

Iatrogenic allergic contact dermatitis of the external ear

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Otitis externa and dermatitis of the external ear may be complicated by skin sensitization to topical medicaments used for treatment of the condition.^{1,2} Here we present a study in this regard.

METHODS

We analyzed demographic data and patch-test results of patients with allergic contact dermatitis (ACD) caused by ear medication observed between 2000 and 2018.

RESULTS

During this period, of 10 532 patch-tested patients, 440 presented with dermatitis in and/or around the ear, of whom 23 (5%) had iatrogenic ACD, that is, 16 women and 7 men. Six patients had a history of atopic eczema. Their dermatitis was located at the external ear canal in 10; the auricle and retro-auricular area, both in 9; and the earlobe in 5, sometimes involving several locations. We identified as culprits 14 pharmacologically active agents (Table 1), 2 products tested "as is" (the respective ingredients being negative), 7 vehicle components or preservatives (Table 2), and buffered cetomacrogol cream (in which the causal allergen was not identified either) (this is a magistral cream base containing polyethylene glycol monocetyl ether, cetearyl alcohol, petrolatum, liquid paraffine, potassium sorbate or sorbic acid, aqua and sodium dihydrogen phosphate for pH adjustment. This is frequently used as vehicle in Belgium; some pharmacists still compound it themselves, however, some manufacturers commercialized it, too.)³

DISCUSSION AND CONCLUSION

During this 19-year period we detected 23 patients, that is, 5% of 440 with ear dermatitis having a relevant iatrogenic ACD, which is lower than 45 positives of 179 tested (25%) in a similar study covering 17 years (1985–2002),² probably due to different selection criteria.

TABLE 1 Number of positive patch tests to active principals in ear medication

Drug	Number of positive patch tests
Neomycin	6
Hydrocortisone butyrate	2
Myroxylon pereirae (balsam of Peru)	2
Erythromycin	1
Nystatin	1
Bufexamac	1
Hexamidine	1
Isopropanol	1
Chlorhexidine digluconate	1
Chlorhexidine acetate	1
Hydrocortisone acetate	1
Merbromine	1
Fusidic acid	1
Calcipotriol	1
Preparation containing bacitracin, colimycine, and hydrocortisone "as is"	1
Pharmaceutical cream containing methylprednisolone aceponate "as is"	1

TABLE 2 Number of positive tests to vehicle components and preservatives in ear medication

Vehicle component or preservative	Number of positive patch tests
Benzoic acid	3
Propylene glycol	2
Benzalkonium chloride	2
Ethylenediamine	2
Sodium metabisulfite	1
Cetyl alcohol	1
Parabens	1
Buffered Cetomacrogol cream as is	1

The main culprit active principles were antibacterial agents, particularly neomycin, commonly used in the past,⁴ with the six sensitized subjects being diagnosed before 2012, which is in line with another study⁵ showing a significant reduction in sensitivity to neomycin from 1985–1994 to 1998–2002. In addition to two other antibiotics—erythromycin and fusidic acid—various antiseptics were culprit allergens; the reaction to merbromine, a mercurial, dated from 2001. One case was due to nystatin, used to treat infections with *Candida albicans*. Hydrocortisone esters were the corticosteroid allergens found. Along with antibiotics (neomycin), antifungals, and also local anesthetics, corticosteroids are culprits in ear medication,² the latter even responsible for a systemic reaction.⁶ Bufexamac, previously used because of its anti-inflammatory and analgesic properties, is no longer used.⁴ Calcipotriol, a synthetic vitamin D derivative used for psoriasis, was the cause of ACD in the retro-auricular zone.⁷ Finally, balsam of Peru (*Myroxylon pereirae*) formerly present in an antiseptic and healing ointment, was positive twice.

Several preservatives (antibacterial, antioxidant or complexing agent) and the two vehicle components propylene glycol and cetyl alcohol were the responsible non-active ingredients. Finally, three pharmaceutical preparations patch tested positively, whereas the separate ingredients remained negative.

Dermatoses such as psoriasis, seborrheic dermatitis, and atopic dermatitis may affect the ear canal or the external ear and may occasionally give rise to ACD from topical medications. Besides the

ingredients, the products used should also be tested, since all ingredients separately may remain false-negative.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

AUTHOR CONTRIBUTIONS

Liesbeth Gilissen: Data curation; formal analysis; methodology; project administration; writing-original draft. **Hélène Stobbelaers:** Formal analysis; methodology; writing-original draft. **Sara Huygens:** Supervision; writing-review and editing. **An Goossens:** Supervision; writing-review and editing.

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