Psoriasis Vulgaris with Pemphigus Foliaceus Treated with Methotrexate: A Case Report*

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ABSTRACT

Psoriasis is a systematic immune-mediated inflammatory disease where there is an increased cell turnover of the skin leading to scaling, drying, and erythema. The occurrence of pemphigus foliaceus, an autoimmune blistering disease (AIBD) characterized by flaccid bullae and erosions, is rare when concomitantly present with psoriasis. Treatment options for these diseases may overlap. We report a case of a 44-year-old female who presented with both psoriasis and pemphigus foliaceus successfully treated with methotrexate.

Introduction

Challenges in treatment can be encountered when two diseases co-exist. Chronic diseases like psoriasis and pemphigus would require long term cycles of treatment. Taking into consideration the effectiveness, safety and cost to the patient is paramount in achieving disease control and patient compliance. This report recognizes the challenges met in the course of treatment of this case diagnosed with both psoriasis and pemphigus.

Keywords: Psoriasis vulgaris; Pemphigus foliaceus; methotrexate; case report

CASE REPORT

A 44-year-old Filipino woman, who works as a teller with no known comorbidities was seen at the out-patient dermatology clinic with painful and occasionally pruritic erythematous scaly plaques and erosions on the body with no other systemic symptoms. Lesions started 5 months prior as few vesicles on the abdomen spreading to the back, face, and extremities (Figure 1). She was seen by general practitioner who managed her initially as a case of impetigo with oral and topical antibiotics. There was no relief from the initial prescription. A 4mm-skin punch biopsy was done on second opinion consult with a dermatologist which showed changes consistent with psoriasis. She was started on halobetasol cream and oral doxycycline but more lesions appeared with multiple flaccid blisters over the legs.

She was then given prednisone 40mg tablet once daily with tapering over an 8 day period. Still no relief prompting consult at our institution. On her first visit, she presented with eroded vesicles in a seborrheic distribution and the initial impression at this time was Pemphigus foliaceus. To confirm the diagnosis, skin punch biopsies were done. The first specimen was taken from an erythematous plaque on the back (Figure 5) and showed psoriasiform dermatitis suggestive of psoriasis (Figure 6). The second site was on a

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solitary vesicle on the outer right arm (Figure 7) which showed a subcorneal pustular dermatitis with spongiosis suggestive of a blistering disease (Figure 8). Direct Immunofluorescence of a perilesional area on the buttocks showed intercellular deposition of IgG and C3 (Figure 9) and ELISA showed anti- desmoglein 1 levels of >200 RU/ml (normal value: <20 RU/ml), consistent with pemphigus foliaceus. The final diagnoses based on histopathology for our patient is psoriasis with concomitant pemphigus foliaceus.

She was started on prednisone 50mg/tablet once daily, dapsone 50mg/tablet daily for 2 weeks, and mometasone furoate 0.1% lotion applied twice a day on affected areas. However, she reported an increase in erythema, weeping, and crusting (Figure 2). Upon evaluation, the increase in lesions was more attributable to dapsone with prednisone, leading to discontinuation of dapsone and tapering of prednisone by 5mg every 2-3 week. Methotrexate was then initiated at 10mg with folic acid rescue the next day.

The patient dramatically improved by week 2 of methotrexate with gradual hyperpigmentation of old lesions (Figure 3). For the next 3 months, methotrexate was maintained at 10mg weekly with continual tapering of prednisone. No new lesions were observed (Figure 4) and the patient reported no side effects during the treatment period. Regular follow up was done thru telemedicine with monthly monitoring of laboratory parameters.

DISCUSSION

Pemphigus foliaceus is a chronic autoimmune blistering disease characterized by crusted and eroded scaly plaques in a seborrheic distribution. It is caused by IgG antibodies attacking desmoglein-1 in the stratum corneum which is responsible for cell to cell adhesions.[1] Cases of bullous disease with psoriasis, although rare, have been reported. Studies show that pemphigus increases the likelihood of having co-existent diseases like Sjögren syndrome, systemic lupus erythematosus, alopecia areata, with psoriasis being the most common concomitant disease.[2] In a case series with 145 patients diagnosed with psoriasis, pemphigus foliaceus was observed in 2.8% of the cases.[3] There is no explanation for these associations as yet.

Many theories have been postulated to explain the co-existence of psoriasis and pemphigus. Inflammation in psoriatic lesions may upregulate antigens that may attack keratinocytes leading to acantholysis that present clinically as blisters. Another possible explanation is the epitope spreading phenomenon where a secondary autoimmune humoral response may occur due to the exposure of previously hidden antigen protein components during the primary inflammatory process of psoriasis. Another theory is the alteration of T-cell regulation in psoriasis with increased production of autoantibody. Plasminogen activity in pemphigus results in acantholysis and elevated levels of plasminogen activators are also present in psoriatic lesions, serving as another possible link.[4] However, literature shows that the mean duration of AIBD preceded by psoriasis is 10 years while psoriasis occurring after the diagnosis of an AIBD is 4 years.[3] In this case, it is unclear whether psoriasis or pemphigus foliaceus developed simultaneously given that the patient initially exhibited vesicles, or is one occurred before the other.

Systemic corticosteroid therapy is the first line treatment for pemphigus but not for psoriasis. Steroid sparing immunosuppressive agents like rituximab, azathioprine, mycophenolate mofetil, or mycophenolic acid may also be given as adjunct treatment. Dapsone up to 1.5mg/kg/day may be given for pemphigus foliaceus.[5,8] However, this patient did not appear to respond well to the combination of prednisone and dapsone.

Dapsone Syndrome was considered which is characterized as an exfoliative dermatitis with systemic symptoms like fever, lymphadenopathy, and hepatoxicity which has been reported with chronic use of the drug in cases like leprosy but the patient did not present with any systemic symptoms.[6,7] Psoriasis flare-ups due to oral systemic steroids is also a possible reason for the worsening of lesions, however, it would typically present with pustular Von Zombusch type lesions usually with high doses or upon withdrawal of the drug.[9]

Methotrexate, which has anti-inflammatory and antiproliferative properties is a treatment option in both diseases. This was started along with prednisone at 1 mg/kg/day.[8,10] In 2 weeks, the patient responded well with Pemphigus Disease Area Index (PDAI) activity of 4 (from 58 previously) and a Psoriasis Area and Severity Index (PASI) score of 10.4 to 4.8 in a span of 11 days. Methotrexate is the first line systemic non-biologic therapy for psoriasis and a third line therapy for pemphigus.[5,8] Its safety and efficacy for psoriasis and pemphigus have been established in previous studies and is currently part of the treatment guidelines for both.[8,11,12]

CONCLUSION

Epidemiologic evidence suggests that patients with psoriasis are significantly more likely to have co-existent psoriasis. Causal relationship is still not established but is shown to be attributed to the immunologic response of the body to both diseases.[3,4]

Methotrexate can be safely given to this patient in targeting both psoriasis and pemphigus foliaceus. This patient's case demonstrated that the treatment combination of methotrexate and prednisone with topical steroids was well tolerated with no side effects and complete clearance of skin lesions was achieved after 4 months of treatment.

Figure 1

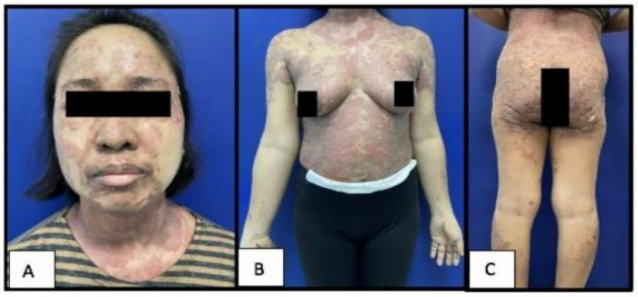


Figure 2

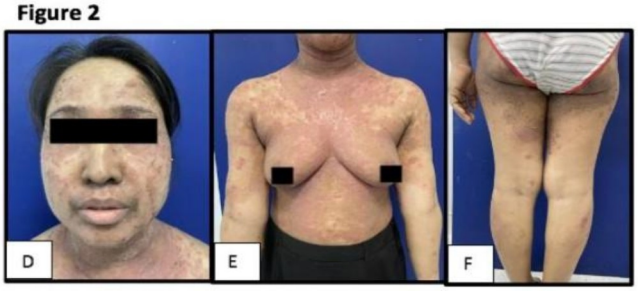


Figure 3

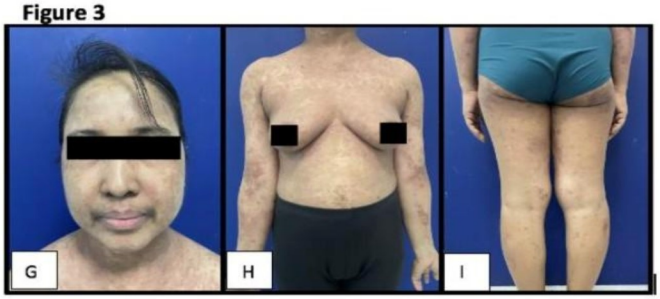


Figure 4

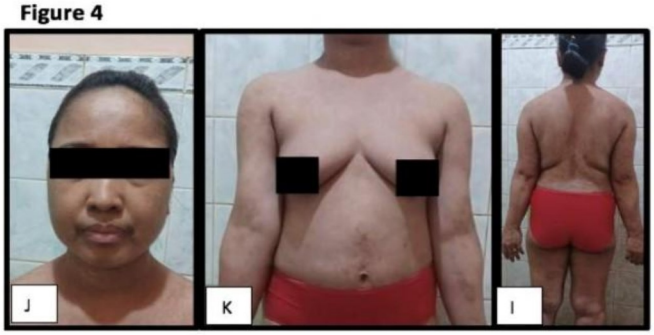


Figure 5

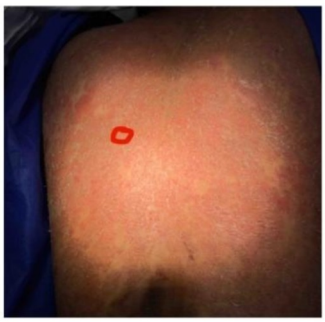
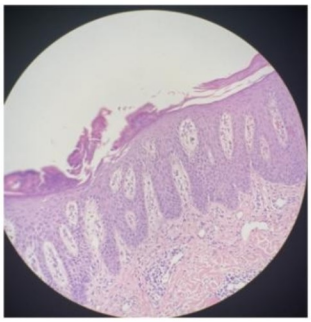


Figure 6



Psoriasiform hyperplasia, neutrophils in the stratum corneum, hypergranulosis, spongiosis, thinning of the papillary plate, dilated blood vessels and moderately dense superficial perivascualr infiltrates of neutrophils and lymphocytes

Figure 7

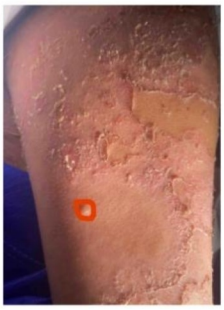
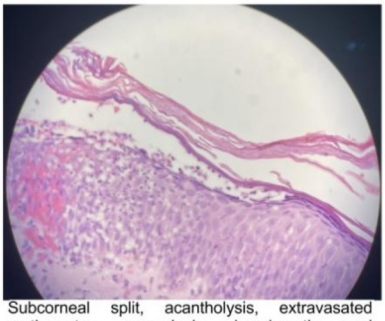
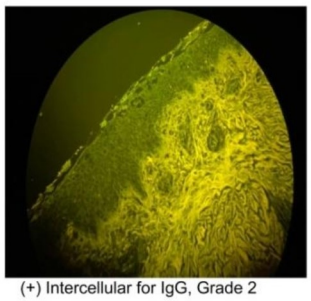


Figure 8

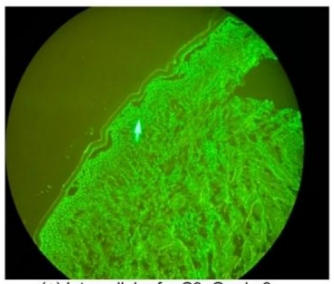


Subcorneal split, acantholysis, extravasated erythrocytes, spongiosis, lymphocytic and neutrophilic exocytosis

Figure 9



(+) Intercellular for IgG, Grade 2



(+) Intercellular for C3, Grade 3

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