International Journal of Research in Dermatology
Kharkar V et al. Int J Res Dermatol. 2022 Jan;8(1):124-127
http://www.ijord.com

DOI: https://dx.doi.org/10.18203/issn.2455-4529.IntJResDermatol20214784

Case Report

Localized pustular psoriasis in a child treated successfully with topical dapsone gel

Vidya Kharkar, Surender Singh*, Yallappa Ramachandrappa Kabbannavar

Department of Dermatology, Seth G.S Medical College and KEM Hospital, Mumbai, Maharashtra, India

Received: 09 November 2021
Revised: 17 November 2021
Accepted: 18 November 2021

***Correspondence:**
Dr. Surender Singh,
E-mail: surender1994singh@gmail.com

ABSTRACT

Psoriasis is a chronic inflammatory, immune mediated dermatosis in children and adults. About one third of cases affected with psoriasis have their onset in first and second decade of life. Of paediatric population, about 0.5-2% is affected, infants are rarely affected. Overall plaque psoriasis is most common type followed by guttate and pustular psoriasis. Treating severe forms of psoriasis such as pustular psoriasis and erythrodermic psoriasis can pose difficulties, especially in paediatric population. Hence paediatric psoriasis needs to be managed effectively, however effective therapy also poses the risk of producing adverse effects, more so in paediatric age group. We report a case of localized pustular psoriasis, with an antineutrophil agent which is much safer and may target directly the pathophysiology of pustular psoriasis.

Keywords: Localized pustular psoriasis, Palmoplantar pustular psoriasis, Acrodermatitis continua of Halloppeau, dapsone, G6PD, Children

INTRODUCTION

Psoriasis is a chronic inflammatory immune mediated disorder in both children and adults.[1] Of paediatric population, about 0.5-2% is affected, infants are rarely affected.[2,3] The preponderence for development of pustular psoriasis and psoriatic erythroderma in children is rare compared to adults. Of pustular psoriasis generalized pustular psoriasis of Von Zumbusch and annular pustular psoriasis occur more frequently in children and localized variants such as palmoplantar pustular psoriasis (PPPP) and acrodermatitis continua of Hallopeau, occur infrequently.[4,5] Management of pustular psoriasis should be immediate and intensive in order to avoid untoward complications. Dapsone with its antineutrophilic action has been used in management of pustular psoriasis successfully, with lesser side effects as compared to other medications used in the treatment of psoriasis. We report a case of 6 year old female child with localized pustular psoriasis treated successfully with topical dapsone 5% gel, in remission till date with no side effects.

CASE REPORT

A 6 year old female child presented to our outpatient department with painful and minimally itchy tiny pus filled lesions over distal aspects bilateral hands and feet associated with history of fever since 2 weeks. History of application of steroids and there was exacerbation of the lesions after stopping. There was no history of any drug intake or history of atopy. There was no similar history in the family. On examination there were multiple pustules coalasing to form lake of pus over distal aspects of all the fingers, toes and bilateral soles, with erosions and yellowish to hemorrhagic crusts over over it. Oral cavity was normal. Smear from pustules showed neutrophils, no organism seen. Baseline investigations consisting of

complete blood count, liver and renal function test, urine analysis, chest radiograph,G6PD were normal.

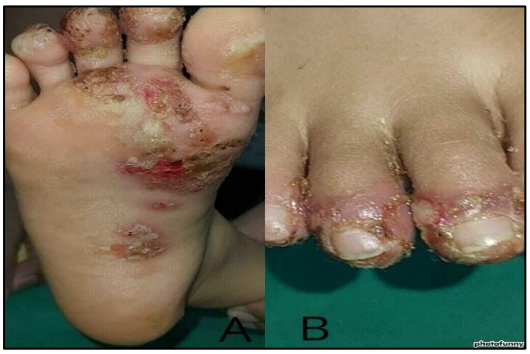

Figure 1 (A and B): Multiple pustules collapsing to form lake of pus over distal aspects of all the fingers, with erosions and yellowish to hemorrhagic crusts over over it.

Figure 2: Multiple pustules collapsing to form lake of pus over soles and toes.

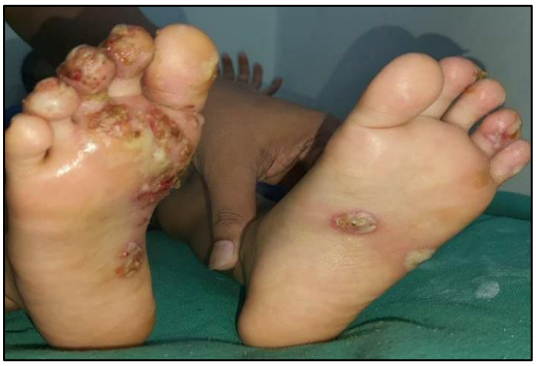

Figure 3: Clinical image showing multiple pustules collapsing to form lake of pus over soles with erosions and yellowish to hemorrhagic crusts over over it.

The patient was given topical 5% dapsone gel twice a day on right hand and feet and fluticasone propionate (0.05%) cream on left side along with antihistamines, antibiotics, moisturizer with clearing of lesions within 1 week. After 1 week, improvement on right side, treated with topical dapsone was better than left side treated with topical steroids and hence we switched over to topical dapsone gel on both sides, with no recurrence and the patient is in remission till date.

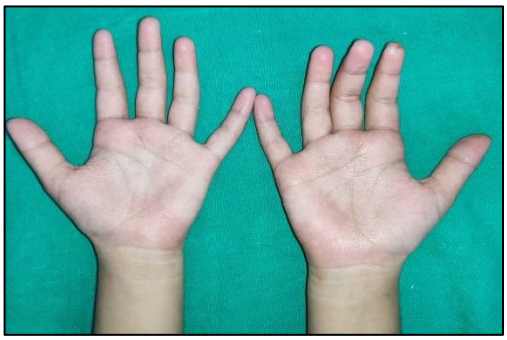

Figure 4: Post treatment clearing of lesions over bilateral hands.

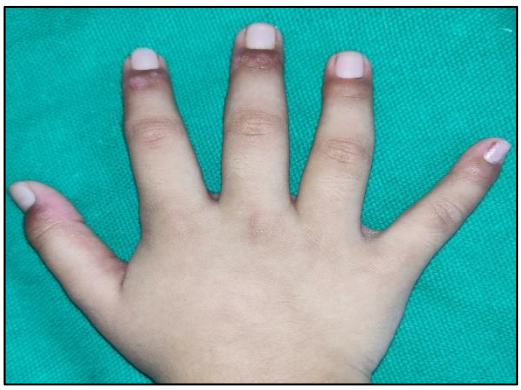

Figure 5: Clearing of lesions over dorsal surface of fingers.

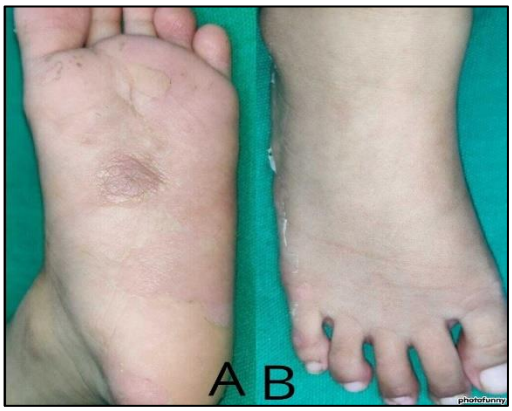

Figure 6 (A and B): Clinical image showing resolution of lesions over soles and dorsal surface of toes.

DISCUSSION

The prevalence among the paediatric population is 0.5-2%, infants are rarely affected. There are different morphological variants of psoriasis, classic plaque psoriasis most common, followed by guttate and pustular variant being uncommon. Of the pustular psoriasis, generalized pustular psoriasis of Von Zumbusch and

annular pustular psoriasis occur more commonly than the localized variants such as PPPP and acrodermatitis continua of Hallopeau. Several triggering factors have been proposed in pustular psoriasis including medications ,bacterial infections, sun burns, pregnancy, use of coal tar, emotional stress, vaccination, hypocalcemia and withdrawal of corticosteroids.[6,7] Immediate intensive management is essential in case of pustular psoriasis especially generalized pustular psoriasis to avoid potentially life threatening complications such as bacterial superinfection, sepsis, metabolic, hemodynamic and thermoregulatory disturbances.[8] Localized disease can be managed with topical medications such as emollients, keratolytics, humectants, coal tar, dithranol, corticosteroids, vitamin D analogs, calcineurin inhibitors and retinoids. Severe disease needs systemic medications such as methotrexate, cyclosporine, acitretin, phototherapy and biologics.[9] Acitretin is reported to be effective in treating severe forms of psoriasis in children.[10,11] In localized pustular psoriasis first line of treatment includes topical medications (steroids and calcipotriene) under occlusion and for recalcitrant disease, oral retinoids, cyclosporine, methotrexate and biologics such as anakinra. Dapsone was used for the first time in the treatment of pustular psoriasis by Mac-millan and Champion.[12] Dapsone is an immunomodulator, antibacterial and its anti-inflammatory properties have proven useful in dermatological conditions such as dermatitis herpetiformis bullous diseases and pyoderma gangrenosum. The mechanism of use of dapsone in pustular psoriasis is due to its inhibitory action on neutrophil recruitment /adherence and myeloperoxidase and it is also thought that dapsone interferes with integrin –mediated neutrophil adherence and G protein –mediated signal transduction for neutrophil recruitment.[13,14] Topical application of dapsonehydroxylamine, a metabolite of dapsone has found to inhibit polymorphonuclear leukocytes in human skin.[15,16] Side effects of oral dapsone includes methemolobinemia, dose-related hemolysis and agranulocytosis and rarely hypersensitivity syndrome ,peripheral motor neuropathy, insomnia, hepatitis and renal toxicity.[17] Other than dose related hemolysis, above side effects are fairly uncommon and patients are easily monitored by means of laboratory exams for hemolysis via hemoglobin, reticulocyte count. Topical dapsone 5% gel has a safe side effect profile due to its low systemic absorption.[18]

CONCLUSION

We present our case because of the rarity of localized variant of pustular psoriasis, treated successfully with topical dapsone. Topical dapsone obviates the need for followup blood investigation as compared to oral dapsone and also topical dapsone has less side effects. Hence we conclude that topical dapsone should be used before using oral dapsone while treating localized pustular psoriasis. which has lesser side effects than other modalities of treatment.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Augustin M, Glaeske G, Radtke MA, Christophers E, Reich K, Schafer I. Epidemiology and comorbidity of psoriasis in children. Br J Dermat. 2010;162(3):633-6.
2. 2.Patrizi A, Neri I, Ricci G, Cipriani F, Ravaioli GM. Advances in pharmacotherapeutic management of common skin diseases in neonates and infants. Expert Opin Pharmacother. 2017;18:717 25.
3. Mahé E. Childhood psoriasis. Eur J Dermatol. 2016;26:537 48.
4. Kravvas G, Gholam K. Use of topical therapies for pediatric psoriasis: A systematic review. Pediatr Dermatol. 2018;35:296 302.
5. Dogra S, Kaur I. Childhood psoriasis. Indian J Dermatol Venereol Leprol. 2010;76:357 65.
6. Cassandra M, Conte E, Cortez B. Childhood pustular psoriasis elicited by the streptococcal antigen: a case report and review of the literature. Pediatr Dermatol. 2003;20:506-10.
7. Kopp T, Karlhofer F, Sze´pfalusi Z. Succesful use of acitretin in conjunction with narrowband ultraviolet B phototherapy in a child with severe pustular psoriasis, von Zumbusch type. Br J Dermatol. 2004;151:912-6.
8. Augey F, Renaudier P, Nicolas JF. Generalized pustular psoriasis (Zumbusch): a French epidemiological survey. Eur J Dermatol. 2006;16:669-73.
9. Dogra S, Kaur I. Childhood psoriasis. Indian J Dermatol Venereol Leprol. 2010;76:357 65.
10. Kim HS, Kim GM, Kim SY. Two-stage therapy for childhood generalized pustular psoriasis: low-dose cyclosporine for induction and maintenance with acitretin ⁄ narrowband ultraviolet B phototherapy. Pediatr Dermatol. 2006;23:306-8.
11. . Marcoux D, Prost Y. Pediatric psoriasis revisited. J Cutan Med Surg. 2002;6:22-8.
12. Macmillan AL, Champion RH: Generalized pustular psoriasis treated with dapsone. Br J Dermatol. 1973;88:183-5.
13. Wozel G. Dapsone hydroxylamine inhibits the LTB4-induced chemotaxis of polymorphonuclear leukocytes into human skin: results of a pilot study. Inflamm Res. 1997;46:420-2.
14. Pfeiffer C, Wozel G. Dapsone and sulfones in dermatology: overview and update. J Am Acad Dermatol. 2003;48:308-9.
15. Zhu KJ. Complete atrioventricular block associated with dapsone therapy: a rare complication of dapsone-induced hypersensitivity syndrome. J Clin Pharm Ther. 2009;34:489-92.
16. Lorenz M, Wozel G, Schmitt J. Hypersensitivity reactions to dapsone: a systematic review. Acta Derm Venereol. 2012;92:194-9.

17. Dapsone: Administration/Monitoring. Micromedex 2.0. Truven Health Analytics, I.G.V., CO. Available at: http://www.micromedexsolutions.com. Accessed on 30 September 2014.
18. Stotland M, Shalita AR, Kissling RF. Dapsone 5% gel: a review of its efficacy and safety in the treatment of acne vulgaris. Am J Clin Dermatol. 2009;10:221-7.

Cite this article as: Kharkar V, Singh S, Kabbannavar YR. Localized pustular psoriasis in a child treated successfully with topical dapsone gel. Int J Res Dermatol 2022;8:124-7.