

# Ofuji's disease in an immunocompetent patient successfully treated with dapsone

Gopikrishnan Anjaneyan, Sindhura Manne, Vinitha Varghese Panicker, Malini Eapen<sup>1</sup>

Departments of  
Dermatology and  
<sup>1</sup>Pathology, Amrita  
Institute of Medical  
Sciences and Research  
Centre, Kochi, Kerala,  
India

## ABSTRACT

Eosinophilic pustular folliculitis or Ofuji's disease is a non-infectious eosinophilic infiltration of hair follicles, which usually presents with itchy papules and pustules in a circinate configuration. We report this case of an immunocompetent patient with erythematous papules and plaques without macropustules diagnosed as eosinophilic pustular folliculitis—a rarely reported entity outside Japan. He was successfully treated with oral dapsone.

**Key words:** Dapsone, eosinophilic pustular folliculitis, Ofuji's disease

## INTRODUCTION

Eosinophilic pustular folliculitis (EPF), or Ofuji's disease, is a rare idiopathic pruritic papulopustular dermatosis. It was first described in 1970 from Japan by Ofuji *et al.* as a distinct but rare disorder in otherwise healthy people.<sup>[1,2]</sup>

Classical EPF is characterized by (1) recurrent crops of sterile pruritic follicular papulopustules occurring usually on the face and trunk; (2) peripheral extension of the lesions with central clearing; (3) resolution with residual pigmentation; (4) absence of systemic symptoms; (5) chronicity; (6) subsequent appearance of new lesions in the areas of pigmentation; and (7) peripheral eosinophilia.<sup>[3]</sup>

This disease has rarely been reported from India<sup>[4]</sup>; this maybe because of its rarity or it may have been overlooked or underdiagnosed. We report a case of EPF in an HIV-negative individual who was successfully treated with dapsone.

## CASE REPORT

A 47-year-old male agriculturalist presented to our dermatology outpatient department with complaints of itchy reddish raised lesions over the forearms; progressively involving the trunk, lower limbs, and face over the last 7 months. There was no mucosal involvement or other systemic manifestations. He had history of

atopic eczema in childhood. He gave a history of drug reaction to ibuprofen and diclofenac. He had been treated by a general practitioner with oral antihistamines and topical steroids with no improvement.

On examination, there were multiple well-defined, erythematous, follicle-based papules with minimal scaling, some of which were coalescing to form plaques distributed over the chest, back, lower limbs, and face [Figure 1]. There were no pustules, but a few excoriations were present. There was no lymphadenopathy.

Blood investigations showed peripheral eosinophilia with 25% eosinophils (normal <6%) on differential WBC count. Absolute eosinophil count was 2990/mcL (normal <350 cells/mcL). His serum IgE level was 1873 IU/ml (normal <100 IU/ml). VDRL test and KOH fungal smear were negative. Renal function test, liver function test, urine routine examination, erythrocyte sedimentation rate, and antinuclear antibodies were normal.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

**For reprints contact:** reprints@medknow.com

**Cite this article as:** Anjaneyan G, Manne S, Panicker VV, Eapen M. Ofuji's disease in an immunocompetent patient successfully treated with dapsone. Indian Dermatol Online J 2016;7:399-401.

Access this article online

Website: [www.idoj.in](http://www.idoj.in)

DOI: 10.4103/2229-5178.190497

Quick Response Code:



### Address for correspondence:

Dr. Gopikrishnan  
Anjaneyan,  
Department of  
Dermatology, Amrita  
Institute of Medical,  
Sciences and Research  
Centre, Ponekkara,  
Kochi - 682 041,  
Kerala, India.  
E-mail: [drgopikrishnana@gmail.com](mailto:drgopikrishnana@gmail.com)

Lesional skin biopsy showed broad acanthosis with orthokeratosis with a perivascular, perineural, and periappendageal infiltrate of eosinophils and lymphocytes in the dermis. Epidermis showed mild spongiosis but micropustules containing neutrophils/eosinophils were not seen. Follicles showed reticular degeneration with exocytosis of eosinophils and lymphocytes into the follicular epithelium [Figure 2a and b]. Special stains done with periodic acid Schiff (PAS), Alcian blue, and Congo red was unremarkable. Direct immunofluorescence studies for IgG, IgM, IgA, and C3 were all negative.

In view of the clinical findings and investigations, a diagnosis of EPF was made. With this diagnosis a serological test for HIV was sent and he was found to be HIV negative.

As the patient was allergic to NSAIDs, indomethacin could not be started. We treated him with dapsone 100 mg once a day and excellent response was seen within 2 weeks [Figure 3].

## DISCUSSION

Eosinophilic pustular folliculitis is a rare disease characterized by the presence of itchy papules and pustules in a circinate configuration. This has been reported mainly in Japanese population.<sup>[5]</sup>

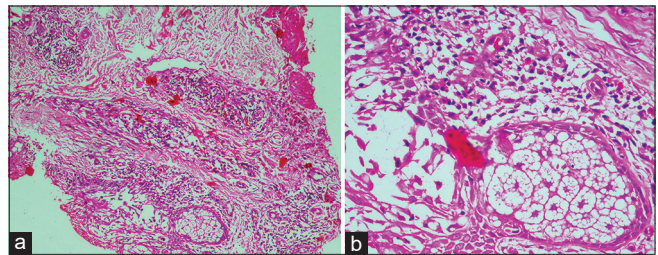
Three different subtypes of EPF have been described: (1) Classic EPF, (2) immunosuppression-associated EPF (mostly HIV-related or in patients who have received a bone marrow transplant), and (3) childhood EPF.<sup>[5]</sup>

Classic EPF presents usually in the third and fourth decade of life. The lesions in this type are characterized by recurrent outbreaks of sterile follicular pustules and papules forming circinate plaques with centrifugal progression. The distribution of classic EPF lesions is on face (85%), back, trunk (59%), and other seborrheic areas. Lesions can also occur on the extremities, palms, and soles, despite the fact that follicles are absent in palms and soles. Pruritus is present in about 40%–50% of cases, and leukocytosis and eosinophilia have been reported in up to 35%.<sup>[2]</sup> In our case, typical circinate lesions were observed with sparing of palms and soles. Another interesting feature in our case was the absence of pustules. Uchiyama *et al.* have previously reported a series of three cases where macroscopic pustules were absent.<sup>[6]</sup>

Immunosuppression-associated EPF displays recurrent, pruritic, erythematous, or urticarial follicular papules located on the upper body associated with severe itching. The clinical presentation differs considerably from classic EPF in that neither large pustules nor figurate lesions are observed and the individual lesions are more chronic and persistent.



**Figure 1:** Erythematous papules and circinate plaques on the back



**Figure 2:** (a) Skin biopsy showing perifollicular inflammation with predominant eosinophilic infiltrate (H and E, ×100). (b) Follicular reticular degeneration with eosinophilic and lymphocytic exocytosis (H and E, ×400)



**Figure 3:** Resolution of the lesions following 2 weeks of dapsone therapy

In childhood type, the lesions are crusted papulopustules associated with severe pruritus and are predominantly distributed over the scalp.<sup>[5]</sup>

Etiology of the disease is still unknown. Different hypotheses have been postulated including drug hypersensitivity (to carbamazepine, minocycline, or allopurinol), infections (e.g., *Demodex folliculorum*, dermatophytes, *Pseudomonas aeruginosa*, and larva migrans), and immunological alterations, which induce a secretion of eosinophilic chemotactic and activation factors. Pathogenesis of this disease remains elusive. The probable mechanism by which eosinophils

infiltrate the pilosebaceous units has not yet been established. Recent studies have hypothesized that prostaglandin D2 (PGD2)/PGJ2-peroxisome proliferator-activated receptor gamma pathway may be involved in the pathogenesis. PGD2 induces sebocytes to produce eotaxin-3, which is a chemoattractant for eosinophils, which may explain the massive eosinophil infiltrates observed around the pilosebaceous units in EPF.<sup>[7]</sup>

Histopathology has a key role in diagnosing classical type EPF. The features are perifollicular eosinophil infiltrate, infundibular spongiosis, and eosinophilic and neutrophilic micropustules. In the dermis, an inflammatory infiltrate of lymphocytes, eosinophils, and neutrophils may be observed.<sup>[6]</sup> Differential diagnosis to be considered are fungal and viral folliculitis, dermatophyte infections, papular urticaria, urticarial vasculitis, secondary syphilis, or seborrheic dermatitis. Histologically, differential diagnosis includes various conditions classified under the term "eosinophilic dermatoses," that is, arthropod bite reactions, drug-related skin reactions, parasitic infections, demodex folliculitis, angiolymphoid hyperplasia with eosinophilia, and eosinophilic cellulitis (Well's syndrome).<sup>[8]</sup>

Different options for management of EPF include topical corticosteroids, indomethacin, dapsons, prednisolone, retinoids, colchicine, itraconazole, cyclosporine, minocycline, PUVA, UVB, and infliximab.<sup>[3,9-11]</sup> The first line of treatment and most effective among the systemic drugs is indomethacin.<sup>[11-13]</sup>

Indomethacin is an inhibitor of cyclooxygenase and a potent agonist of the PGD2 receptor-chemoattractant homologous receptor expressed on T-helper cells2 (CRTH2). It may exert its therapeutic effect via a reduction of CRTH2 expression as well as inhibiting PGD2 synthesis.<sup>[12]</sup>

Mechanism of action of dapsons is inhibition of eosinophil peroxidase activity and inhibition of chemoattractant-induced signal transduction. Our patient remained in good health after achieving resolution with dapsons. The absence of immunosuppression probably led to a more benign clinical course.

## CONCLUSION

This is a case of EPF (Ofuji's disease) with atypical lesions (without pustules) in an immunocompetent individual, where we were unable to determine a clear etiological factor in spite

of performing several tests. Another point that we would like to highlight is the excellent response to dapsons. Although indomethacin is considered the firstline oral medication for EPF, our report brings out the efficacy of dapsons in this condition.

This case report highlights the importance of considering this differential diagnosis in a patient with erythematous papular and circinate eruptions.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

## REFERENCES

1. Ise S, Ofuji S. Subcorneal pustular dermatosis. A follicular variant? Arch Dermatol 1965;92:169-71.
2. Ofuji S, Ogino A, Horio T, Oseko T, Uehara M. Eosinophilic pustular folliculitis. Acta Derm Venereol 1970;50:195-203.
3. Steffen C. Eosinophilic pustular folliculitis (Ofuji's disease) with response to dapsons therapy. Arch Dermatol 1985;121:921-3.
4. Suresh MS, Arora S, Nair RR. Doctor I am on fire: Eosinophilic folliculitis in HIV negative. Indian J Dermatol Venereol Leprol 2009;75:194-6.
5. Nervi SJ, Schwartz RA, Dmochowski M. Eosinophilic pustular folliculitis: A 40 year retrospect. J Am Acad Dermatol 2006;55:285-9.
6. Uchiyama M, Mitsuhashi Y, Okubo Y, Tsuboi R. Eosinophilic pustular folliculitis (Ofuji's disease) without macroscopic pustules. Int J Dermatol 2012;51:50-2.
7. Nakahigashi K, Doi H, Otsuka A, Hirabayashi T, Murakami M, Urade Y, et al. PGD2 induces eotaxin-3 via PPARγ from sebocytes: A possible pathogenesis of eosinophilic pustular folliculitis. J Allergy Clin Immunol 2012;129:536-43.
8. Fujiyama T, Tokura Y. Clinical and histopathological differential diagnosis of eosinophilic pustular folliculitis. J Dermatol 2013;40:419-23.
9. Schmieder A, Damm F, Haus G, Lentz K, Goerdts S, Peitsch WK. Extended eosinophilic pustular folliculitis with reactive bone marrow hypereosinophilia responsive to combined treatment with indomethacin, dapsons, and narrow-band UVB phototherapy. J Am Acad Dermatol 2013;69:e312-4.
10. Hasegawa A, Kobayashi N, Fukumoto T, Asada H. A case of eosinophilic pustular folliculitis with response to infliximab. J Am Acad Dermatol 2012;67:e136-7.
11. Ellis E, Scheinfeld N. Eosinophilic pustular folliculitis: A comprehensive review of treatment options. Am J Clin Dermatol 2004;5:189-97.
12. Satoh T, Shimura C, Miyagishi C, Yokozeki H. Indomethacin-induced reduction in CRTH2 in eosinophilic pustular folliculitis (Ofuji's disease): A proposed mechanism of action. Acta Derm Venereol 2010;90:18-22.
13. Katoh M, Nomura T, Miyachi Y, Kabashima K. Eosinophilic pustular folliculitis: A review of the Japanese published works. J Dermatol 2013;40:15-20.