Case Presentation

Childhood granulomatous periorificial dermatitis: Ivermectin as a novel therapeutic approach

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Abstract

We report the case of a 9-year-old boy with typical clinical and histopathologic features of childhood granulomatous periorificial dermatitis. Despite multiple previous treatment attempts, the condition persisted. The patient had a concurrent history of asthma and was receiving daily inhaled fluticasone therapy. Management was challenging, as the patient exhibited resistance to conventional treatments, possibly owing to the use of inhaled corticosteroids, where discontinuation is usually the first step. Therapy with topical and a single dose of oral ivermectin was employed successfully, likely owing to its anti-inflammatory and anti-parasitic effects on *Demodex* spp. To our knowledge, this is the first case of ivermectin use in this condition. Both topical and systemic ivermectin appear to be safe and efficacious therapeutic options.

Introduction

Childhood granulomatous periorificial dermatitis (CGPD) is characterized by an asymptomatic, monomorphic papular eruption around the mouth, nose, and eyes.[1] The absence of pustules, the presence of discrete yellow-brown papules with minimal erythema and scaling, and a perifollicular granulomatous infiltrate on biopsy distinguish CGPD from typical perioral dermatitis (**Table 1**).[2] Its etiology remains unknown. CGPD primarily affects prepubescent children of both sexes and typically resolves without scarring over several months.

Case Synopsis

A 9-year-old Portuguese boy, phototype III on the Fitzpatrick scale, presented with persistent, asymptomatic erythematous micropapules that had appeared consecutively around the nose, eyes, and mouth over the previous 8 months. On physical examination, numerous monomorphic papules—some flesh-colored and others erythematous-pink—were observed in a periorificial distribution on the face (periocular, perinasal, and perioral regions), as well as in the glabella and supraciliary areas, without pustules (**Figure 1**).

The parents reported a steady increase in the number of papules, and the patient had previously consulted multiple physicians without a definitive diagnosis. None of the prior treatments, including oral clarithromycin, topical and systemic corticosteroids, pimecrolimus cream, boric acid solution, and emollients, provided relief. The patient also had a history of asthma and was receiving daily inhaled salmeterol/fluticasone, oral montelukast, and inhaled salbutamol/ipratropium for exacerbations.

Skin biopsy revealed an unremarkable epidermis and a scant perivascular lymphohistiocytic inflammatory infiltrate in the mid and deep dermis, along with epithelioid granulomas without necrosis or lymphocytic crown, and without any identifiable foreign body, consistent with CGPD (**Figure 2**). Microbiology cultures were negative.

Initiation of topical tacrolimus and ivermectin led to significant improvement, although some periorificial millimeter-sized papules persisted. After administration of a single oral dose of ivermectin (214 µg/kg), there was almost complete clearance of skin lesions. Six months after the first oral dose, the patient received a second single dose, maintaining the clinical response.

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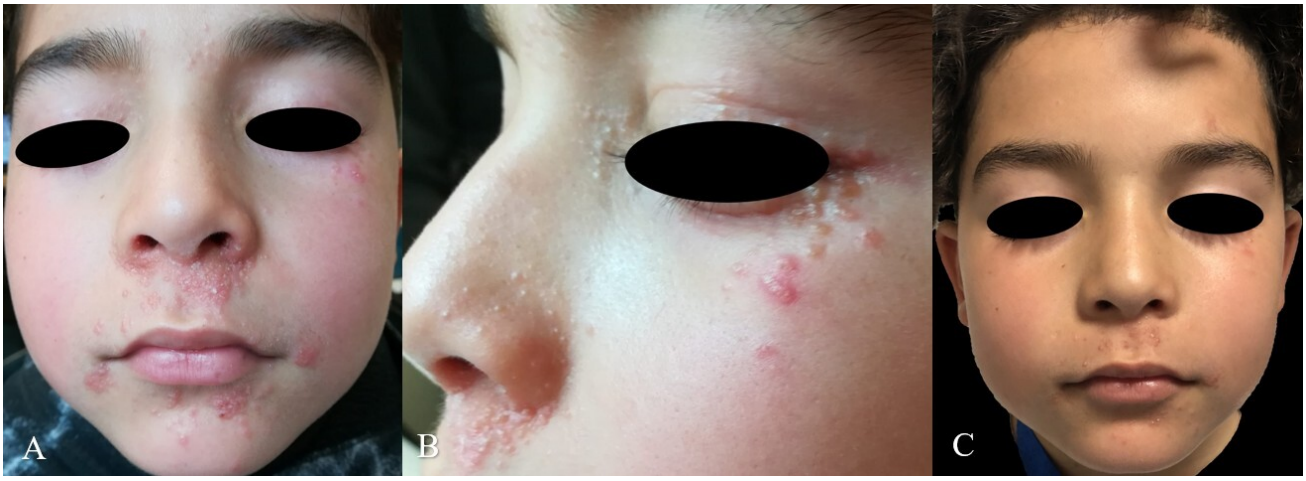

Figure 1. ***(A, B)*** *Childhood granulomatous periorificial dermatitis at the time of diagnosis, first appointment at our clinic, and* ***(C)*** *1 month after topical therapy and a single oral dose of ivermectin.*

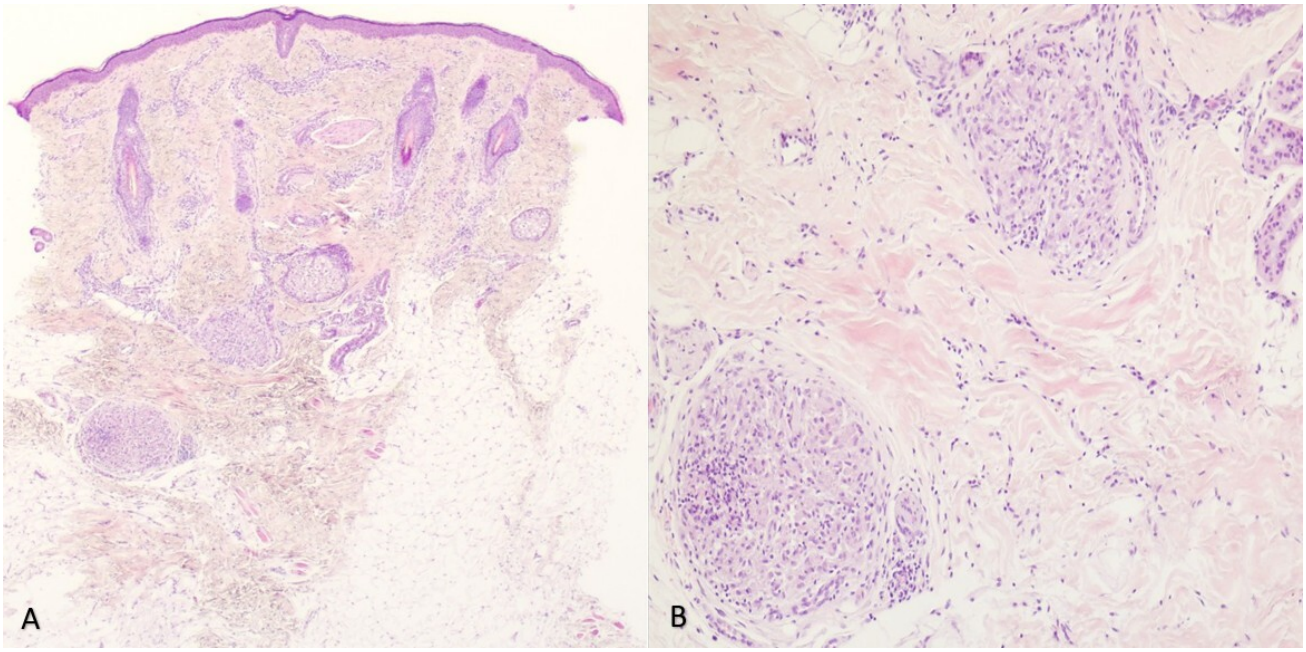

Figure 2. *Skin biopsy from the perioral area showing lymphohistiocytic inflammatory infiltrate in the* ***(A)*** *mid and deep dermis (hematoxylin-eosin, original magnification ×40) and* ***(B)*** *epithelioid granulomas (hematoxylin-eosin, original magnification ×100).*

Case Discussion

CGPD was first reported in 1970 by Gianotti et al[1] and is considered an uncommon variant of perioral dermatitis. Diagnosis is based on clinical presentation (flesh-colored or yellow-brown papules without vesicles or pustules, distributed in periorificial areas of the face) and the presence of a perifollicular granulomatous infiltrate on histopathology.

The first step in management should be discontinuation of all topical corticosteroids, as rebound flaring is often observed after their cessation.[3] Owing to its benign and self-limiting course, treatment is not mandatory. However, when the condition significantly impacts the child's well-being, topical metronidazole and, depending on age, tetracyclines or erythromycin may be effective.

Our patient demonstrated resistance to conventional treatment options, possibly owing to an unmodifiable trigger. Discontinuation of inhaled corticosteroids was not possible because of comorbid asthma; therefore, barrier creams were used in conjunction with inhaler therapy. Notably, topical ivermectin is effective in papulopustular rosacea and periorificial dermatitis in children.[4] In addition to its anti-parasitic effect on *Demodex* spp., ivermectin exhibits anti-inflammatory properties by downregulating gene expression of IL-8, LL-37, HBD3, TLR4, and TNF-α in vivo (murine model).[5] We believe the

Table 1. *Comparison of Typical Features of Periorificial Dermatitis and Granulomatous Periorificial Dermatitis.*

Feature	Periorifial Dermatitis[6]	Granulomatous Periorificial Dermatitis[1,2,4]
Age	More common in young adults; may affect children	Exclusively prepubertal children
Gender	Female predominance	Male predominance
Ethnicity	No significant ethnic predilection	More prevalent in Afro-Caribbean
Location	Perioral, periocular, and perinasal regions, sparing the vermilion border	Perioral, perinasal, and periorbital regions; may not spare the circumoral area; rarely involves ears, neck, scalp, trunk, vulva, or extremities
Lesion morphology	Small, pink to flesh-colored papules; may present with scaling, vesicles, and pustules; absence of comedones	Monomorphic flesh-colored to yellow-brown papules or papulovesicles; absence of pustules; less prominent erythema and scaling
Pathology	Perifollicular and perivascular lymphohistiocytic inflammatory infiltrate with sparse plasma cells	Upper dermal and perifollicular noncaseating granulomas surrounded by lymphocytes; mild to moderate spongiosis
Treatment	Topical metronidazole; topical erythromycin; topical calcineurin inhibitors; oral tetracycline antibiotics (only in patients older than 9 years); oral erythromycin	Discontinuation of all topical corticosteroids, topical metronidazole, oral tetracyclines, and erythromycin

same mechanism applies in this condition, which prompted its addition to the treatment plan. In the present case, systemic administration yielded excellent results, complementing the topical therapy. As the patient had previously received pimecrolimus without improvement, the observed response is attributable to ivermectin rather than switching calcineurin inhibitors.

To our knowledge, this is the first report of ivermectin use in CGPD. Although the condition is generally self-limiting, the patient's discomfort and the cosmetic impact of numerous lesions warranted active treatment.

Conclusion

CGPD presents both diagnostic and therapeutic challenges, given the age group affected, the prevalence of atopic comorbidities, and the frequent need for topical corticosteroid therapy. Clinicians caring for pediatric patients should be familiar with this condition to establish an appropriate diagnostic approach and treatment plan. Ivermectin, administered both topically and systemically, appears to be a safe and effective therapeutic option, likely owing to its anti-inflammatory and anti-parasitic effects on *Demodex* spp.

Potential conflicts of interest

The authors declare no conflicts of interest.

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