SEVERE PSORIASIS IN A 3-YEAR-OLD CHILD TREATED WITH METHOTREXATE

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Abbreviation **MTX** = methotrexate.

Case report. A 3-year-old boy presented with widespread erythematous, scaly plaques involving the scalp, face, trunk, extremities, and inguinal region, with a disease duration of approximately two months. The lesions initially appeared as erythematous patches in the inguinal area and gradually expanded, developing thick white scales. The patient experienced intense pruritus.

He had previously been evaluated at another hospital, where the condition was diagnosed as an allergic reaction. Treatment with a topical corticosteroid ointment and an oral antihistamine was prescribed for one week; however, the symptoms persisted and continued to spread. There was no history of preceding infection and no family history of psoriasis.

On examination, the child was afebrile (36.5 °C), hemodynamically stable, and in good general condition. His body weight was 23 kg (Z-score > +2 SD), consistent with obesity. Dermatologic examination revealed multiple well-demarcated erythematous plaques with thick overlying scales on the anterior and posterior thorax, abdomen, and extremities (Fig. 3). The scalp and facial regions showed confluent erythematous macules with thick, adherent scales (Fig. 1). The inguinal region exhibited erythematous macules with thin scaling. Nail examination revealed pitting. Both the Auspitz sign and the Koebner phenomenon were positive.

Histopathological examination of a skin biopsy demonstrated parakeratosis, acanthosis, mild spongiosis, elongation of rete ridges, and superficial perivascular lymphocytic infiltration, findings consistent with psoriasis vulgaris.

Based on the clinical and histological findings, a diagnosis of psoriasis vulgaris with comorbid obesity was established. Due to the extensive skin involvement, systemic therapy with methotrexate 2.5 mg (0.1 mg/kg/week) was initiated after baseline laboratory evaluations were confirmed to be within normal limits. Folic acid 1 mg daily was prescribed for six days per week following methotrexate administration.

After two weeks of treatment, the lesions showed a reduction in erythema and scaling. At one month, the plaques had significantly thinned, with a marked decrease in inflammation. After two months of methotrexate therapy, the majority of lesions had resolved, leaving post-inflammatory macules with minimal residual scaling (Figs. 2, 4). The patient's initial Psoriasis Area and Severity Index (PASI) score was 19.8, which decreased to 0 after two months of treatment. Laboratory monitoring remained stable throughout therapy, and no adverse effects were reported.

Discussion. Psoriasis vulgaris is a chronic immune-mediated inflammatory dermatosis that can occur at any age, including early childhood. The prevalence of pediatric psoriasis ranges from 0.1% to 1.5%, with a nearly linear increase from infancy to adolescence and a median age of onset between

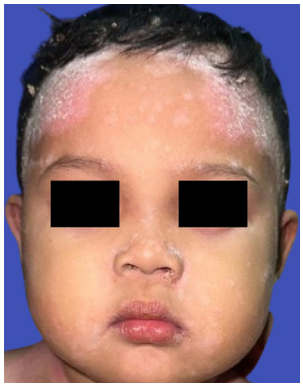
Fig. 1

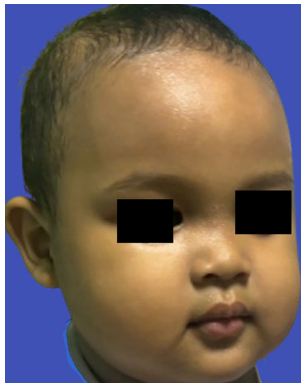
Fig. 2

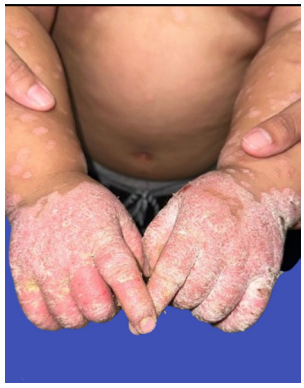
Fig. 3

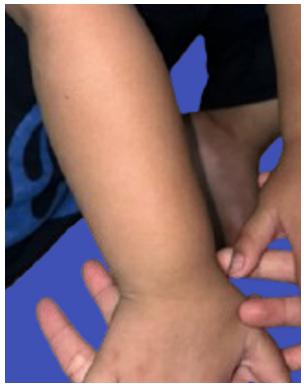
Fig. 4

Fig. 1, 2, 3, 4: Severe psoriasis in a 3-year-old child, before (Figs. 1, 3) and after (Figs. 2, 4) treatment with methotrexate.

7 and 10 years (1, 2). Pediatric-onset psoriasis may present differently from adult-onset disease. The most common clinical forms include plaque psoriasis (41%), diaper psoriasis (37% in infants), guttate psoriasis (15-30%), and inverse psoriasis (22.2% in infants), which primarily affects intertriginous areas (2). These clinical variants may contribute to diagnostic delays or misdiagnosis, particularly in very young children (3).

Early-onset psoriasis is associated with a higher likelihood of persistence into adulthood, and the prevalence of chronic and guttate forms is significantly higher compared with late-onset psoriasis (4), underscoring the importance of early diagnosis and appropriate management.

Psoriasis with early onset is increasingly recognized as a systemic inflammatory condition associated with multiple comorbidities, including obesity, hyperlipidemia, hypertension, diabetes mellitus, and rheumatoid arthritis (1, 2, 5). Obesity contributes to both the development and exacerbation of psoriasis through increased systemic inflammation, driven by elevated levels of pro-inflammatory cytokines such as TNF-α, IL-6, and IL-17. These mediators amplify psoriatic activity and may reduce therapeutic responsiveness (6, 7).

Treatment options for pediatric psoriasis vary according to disease severity. Mild cases are generally managed with topical therapies, including emollients and topical corticosteroids. In moderate-to-severe disease, treatment options include methotrexate (MTX), phototherapy, and biologic agents (8). Systemic therapy is typically recommended for moderate-to-severe psoriasis, rapidly progressive disease, involvement of ≥10% of the body surface area, or significant impairment in quality of life. Recent consensus statements emphasize the importance of individualized treatment strategies based on disease severity, comorbidities, and medication safety profiles (9).

Methotrexate remains one of the most widely used systemic therapies for moderate-to-severe pediatric psoriasis due to its affordability, long-standing clinical experience, and relatively favorable safety profile, particularly in regions where biologic therapies are less accessible (9). Although pediatric data remain limited, recent consensus guidelines and multicenter pediatric cohort studies support the efficacy of methotrexate in achieving disease control with acceptable tolerability when administered with appropriate laboratory monitoring and folate supplementation (9, 10).

Despite its off-label use in many countries, methotrexate has demonstrated consistent efficacy, safety, and cost-effectiveness, making it a cornerstone of pediatric systemic therapy (11, 12). Several studies have reported significant improvement in psoriasis severity after 6-12 weeks of low-dose weekly methotrexate therapy (13-15).

In the present case, low-dose methotrexate (0.1 mg/kg/week) resulted in marked clinical improvement within the first month and near-complete disease clearance by the second month, without

adverse effects or laboratory abnormalities. This outcome is consistent with existing evidence supporting methotrexate as a reliable option for pediatric psoriasis with extensive disease or involvement of functionally sensitive areas (11).

Beyond its established dermatologic benefits, methotrexate has been associated with a reduced risk of cardiovascular events due to its systemic anti-inflammatory effects, particularly when used at low doses with folic acid supplementation. Importantly, methotrexate's anti-inflammatory mechanism may be especially beneficial in obese children, in whom elevated pro-inflammatory cytokines such as TNF-α, IL-6, and leptin contribute to a more severe psoriatic phenotype and a potentially reduced response to topical therapies. This highlights the unique therapeutic relevance of methotrexate in pediatric psoriasis complicated by obesity (5, 16).

Although biologic therapies targeting the IL-17 and IL-23 pathways offer rapid and robust disease control, their use in children is limited by age restrictions, high costs, and limited availability in many healthcare settings. Consequently, methotrexate continues to represent an essential first-line systemic therapy for pediatric patients with moderate-to-severe psoriasis, particularly when comorbid obesity or psychosocial impairment warrants early systemic intervention (9). Careful clinical and laboratory monitoring, together with folic acid supplementation, is necessary to optimize therapeutic outcomes and minimize adverse events (15).

Conclusions. This case highlights the role of methotrexate in the management of pediatric psoriasis, particularly in the presence of comorbidities and in resource-limited settings.

Conflicts of interest

The authors declare that they have no conflicts of interest.

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