

Short Communication

Contact allergy to topical corticosteroids and systemic allergy to prednisolone

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Case Report

A 54-year-old woman presented with a generalized, maculopapular rash 24 h after oral administration of 40 mg of prednisolone. 3 months earlier, she had acquired an irritant contact dermatitis on the limbs due to repeated applications of malathion lotion. Subsequent treatment with betamethasone valerate followed by hydrocortisone-17-butyrate had resulted in deterioration of the dermatitis, for which oral prednisolone was prescribed. Topical application of betamethasone valerate and hydrocortisone for an unspecified rash some years previously had been well tolerated. She did not have a history of atopy and she was on no other medications. Treatment on this occasion with emollients, hydroxyzine hydrochloride and topical clobetasol-17-propionate, following a negative usage test, rapidly cleared the dermatitis. Patch testing was later performed to the European standard series and a corticosteroid series. She proved positive to both fragrance mix and balsam of Peru. The results of the corticosteroid series (Table 1) revealed contact allergy to multiple corticosteroids, in addition to those responsible for the deterioration of the dermatitis.

Discussion

The rapid onset of the rash in this case, following ingestion of prednisolone, suggests sensitization to a previously, topically applied corticosteroid such as hydrocortisone. Additionally, the positive reactions to cortico-

steroids belonging to the proposed (1), structurally related groups A, C and D, included several corticosteroids to which the patient had not been previously exposed, suggesting cross-reactivity.

Corticosteroid allergy can occur to topically or systemically administered corticosteroids and with endogenous cortisol secretion induced by corticotrophin stimulation in patients sensitized to hydrocortisone (2). Contact hypersensitivity to topical corticosteroids occurred in 0.2–5% of patients attending a contact dermatitis clinic (3, 4); corticosteroids were the 7th commonest detected allergen in 1 reported patch test series (5). However, immediate or delayed-type hypersensitivity reactions to systemic corticosteroids are more rare. Prednisolone or prednisone have been responsible for most of the cases following oral administration (6). Betamethasone, dexamethasone, triamcinolone and hydrocortisone have been more rarely implicated (7). The cross-reactivity patterns of corticosteroid hypersensitivity reported in these cases suggests a similar pattern to that observed in allergic contact reactions. Because corticosteroids are important, potentially life-saving drugs, it is crucial to identify one that is safe for future use. Patch testing, supported by a negative intradermal test, may detect a corticosteroid that is safe for systemic administration (8). However, caution is advised as false-negative intradermal tests can occur, especially to corticosteroids that are poorly water-soluble (9).

References

1. Coopman S, Degreef H, Doooms-Goossens A. Identification of cross-reaction patterns in allergic contact dermatitis from topical corticosteroids. *Br J Dermatol* 1989; 121: 27–34.
2. Lauerma A I, Reitamo S, Maibach H I. Systemic hydrocortisone/cortisol induces allergic skin reactions in presensitized subjects. *J Am Acad Dermatol* 1991; 24: 182–185.
3. Doooms-Goossens A, Morren M. Results of routine patch testing with a corticosteroid series in 2073 patients. *Contact Dermatitis* 1992; 26: 182–191.
4. Wilkinson S M. Hypersensitivity from topical corticosteroids. *Clin and Exper Dermatol* 1994; 19: 1–11.
5. Lauerma A I. Contact hypersensitivity to glucocorticoids. *Am J Contact Dermatitis* 1992; 3: 112–132.
6. Quirce S, Alvarez M J, Olaguibel J M, Tabar A I. Systemic

Table 1. Results of patch testing to the corticosteroid series

Corticosteroid in petrolatum	Concentration	D 2	D 4
clobetasol-17-propionate	0.25%	–	–
betamethasone-17-valerate	0.12%	++	++
amcinonide	0.1%	–	–
pivalone	1.0%	++	++
hydrocortisone-17-butyrate	0.1%	++	++
hydrocortisone	1.0%	–	–
triamcinolone	0.1%	–	–
budesonide	0.1%	–	–
prednisolone	1.0%	++	++
dexamethasone	1.0%	–	++
acloemethasone	1.0%	++	++

- contact dermatitis from oral prednisolone. *Contact Dermatitis* 1994; 30: 53–54.
7. Bircher A J, Levy F, Langauer S, Lepoittevin J P. Contact allergy to topical corticosteroids and systemic contact dermatitis from prednisolone with tolerance of triamcinalone. *Acta Dermato-venereologica* 1995; 75: 490–493.
 8. Seukeran D C, Wilkenson S M, Beck M H. Patch testing to detect corticosteroid allergy: is it adequate? *Contact Dermatitis* 1997; 36: 127–130.
 9. Wilkinson S M, Jones M F. Corticosteroid usage and binding to arginine: determinants of corticosteroid hypersensitivity. *Br J Dermatol* 1996; 135: 225–230.