Case Report

Fixed Exanthema From Systemic Tobramycin

I García-Rubio, C Martínez-Cócera, T Robledo Echarren, S Vázquez Cortés

Allergy Department. Hospital Clínico San Carlos. Madrid, Spain

Abstract. Eye drops contain several ophthalmic medications which can produce allergic reactions. We report the case of a patient with contact dermatitis from neomycin and a probable fixed exanthema after parenteral administration of tobramycin who tolerated topical tobramycin and other aminoglycosides.

Key words: Aminoglycosides. Fixed exanthema. Neomycin. Tobramycin. Provocation test.

Resumen. Los colirios contienen múltiples fármacos que pueden producir reacciones alérgicas. Presentamos el caso de una paciente con dermatitis de contacto por neomicina y un probable exantema fijo después de la administración parenteral de tobramicina, que toleró tobramicina tópica y otros aminoglúcosidos.

Palabras clave: Aminoglucósidos. Exantema fijo. Neomicina. Tobramicina. Prueba de provocación.

Case Description

The patient was a 69-year-old woman with a left ocular herpes zoster infection who visited us because she had recently developed palpebral swelling after applying Oftalmowell eyedrops (neomycin sulfate, gramicidin, and polymyxin B sulfate). Five years earlier she had developed symptoms of ocular inflammation 24 hours after applying mydriatic eye drops whose composition she did not know and Tobrex (tobramycin) eye drops 0.3%. She had tolerated gentamicin in eye drops prescribed by her ophthalmologist.

Skin prick tests carried out with 4 aminoglycosides (tobramycin, gentamicin, amikacin, and paromomycin) and 4 cycloplegics (atropine, tropicamide, phenylephrine, and cyclopentolate) were all negative.

The epicutaneous tests with tobramycin (50 mg/mL), Tobrex eye drops 0.3%, gentamicin (20mg/mL), amikacin (250 mg/mL), paromomycin (125 mg/5mL), neomycin 20%, Oftalmowell (neomycin sulphate, gramicidin, polymyxin B sulphate), benzalkonium chloride 0.1% and phenylephrine 10%, all of them in petroleum jelly, were positive only for neomycin (+++D2, +++D4).

The intramuscular challenge tests with gentamicin up to 40 mg (20 mg/mL) and amikacin up to 250 mg (250 mg/mL) were negative. The patient was later challenged with intramuscular tobramycin up to 100 mg (50 mg/mL) and after 24 hours palpebral swelling with intense itching and erythema in the right eye developed. The condition disappeared in several days with oral corticosteroids and antihistamines. Tolerance was good to a conjunctival provocation test with tobramycin 0.3% eye drops up to a concentration of 1:1 at 2 different times and to topical application to the right eyelid with Tobrex (tobramycin) ointment 0.3%. The challenge was repeated a month later with intramuscular tobramycin and 48 hours later she presented intense inflammation with erythema and itching in the right eye. Conjunctival provocations with atropine 0.5%, tropicamide 1%, phenylephrine 10%, and cyclopentolate 1% at different concentrations up to 1:1 were negative. However, 48 hours after conjunctival provocation with Oftalmowell (neomycin sulfate 1700 IU, gramicidin 25 IU, polymyxin B sulfate 5000 IU) up to 1:1, she developed angioedema in the right eye.

Discussion

Eye drops contain various ophthalmic medications that can produce allergic reactions [1]. Neomycin is a sensitizing agent that often produces dermatitis in eyelids [2]. There are numerous studies with patients who are sensitive to neomycin but generalized dermatitis has only been described anecdotally after systemic administration of an aminoglycoside, kanamycin [3]. Tobramycin, on the other hand, is generally well tolerated and there have been few reports of skin hypersensitivity [4]. In our case, as the patient tolerated tobramycin topically but not systemically, we believe that this could be due to different haptenization of the antigen and/or formation of a new

© 2006 Esmon Publicidad

metabolite depending on the route of administration. Despite the impossibility of carrying out a skin biopsy, the symptoms and results of the provocation test led us to believe that this was a fixed exanthema from tobramycin. No other such case has been described in the literature.

Streptomycin shows no cross reactivity with other aminoglycosides that share deoxystreptamine [5] or with those that are disubstituted-4,5 (neomycin and paromomycin), which show high cross reactivity with each other, nor disubstituted-4,6 ones (tobramycin, kanamycin, amikacin, gentamicin, etc) whose reactivity with the neomycin is variable but always low at around 50% [6]. Our patient tolerated other aminoglycosides such as amikacin and gentamicin but not neomycin. Therefore, when assessing these patients we must consider the possibility of cross reaction with other aminoglycosides as the percentage of monosensitized patients is small. We believe that in this sense it is useful to carry out epicutaneous tests for a better evaluation although in our case they were only positive for neomycin.

References

1. Herbst RA, Maibach HI. Contact dermatitis caused by allergy to ophthalmic drugs and contact lens solutions. Contact Dermatitis. 1991;25:305-12.
2. Cooper SM, Shaw S. Eyelid dermatitis: an evaluation of 232 patch test patients over 5 years. Contact Dermatitis. 2000;42:291-3.
3. Jerez J, Rodríguez F, Jiménez I, Martín Gil D. Cross-reactions between aminoside antibiotics. Contact Dermatitis. 1987;17:325.
4. Gonzalez-Mendiola MR, Balda AG, Delgado MC, Montano PP, De Olano DG, Sanchez Cano M. Contact allergy from tobramycin eyedrops. Allergy. 2005;60(4):527-8.
5. Schorr WF, Ridgway HB. Tobramycin-neomycin cross-sensitivity. Contact Dermatitis. 1977;3:133-7.
6. Menéndez Ramos F, Llamas Martín R, Zarco Olivo C, Dorado Bris JM, Merino Luque MV. Allergic contact dermatitis from tobramycin. Contact Dermatitis. 1990;22:305-6.

Isabel García-Rubio

Allergy Department. Hospital Clínico San Carlos
Profesor Martín Lagos s/n
28040 Madrid, Spain
E-mail: igrubio@hotmail.com

 © 2006 Esmon Publicidad