memorial Hospital-Chiayi
[4]Chang Gung Institute of Technology, Chiayi, Taiwan

PURPOSE. *Latanoprost is a prostaglandin F2α analog that lowers intraocular pressure by increasing uveoscleral outflow. Herein we describe two cases of allergic contact dermatitis (ACD) to latanoprost.*
METHODS. *A 69-year-old man with open-angle glaucoma developed erythematous erosive swelling of bilateral eyelids after 4 months of latanoprost therapy. An 84-year-old man with open-angle glaucoma had pruritic erythematous plaques on the bilateral lower eyelids after latanoprost therapy for 4 months.*
RESULTS. *In both cases, latanoprost was discontinued and the condition gradually resolved in 1 month. The eyelid lesions recurred in days upon latanoprost rechallenge, but subsided after cessation of rechallenge.*
CONCLUSIONS. *ACD should be suspected if patients on latanoprost therapy have pruritus, erythema, swelling, or erosions on the eyelids even when the symptoms appear after several months of therapy, especially in the elderly. (Eur J Ophthalmol 2006; 16: 627-9)*

KEY WORDS. *Adverse drug reaction, Allergic contact dermatitis, Latanoprost*

*Accepted: March 22, 2006*

## INTRODUCTION

Latanoprost is a prostaglandin F2α analog that lowers intraocular pressure (IOP) by increasing uveoscleral outflow. Reported adverse drug reactions (ADR) of latanoprost encompass conjunctival hyperemia, hypertrichiasis, increased eyelash and eyelid pigmentation, iritis, uveitis, iris pigment epithelial cyst (1), corneal and eyelid herpes simplex (2), as well as cystoid macular edema. Herein we describe two cases of allergic contact dermatitis (ACD) to latanoprost ophthalmic solution (Xalatan, Pfizer, New York, NY).

## Case reports

*Case 1* - A 69-year-old man had bilateral primary open-angle glaucoma treated with brimonidine 0.2% twice daily for 2 years. For poorly controlled IOP, timolol 0.5% at morning was added. Timolol was switched to travoprost 0.004% at night 5 months later because of continuously elevated IOP. Due to intolerable conjunctival hyperemia, travoprost was substituted by latanoprost 0.005% once daily 3 months later. During the previous follow-up period, there were no external abnormalities including wounds or pigmentation on eyelids. The IOP was well controlled with latanoprost, but erosive erythematous swelling of the bilateral eyelids gradually appeared 4 months later (Fig. 1). The lesions persisted for 5 months despite treatment with gentamicin ointment. Because of suspected ACD, latanoprost and brimonidine were replaced by Cosopt (containing dorzolamide 2% and timolol 0.5%), and the condition gradually resolved (Fig. 2). Patch tests with latanoprost, brimonidine, and a mixture of both were performed,

 1120-6721/627-03$15.00/0

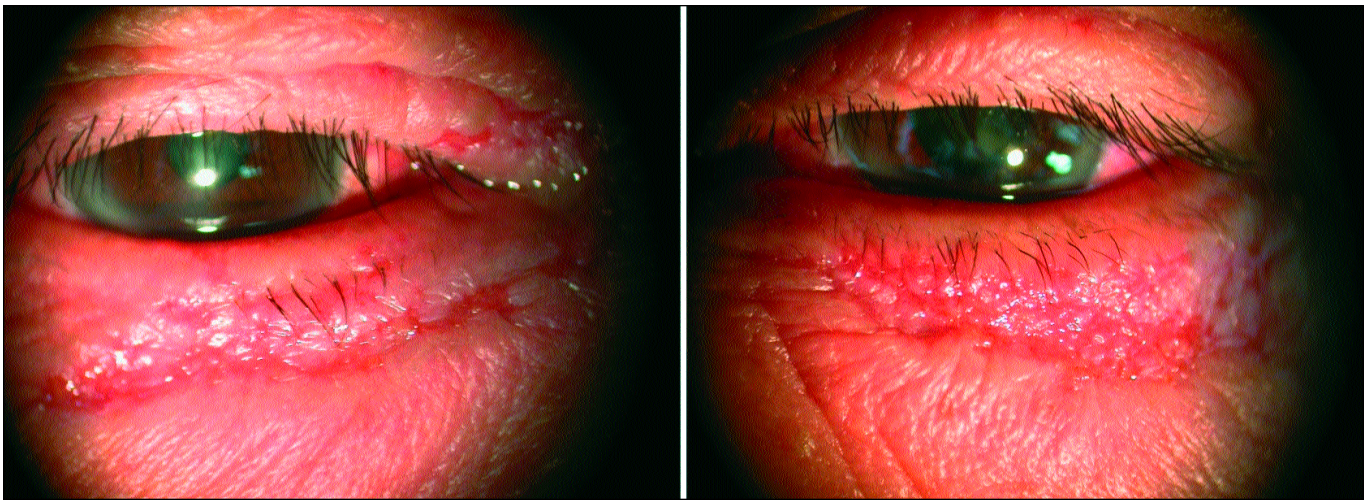

**Fig. 1 -** *Erosive erythematous swelling of the bilateral eyelids gradually appeared after 4 months of latanoprost therapy.*

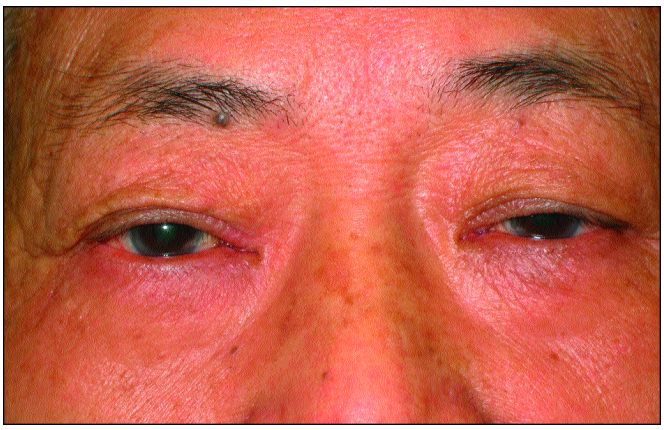

**Fig. 2 -** *The condition gradually resolved after cessation of latanoprost use.*

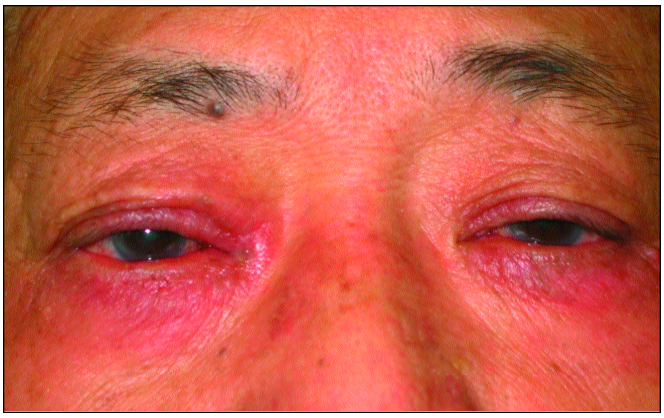

**Fig. 3 -** *Erythematous swelling of the eyelids recurred within 6 days of latanoprost rechallenge.*

but the results were negative. After obtaining the patient's consent, rechallenge tests were performed to identify the allergen. Erythematous swelling of the eyelids recurred within 6 days of latanoprost rechallenge (Fig. 3) and subsided within 1 month of cessation of latanoprost. Meanwhile, no signs of allergy were noted upon brimonidine rechallenge. A diagnosis of ACD to latanoprost was thus confirmed.

*Case 2* - An 84-year-old man had bilateral primary open-angle glaucoma treated with betaxolol 0.25% and pilocarpine 1% for 6 months. Because of the patient's preference for monotherapy, the previous medications were substituted with Cosopt twice daily. But due to unacceptable IOP, brimonidine 0.2% was added. The IOP was still high 4 months later; he was thus shifted to therapy with latanoprost 0.005% once daily and brimonidine 0.2% twice daily. No rash, crust, vesicle, or pigmentation on the eyelids had been noted during the previous period. However, pruritic erythematous plaques gradually appeared on the bilateral lower eyelids 4 months later, but no associated conjunctivitis, keratitis, or uveitis was found. The lesions persisted for 3 months despite treatment with gentamicin ointment. Brimonidine was subsequently discontinued, but the condition persisted for another 3 months. Under the impression of ACD to latanoprost, he was switched to therapy with dorzolamide 2% thrice daily, and the condition subsided 1 month later. Similar to Case 1, the eyelid rashes recurred upon latanoprost rechallenge, but not after brimonidine rechallenge.

## DISCUSSION

Latanoprost, a prostaglandin F2α analog, mediates inflammation. There is also evidence upholding the role of prostaglandin F in the mediation of allergic diseases (3). ACD involves prior exposure to an allergen, and sensitization may take weeks to years to develop, which is delayed in the elderly or with lower concentration of allergens (4). In sensitized persons, ACD can occur in 48 to 72 hours upon rechallenge (5). After being first introduced to the market in 1996, only one confirmed case of ACD to latanoprost has been reported (6). However, the length of duration for latanoprost use was not specified.

In the present cases, erythematous swelling of the eyelids gradually appeared after 4 months of latanoprost therapy. The condition resolved after cessation of latanoprost and soon recurred upon rechallenge, but did not recur after brimonidine rechallenge. Therefore a diagnosis of ACD to latanoprost was established. Furthermore, the lesions were more prominent on the lower eyelids than on the upper eyelids, probably because the former had more exposure to latanoprost ophthalmic solution.

Latanoprost ophthalmic solution contains benzalkonium chloride as a preservative. It can be speculated that the allergen in the present cases cannot be attributed to benzalkonium chloride because no signs of allergy were noted after applying other benzalkonium chloride-containing preparations including brimonidine, Cosopt, and dorzolamide. Patch tests are useful in diagnosing ACD to dermatologic medications or allergens, but are poor detectors of contact allergy from ophthalmic products (7). A negative result cannot rule out ACD to ophthalmic solutions. On the other hand, a rechallenge test often confirms this, as was seen in the present cases.

In conclusion, ACD, though rarely seen, should be suspected if patients on latanoprost therapy have pruritus, erythema, swelling, or erosions on the eyelids even when the symptoms appear after several months of therapy, especially in the elderly. Latanoprost should be promptly discontinued and substituted by other antiglaucoma drugs.

*None of the authors has any financial interest in the subject matter.*

Reprint requests to:
Ching-Chi Chi, MD, MMS
Department of Dermatology
Chang Gung Memorial Hospital-Chiayi
6, Sec West, Chia-Pu Rd
Putz, Chiayi 61363
Taiwan
chingchi@cgmh.org.tw

## REFERENCES

1. Lai IC, Kuo MT, Teng MC. Iris pigment epithelial cyst induced by topical administration of latanoprost. Br J Ophthalmol 2003; 87: 366.
2. Morales J, Shihab ZM, Brown SM, Hodges MR. Herpes simplex virus dermatitis in patients using latanoprost. Am J Ophthalmol 2001; 132: 114-6.
3. Dhir SP, Garg SK, Sharma YR, Lath NK. Prostaglandins in human tears. Am J Ophthalmol 1979; 87: 403-4.
4. Belsito DV. Allergic contact dermatitis. In: Freedberg IM, Eisen AZ, Wolff K, Austen KF, Goldsmith LA, Katz SI, eds. Fitzpatrick's Dermatology in General Medicine, 6th ed. New York: McGraw-Hill; 2003: 1164-77.
5. Seamone CD, Jackson WB. Immunology of the external eye. In: Tasman W, Jueger EA, eds. Duane's Clinical Ophthalmology, 19th ed. Philadelphia: Lippincott-Raven; 1995: 31-2.
6. Jerstad KM, Warshaw E. Allergic contact dermatitis to latanoprost. Am J Contact Dermatitis 2002; 13: 39-41.
7. Corazza M, Levratti A, Zampino MR, Virgili A. Conventional patch tests are poor detectors of contact allergy from ophthalmic products. Contact Dermatitis 2002; 46: 298-9.