ABSTRACT
Phemphigus foliaceus is a rare benign variety of pemphigus. It is an autoimmune skin disorder characterized by the loss of intercellular adhesion of keratinocytes in the upper parts of epidermis resulting in superficial blisters. There will be erosions which may be accompanied by a burning sensation and local pain. In this case study a patient of 40-year-old male has developed fluid filled blisters on scalp, face, front and back of chest. He was diagnosed as with pemphigus foliaceus. Patient was treated with steroids, immunomodulators along with supportive therapy. After completion of treatment patient was relieved from disease with symptomatic relief and as a pharmacist counseled the patient regarding factors aggravating autoimmune diseases and importance of patient medication adherence.

KEYWORDS: Immunomodulators, superficial blisters, keratinocytes.

INTRODUCTION
Pemphigus foliaceus (PF) is generally a benign variety of pemphigus. It is an autoimmune skin disorder characterized by the loss of intercellular adhesion of keratinocytes in the upper parts of the epidermis (acantholysis), resulting in the formation of superficial blisters. It is typified by clinical involvement of healthy-appearing skin that blisters when rubbed (the Nikolsky sign; commonly but incorrectly spelled Nicholsky), a finding named after Dr Piotr Nikolsky, who first described this sign in 1896.\cite{1}

PATHOPHYSIOLOGY: Superficial blisters in pemphigus foliaceus are induced by immunoglobulin G (IgG) (mainly IgG4 subclass) autoantibodies directed against a cell adhesion molecule, desmoglein 1 (160 kd), expressed mainly in the granular layer of the
epidermis. Desmoglein 1 is also a major autoantigen in cases of pemphigus herpetiformis (PH), suggesting that most cases of both pemphigus erythematosus (PE) and pemphigus herpetiformis (PH) are clinical variants of pemphigus foliaceus. The mechanism of acantholysis induction by specific autoantibodies may involve phosphorylation of intracellular proteins associated with desmosomes. Complement activation does not play a pathogenic role in pemphigus foliaceus.

Antibodies against desmoglein 3 are also present in patients with paraneoplastic pemphigus (PNP), a severe condition associated with various antibodies against different components of the cell adhesion complex. Other target antigens, including the acetylcholine receptor, have also been postulated to be relevant in the pathogenesis of pemphigus foliaceus.[2, 3, 4, 5]

EPIDEMIOLOGY
An increased incidence of pemphigus foliaceus was noted in Tunisian women (6.6 cases per million per year), whereas, in Western Europe, the incidence of pemphigus foliaceus is about 0.5-1 case per million per year.[6]

Endemic pemphigus foliaceus, or fogo selvagem, occurs with a high frequency in central and southwestern Brazil and in Colombia. The Terena reservation in Brazil, a recently identified focus, has a prevalence of 3.4% of the population. In endemic regions of Brazil, as many as 50 cases per million per year are seen.[7]

SYMPTOMS
**Physical:** The primary lesions are small, superficial blisters; however, these flaccid bullae are difficult to find because they are transient and transform into erosions. Typical pemphigus foliaceus has scaly, crusted erosions on an erythematous base confined mainly to so-called seborrhoic areas (eg, face, scalp, upper part of the trunk).

The Nikolsky sign is the finding that physical trauma can shear the pathologic epidermis of the skin of patients with pemphigus foliaceus, resulting in clinical lesions. The Nikolsky sign should probably be regarded as a moderately sensitive but highly specific tool for the diagnosis of pemphigus.[8]

DIAGNOSIS
Blisters occur with a number of conditions, so pemphigus can be difficult to diagnose.
- **Skin peeling.** Lightly rub a patch of normal skin near the blistered area with a cotton swab or finger. The top layers of skin are likely to shear off if the patient has pemphigus foliaceus.
- **Skin biopsy.** In this test, a piece of tissue from a blister is removed and examined under a microscope.
- **Run blood tests.** One purpose of these tests is to detect and identify antibodies in blood known as desmogleins. These antibodies are often elevated when pemphigus is first diagnosed. The levels of these antibodies usually go down as symptoms improve.

**TREATMENT**

Antibiotics and nicotinamide are purported to have anti-inflammatory effects.\(^9\)

Pemphigus is usually treated with systemic prednisone in combination with adjuvant immunosuppressants.\(^10\) Refractory pemphigus foliaceus has been treated with the anti-CD20 monoclonal antibody rituximab.\(^11,12\) Intravenous immunoglobulin (IVIg) may also be used because it lowers serum levels of pemphigus antibodies.\(^13,14\) Concurrent administration of a cytotoxic drug appears to be beneficial. Mycophenolate mofetil (MMF) and enteric-coated mycophenolate sodium may be considered.\(^15\)

**CASE STUDY**

A patient of 40-year-old male was admitted in King George Hospital Visakhapatnam, Andhra Pradesh, India, with a complaint of fluid filled blisters and crusted areas on scalp, face, front and back of chest since one month.

History of present illness: patient was apparently normal one month ago, complaint started as tiny vesicles over nose and cheeks and over scalp which ruptured spontaneously. Used medication (azathioprine-50mg OD) for one month ago and stopped. Then he developed multiple fluid filled blisters over front of chest, abdomen, axilla and over scalp. On scalp, these vesicles ruptured leaving raw areas.

There is a history of lesions over mucosa, palm and sole involvement.

There is no history of joint pains/weight loss/rash/insect bites/aggravation with sunlight.

Personal history of patient is normal which included mixed diet, normal sleep and normal appetite, occasional alcoholic and not a smoker.
On admission, his body temperature was normal, blood pressure was 130/80 mm Hg, pulse rate 80/min, respiratory rate 18/min.

Dermatological examination revealed multiple clear fluid filled vesicles and bullae ranging from 0.2cm to 3cm which ruptured spontaneously within one day leaving erosions and covered with crusts distributed over scalp, face, front and back of chest and axilla. Normal oral mucosa and eyes were observed. Dystrophy of finger nails and toe nails were seen. Nikolsky’s sign indirect was positive and direct was negative. Bullae spread sign was not present. Acantholytic cells are present.

Laboratory investigation indicated as haemoglobin-12.8%, platelets-58%, leucocytes-39%, eosinophils-3%, FBS-80mg/dl, PPBS-243mg/dl, RBS-135mg/dl, serum creatinine-1.0 mg/dl and blood urea-26mg/dl.

Biopsy section showed stratified squamous epithelium keratinizing type with suprabasal bullous lesions containing acantholytic cells. Dermis was observed with edema and few lymphocytic infiltration and IgG in intercellular pattern was also observed which is an indication of pemphigus foliaceus.

**Therapy:** After admission, patient was first given injection ceftriaxone 1gm IV BD, T.cetirizine 10mg OD, Tab. B complex/calcium/IFA(iron and folic acid)-OD and normal saline compresses and it was continued for 4 days as a curative and supplement therapy.

On 5\(^{th}\) day of treatment, to decrease inflammation and to avoid acidity decadron(dexamethasone) and capsule omez(omeprazole) were added respectively.

On 6\(^{th}\) day of treatment, injection avil(chlorphenaramine), capsule vitamin D\(_3\), T.Azathioprine 50 mg, T.Paracetamol were added basing upon identifications.

On 13\(^{th}\) day of treatment, T.Amoxyclov 625mg TID was added to avoid infection. On next day decadron dose increased.

On 15\(^{th}\) day of treatment, to control constipation syrup.cremaffin was added.

On 16\(^{th}\) day of treatment, diclofenac was added to reduce bodypains.

On 19\(^{th}\) day of treatment, ceftriaxone and amoxyclav were replaced with injection pipzo(piperacillin+tazobactam).
On 20\textsuperscript{th} day of treatment, azathioprine stopped and mycophenolate mofetil was started. Change of immunosuppressant done to attain better action.

On 21\textsuperscript{st} day of treatment, Nikolsky’s sign indirect was found to be negative indicating reduction in pemphigus foliaceus condition.

During final stage of treatment skin was clearly examined. There were no lesions observed. Patient relieved from itching, pain and inflammation on skin. Patient was discharged from hospital with drug regimen of ceftriaxone, Tab.B complex and azathioprine for a period of 2 weeks.

Figure 1.

Figure 2.

Figure 3.
CONCLUSION
Phemphigus foliaceus is an example of typical autoimmune disorder which is characterized by symptoms like scaly, crusted erosions on an erythematous base. The present case was found to be critical at the time of patient’s admission with the symptoms of fluid filled blisters and crusted areas on scalp, face, front and back of chest since one month. Upon close monitoring by the physician, nursing staff and patient counselling and therapeutic monitoring by the pharmacist the patient was relieved from disease with complete relief from symptoms and reformation of the skin. As clinical pharmacists the patient was thoroughly monitored for treatment outcomes, drug interactions(if any) and adverse effects(if any). Discharge counselling was done about the causative factors of phemphigus foliaceus, symptoms, importance of strict medication adherence and rational usage of antibiotics.

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REFERENCES


