INTERNATIONAL JOURNAL
of PEDIATRIC DERMATOLOGY

Vol 1. Iss. 2 (July-December, 2024)

Pediatric periorificial dermatitis and pediatric rosacea: two case reports

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KEYWORDS

perioral dermatitis, rosacea, pediatrics, diagnosis, differential

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ABSTRACT

We present two rare dermatological cases: an 11-year-old boy with pediatric rosacea and a 5-year-old girl with perioral dermatitis. The first patient exhibited central facial lesions that ultimately required hospitalization. He was initially diagnosed with impetigo and treated with cephalexin, oxacillin, and dexamethasone without significant improvement. Subsequent evaluation by a pediatric dermatologist led to a revised diagnosis of pediatric rosacea. The second case involved a 5-year-old girl with periorificial lesions, diagnosed with atopic dermatitis and managed with multiple treatment courses over three years, including corticotherapy, antibiotics and antifungal drugs, without success. The correct diagnosis of periorificial dermatitis was later established, and her condition improved with appropriate therapy. These cases highlight the critical importance of precise dermatological diagnosis to avoid unnecessary and prolonged treatment.

1. Introduction

This report presents two severe pediatric cases of common dermatological conditions: an 11-year-old boy, initially diagnosed with impetigo, later correctly identified as having pediatric rosacea and a 5-year-old girl with a prolonged history of facial lesions ultimately diagnosed with periorificial dermatitis.

Rosacea is a chronic inflammatory disease that manifests in various forms, primarily affecting the central face region. In adults, it is characterized by erythema, telangiectasia, phymatous changes, papules and pustules, according to its subclassifications (1). The exact aetiology and pathogenesis of rosacea are not fully understood, but hypotheses include solar radiation-induced changes and alterations in the expression of immune system elements (e.g., cathelicidins, TLR2, NOD-). The role of microorganisms, particularly the mites Demodex folliculorum and D. brevis, is also considered significant (2–4).

While rosacea predominantly affects adults, with a prevalence of about 5%, it can also occur in children and adolescents. Some studies suggest a pediatric prevalence of around 3% in certain populations. However, the lack of definitive diagnostic criteria may lead to underdiagnosis, leaving the true prevalence in this demographic uncertain (2, 5, 6).

Periorificial dermatitis (POD) is usually a self-limited condition characterized by monomorphic erythematous micropapules, typically distributed around the mouth, nose and eyes (7, 8). Its incidence is not well documented, although it appears to be more frequent among young infants, children and young females - the latter group accounting for 90% of cases (9). The lack of information and consensus regarding its incidence and treatment, especially in pediatrics, may lead to equivocal treatments (10). It was once considered a variant of Rosacea, but it is now recognized as a distinct disorder (11, 12). Its etiology and pathogenesis also remain unknown, but there is an association with the use of corticosteroids (13).

This case series aims to highlight key aspects of the diagnosis and treatment of pediatric rosacea and pediatric periorificial dermatitis, with a particular emphasis on raising awareness of their occurrence in the pediatric population, as these conditions are often overlooked.

2. Case series report

First case

An 11-year-old prepubertal boy, otherwise healthy, presented with facial perinasal lesions that began seven days prior and progressed to hyperemic lesions that extended to the perioral region (Fig. 1a). He sought care at a pediatric emergency room, where he was diagnosed with impetigo and prescribed cephalexin 50 mg/Kg every six hours. After four days of medication, he returned due to worsening symptoms, including purulent facial lesions and difficulty feeding, necessitating hospital admission.

Physical examination revealed extensive erythematous papules distributed periorificially, with no involvement of the periocular region. Oxacillin was initiated at 200mg/kg/day, and laboratory tests, including complete blood count and blood culture, were performed. All results were normal. One day after admission, the lesions developed greenish crusts, prompting the initiation of topical dexamethasone. After four days of hospitalization, he was discharged with a prescription for doxycycline at 100 mg/kg/day, administered orally, and was referred to the pediatric outpatient clinic.

At the outpatient consultation, seven days post-discharge, physical examination revealed erythematous vesiculopapular lesions, alongside candida-like satellite lesions in the frontal region, glabella, and infra-palpebral areas, characterized by erythematous bases and crusty pustules. The patient was subsequently diagnosed with pediatric rosacea. He was then treated with trimethoprim-sulfamethoxazole for 14 days and fluconazole for three days. Following initial improvement, treatment included tacrolimus 0.03%, moisturizer and topical cold chamomile compresses. A multi-repair cream was also prescribed. After 60 days of treatment with tacrolimus 0.03%, azelaic acid 150mg/g and moisturizers, the lesions fully resolved (Fig. 1b).

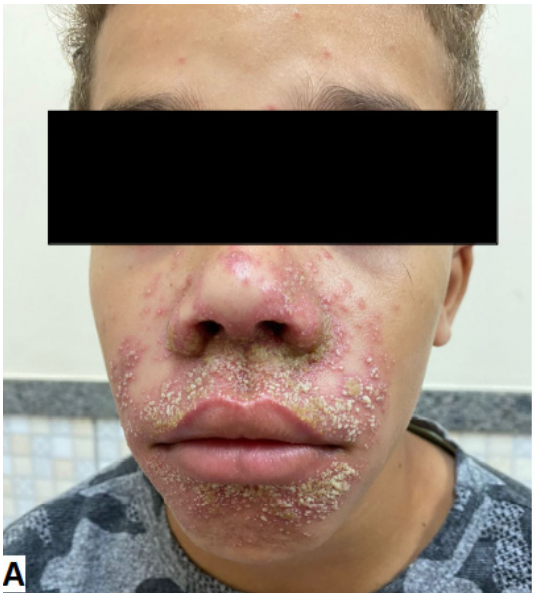

Fig. 1a. *Erythematous vesiculopapular lesions, some coalescing into plaques, with a facial periorificial distribution (eyes, nose and mouth).*

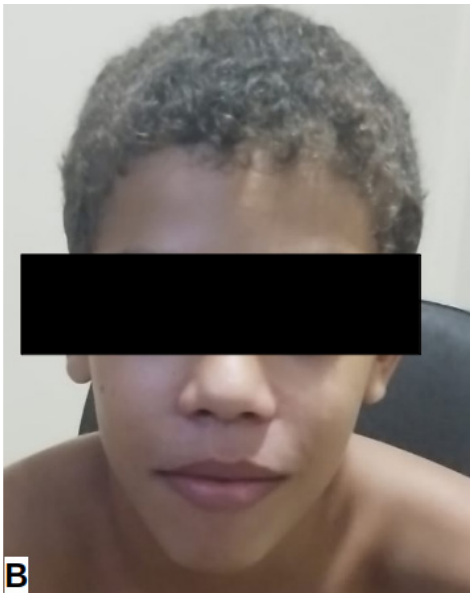

Fig. 1b. *Marked improvement of his lesions after treatment.*

Second case

A 4-year-old girl presented with a one-year history of periorificial lesions, previously diagnosed as atopic dermatitis, and had been treated with various medications (e.g. antibiotics, antihistamines, topical corticosteroids) without improvement. The lesions worsened following a period of mandatory facial mask usage due to COVID-19.

Physical examination revealed periorificial granulomatous papulopustular erythematous lesions, without periocular involvement (Fig. 2a, 2b). She was otherwise healthy, with normal laboratory results, including hemogram, lipid profile and endocrine assessments. Initial treatment included topical metronidazole (7.5mg/g) and moisturizers, followed by topical tacrolimus and azelaic acid. However, over the course of a year, she experienced multiple rhinopharyngeal infections and her facial lesions cycled between improvement and exacerbation. She was treated with amoxicillin/clavulanate and cefadroxil for infections and also with fluconazole and isoconazole for aggravated lesions. Additionally, she developed a strong reaction to topical moisturizers, necessitating the use of topical prednisolone and fluticasone.

Topical metronidazole and ivermectin appeared to worsen her lesions. Ultimately, she was diagnosed with pediatric periorificial dermatitis (POD) and her lesions subsided with a regimen of oral sulfamethoxazole-trimethoprim, combined with topical tacrolimus and azelaic acid. The patient remains under treatment, with her lesions controlled but still experiencing cyclical relapses (Fig. 2c).

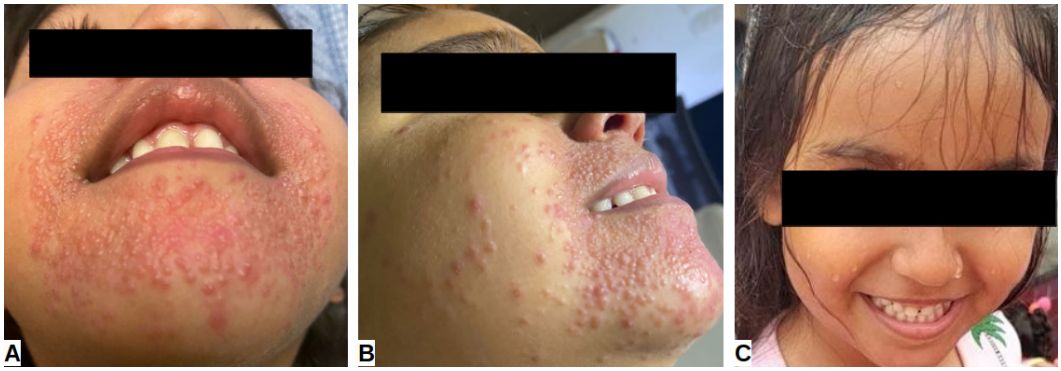

Fig. 2a, b. *Granulomatous papular erythematous lesions, coalescing into extensive plaques in the melolabial fold, extending to periorificial face regions.*
Fig. 2c. *Marked improvement of her lesions after treatment.*

3. Discussion

We have presented here two analogous cases: in the first, a prepubertal boy presented with erythematous papular facial lesions (Fig. 1). Initially diagnosed with impetigo, his condition worsened despite the treatment. The second case involves a 4-year-old girl with extensive erythematous papulopustular lesions in a periorificial distribution (Fig. 2). Initially diagnosed with atopical dermatitis, she did not improve after a year of various treatments.

The resemblance between dermatological lesions can pose significant diagnostic challenges: this report underscores that precise diagnosis and appropriate treatment were achieved only after thorough evaluation. While rosacea and POD are relatively common, their pediatric forms are somewhat rare, with limited literature predominantly consisting of case reports (9, 14). Both conditions present with similar facial erythematous papular lesions, leading to a debate over whether they are distinct disorders of variations of the same condition (2, 11). Their exact diagnosis is not always straightforward and frequently overlooked. A thorough review of all conditions presented is far beyond the scope of this report: our focus is to shed light on both pediatric rosacea and POD so as to raise the awareness of their occurrence.

Despite their similarities, certain key characteristics should be considered to establish an adequate differential diagnosis and treatment in most dermatological lesions. POD and atopic dermatitis, for example, differ significantly in their progression and treatment: POD is often considered self-limited, whereas atopic dermatitis is a chronic disease marked by pruritus, elevated IgE levels and a family history of atopy(15). Impetigo, an acute bacterial infection usually caused by Staphylococcus aureus, differs from rosacea, a chronic condition characterized by waxing and waning cycles (16). Although these conditions may appear similar, their pathogenesis and treatment are distinct.

Rosacea and POD, despite their similarities, have distinguishing features that aid in differential diagnosis. The pathogenesis of both conditions remains poorly understood and treatments generally target the baseline inflammation. This leads to overlapping therapeutic strategies, such as the use of topical metronidazole, azelaic acid, ivermectin and oral antibiotics such as doxycycline, tetracycline and, eventually, in more severe cases, isotretinoin (11, 17, 18). However, the avoidance of corticosteroids is particularly critical in managing POD, where their cessation can be crucial (12). While both conditions in adults are treated similarly, there is limited data regarding pediatric subtleties and most data comes from case reports (3, 19).

4. Conclusion

The cases presented highlight the complexities of pediatric dermatology and underscore the necessity of comprehensive clinical investigations. In the pediatric dermatology setting, it is crucial to consider pediatric POD and rosacea. A thorough evaluation and scrutiny are essential for accurate diagnosis. Finally, it is important to recognize that these dermatological conditions often have impacts extending beyond the skin, particularly in children and adolescents. These aspects, sometimes perceived as peripheral, are significant and should not be underestimated, as they can profoundly affect social and mental health (20).

FUNDING

No funding was received.

DISCLOSURE

All authors report no conflict of interest.

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