

Steroid Rosacea in Prepubertal Children

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Objective: To examine clinical associations, family history of rosacea, and response to treatment in prepubertal children with steroid rosacea.

Design: Retrospective case-series evaluation of children younger than 13 years with steroid rosacea seen over an 8-year period (1991-1998).

Setting: Ambulatory care university hospital.

Patients: Referral patients from pediatricians serving a population of 3.4 million.

Interventions: Abrupt cessation of topical corticosteroid use and initiation of treatment with oral erythromycin stearate for 4 weeks.

Main Outcome Measures: Age at onset, class of topical corticosteroid used, family history of rosacea, location of lesions, treatment, and weeks to clearing.

Results: We evaluated 106 (46 boys and 60 girls) who developed steroid rosacea. Preceding steroids used were predominantly (54% of children) class 7 agents including 1% hydrocortisone and over-the-counter hydrocortisone preparations. Only 3% of children had used superpotent (class 1) topical corticosteroids. The mean age at onset was 7.04 years (range, 6 months to 13 years). Twenty-nine children were younger than 3 years. A family history of rosacea was found for 20% of the children. After abruptly stopping topical steroid use and starting treatment with oral erythromycin, 86% of children had complete clearing within 4 weeks and 100% by 8 weeks. Clearing within 3 weeks was observed in 22% of children.

Conclusions: Abrupt discontinuation of topical corticosteroids and institution of oral antibiotics resulted in clearing within 4 weeks. This finding does not support the concept that prepubertal children with steroid rosacea need to continue low-strength steroids in a gradual withdrawal strategy. This conclusion is supported by the finding that 54% developed the steroid rosacea while being treated with the lowest-strength (class 7) topical corticosteroids. Even over-the-counter hydrocortisone preparations induced steroid rosacea in susceptible children. Susceptibility may be genetic as 20% of children had a first-degree relative with rosacea.

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Editor's Note: This study should serve as a reminder of a diagnosis (and treatment) that you just might encounter, especially considering the association with even low-dose, topical steroids.

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PERIORAL dermatitis is a chronic papulopustular skin condition with many features of acne rosacea.¹⁻³ It is observed on facial skin around the mouth, nose, or eyes. It is characterized by red skin interspersed with red papules and/or pustules. When it is precipitated by the application of topical corticosteroids (hereafter referred to as steroids) to the facial skin, it is called steroid rosacea.^{2,3} Steroid rosacea has long been

documented in children, but there are no series of more than 14 affected children reported.¹⁻⁸ Several different topical steroid preparations have been implicated in precipitating the lesions, but it is unclear as to which potency classes of topical steroids are involved.²⁻⁵ The relationship to adult rosacea is unclear, but we recently reported identical twins who were affected and suggested that genetic susceptibility may be involved.⁹ Treatment has not been standard, with a variety of therapeutic strategies used.²⁻⁸ A common treatment is to continue the use of low-potency topical steroids in addition to using antibiotics. There are no reports of time to clearing after treatment is initiated, except with the use of topical metronidazole that required 8 to 14 weeks for

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PATIENTS AND METHODS

This is a retrospective case-series evaluation of children younger than 13 years with steroid rosacea seen over an 8-year period (1991-1998) in an ambulatory care university hospital. Patients were selected from referral patients from pediatricians serving a population of 3.4 million. We recorded the age at onset, class of topical steroid used the month prior to onset, family history of rosacea, locations of lesions (perinasal, perioral, or periorbital), treatment, and weeks to clearing. Family history was supplemented by physical examination of parents and siblings, when possible. Class of steroids was ranked from 1 to 7 according to McKenzie and Stoughton,^{10,11} and Hepbuen et al,¹² with 1 being the most potent and 7 being the least. Hydrocortisone, 1%, and over-the-counter hydrocortisone preparations are included in class 7.¹² Although it has been recommended to gradually withdraw topical steroids in children for fear of a worsening of the rosacea, we reasoned that to continue treating with the preparation that induced the condition could not be supported. Therefore, in all patients, we recommended an abrupt cessation of topical steroid use and initiating treatment with oral erythromycin stearate at 30 mg/kg per day in 2 daily doses for 4 weeks or topical clindamycin phosphate twice daily for 4 weeks in 6 patients who had a history of erythromycin intolerance or allergy.



Figure 1. Perinasal erythema, scale, and papules.

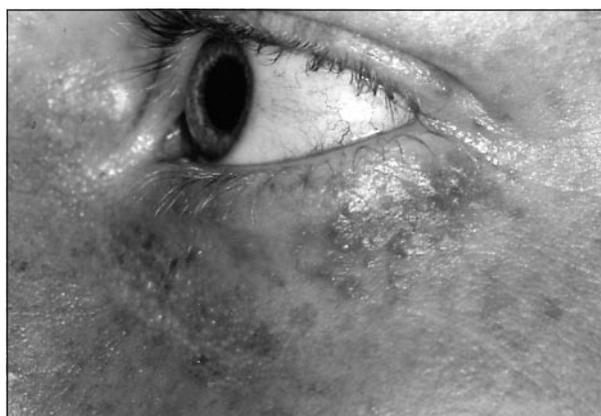


Figure 2. Acneiform papules and pustules on lower eyelid.

clearing.⁷ We report a series of 106 prepubertal children with steroid rosacea.

RESULTS

A total of 106 children had evaluable data. There were 46 boys and 60 girls. Preceding steroids used were predominantly (54% of children) class 7 agents, including 1% hydrocortisone and over-the-counter hydrocortisone preparations. Only 3% of children used superpotent (class 1) topical steroids. The mean age at onset was 7.04 years, with a range of 6 months to 13 years. Twenty-nine children were younger than 3 years. A family history of rosacea was found in 20% of cases. Half of these were determined from history taking, the other half by examination of family members. All children were accompanied by one parent, and 11 of the family members had rosacea upon examination even when they declared they were not affected.

Ninety-eight children had perinasal involvement (**Figure 1**); 94 had perioral involvement; and 44 had periorbital involvement, exclusively on the lower eyelids (**Figure 2**). After abruptly stopping topical steroid use and starting therapy with oral erythromycin or topical clindamycin, 86% of the children had complete clearing within 4 weeks and 100% by 8 weeks. Clearing within 3 weeks was observed in 22% of children. There was no difference in time to clearing between treatment with oral or topical antibiotics ($P = .46$).

COMMENT

It is noteworthy that 20% of children had a family member with rosacea. We believe this to be an underestimate, as we were unable to personally examine all first-degree relatives. When we did examine relatives, we found affected individuals who did not know they had rosacea, perhaps because the term is not widely known. The phenomenon of affected family members has only been reported in identical twins.⁹

We were surprised that more than half the patients had their rosacea precipitated by the lowest-strength (class 7) topical steroids, including over-the-counter preparations. It has been presumed that over-the-counter hydrocortisone and prescription 1% hydrocortisone were safe to use in children. This is based on the inability of these preparations to suppress the hypothalamic-pituitary-adrenal axis.¹⁰⁻¹² From our findings it is evident that low-strength steroids may induce rosacea, at least in susceptible children. The finding that the lowest-strength steroids induce rosacea contradicts the strategy that recommends decreasing the strength of topical steroid during treatment of steroid rosacea. Superpotent topical steroids,¹¹ such as clobetasol propionate or betamethasone dipropionate (including the combination product Lotrisone), were responsible for the steroid rosacea in only 3% of children.

The nature of the initial skin condition that was treated with topical steroids was uncertain, as we did not

examine the patients at the time of treatment. We suspect that a nonspecific dermatitis or even rosacea itself was the reason for treatment.

Involvement of the perinasal skin and perioral skin was seen in almost all patients (95% and 99%, respectively), and 44% also had involvement of the lower eyelids. When present, we believe lower eyelid involvement is a useful clue.

Abrupt discontinuation of topical steroids and institution of oral antibiotics resulted in clearing within 4 weeks for the majority of patients. This finding additionally does not support the concept that prepubertal children with steroid rosacea need to continue therapy with low-strength steroids in a gradual withdrawal strategy. Our patients responded more quickly than the reported clearing with the use of topical metronidazole.

We recommend taking a family history for rosacea in children with perioral dermatitis, abrupt discontinuation of topical steroid preparations, institution of oral erythromycin, and avoidance of the use of all topical steroid preparations including low-strength preparations on a susceptible child's face.

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REFERENCES

1. Savin JA, Alexander S, Marks R. A rosacea-like eruption of children. *Br J Dermatol.* 1972;87:425-429.
2. Franco HL, Weston WL. Steroid rosacea in children. *Pediatrics.* 1979;64:36-38.
3. Wilkinson DS, Kirtan V, Wilkinson JD. Perioral dermatitis: a 12-year review. *Br J Dermatol.* 1979;101:245-257.
4. Frieden IJ, Prose NS, Fletcher V, Turner ML. Granulomatous perioral dermatitis in children. *Arch Dermatol.* 1989;125:369-373.
5. Manders SM, Lucky AW. Perioral dermatitis in childhood. *J Am Acad Dermatol.* 1992;27:(5 pt 1):688-692.
6. Drolet B, Paller AS. Childhood rosacea. *Pediatr Dermatol.* 1992;9:22-26.
7. Miller SR, Shalita AR. Topical metronidazole gel (0.75%) for the treatment of perioral dermatitis in children. *J Am Acad Dermatol.* 1994;31:847-848.
8. Boeck K, Abeck D, Werfel S, Ring J. Perioral dermatitis in children—clinical presentation, pathogenesis-related factors and response to topical metronidazole. *Dermatology.* 1997;195:235-238.
9. Weston WL, Morelli JG. Identical twins with perioral dermatitis [letter]. *Pediatr Dermatol.* 1998;15:144.
10. McKenzie AW, Stoughton RB. Method for comparison percutaneous absorption of steroids. *Arch Dermatol.* 1962;86:608-610.
11. Stoughton RB. Vasoconstrictor assay-specific applications. In: Maibach HI, Surber C, eds. *Topical Corticosteroids.* Basel, Switzerland: Karger; 1992:42-53.
12. Hepburn D, Aeling JL, Weston WL. A reappraisal of topical steroid potency. *Pediatr Dermatol.* 1996;13:239-245.