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# Management of Bullous Pemphigoid with Diabetes Mellitus: Case Report

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***Authors' contributions***

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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***Case Study***

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## ABSTRACT

**Introduction:** The most frequent acquired autoimmune sub epidermal blistering condition is bullous pemphigoid (BP). BP mostly affects older persons between the ages of 60 and 80. It is an uncommon autoimmune condition that affects both men and women, with a greater prevalence in women.

**Complaints and investigations are underway:** A 50-year-old female patient presented to the dermatology department with the primary complaint of fluid-filled sores all over her body that had been present for 8 months. She also complained of lesions with mild to severe itching, irritation, and sometimes burning feeling over lesions for 8 months, and she was a known case of Diabetes Mellitus (DM) type 2 for which she was taking medicine from 8 to 10 years. Following a general physical examination and research, a case of BP with DM 2 was identified.

**The major diagnosis, treatment intervention, and results are as follows:** After a physical

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examination and investigation, the doctor diagnosed a case of Bullous Phemphoid with a verified case of DM type 2. Inj. Insulin Mixtard 22U/16U, Tab. Defcort 12 Mg 2-1, Tab. Glicazide 80 Mg BD, Tab. Nicoglow 250 Mg OD, Tab. Cyclophosphamide BD (50 Mg -25 Mg), Cap. Doxepin 10 Mg BD, Tab. Dailyshine 60000IU (Once A Week), L/A Omate –F OD, vitamin B, calcium, iron The entire course of treatment was completed, and the outcome was satisfactory.

**Conclusion:** She responded to medication as well as physician counselling. Her itch has subsided, and some of the lesions have healed.

*Keywords: Diabetes mellitus type 2 management; autoimmune illness; bullous pemphigoid.*

## 1. INTRODUCTION

Bullous pemphigoid (BP) is the most common blistering disorder. BP is a dermatological autoimmune blistering disorder marked by tight bullae that can appear on either normal or erythematous skin [1]. It is produced by circulating and tissue-bound autoantibodies directed against bullous pemphigoid antigen1 or bullous pemphigoid antigen or both. Clinical, histologic, and immunologic criteria are used to identify it, and it is most usually observed in the elderly [2].

Diabetes mellitus without preceding corticosteroid use has been found with BP and, as observed in a case control report, can predispose to DM, however there is no association with a specific type. 2 [3]. The processes include increased skin fragility owing to hyperglycaemia and autoantibody formation due to glycosylation of dermal proteins. Although Type 1 diabetes is thought to be the most directly linked to autoantibodies and autoimmune illness, Type 2 diabetes is more likely in this patient due to her advanced age. The usage of dipeptidyl peptidase IV inhibitors like vidagliptin and sitagliptin has been linked to an increased risk of BP group [4].

## 2. BACKGROUND

The most prevalent kind of sub epidermal autoimmune bullous illness is bullous pemphigoid. 5The condition affects the elderly, particularly those over the age of 70. 6While The yearly incidence of BP is estimated to range between 2.4 and 21.7 new cases per million population in various countries throughout the world7, and it grows exponentially to 190 to 312 cases per million in those over the age of 80. 8 With an annual frequency of 0.2 to three cases per 100,000 people, BP is the most prevalent of the blistering illnesses. The illness has no gender preference, however it is more frequent in those over the age of 75. Young people and children may be impacted as well, but this is far less often. BP is uncommon in those under the age of 50, with a reported prevalence of less than 0.5 cases per million population in this age group [4].

### 2.1 Patient Information

Patient-specific information: A 50-year-old woman was hospitalised to AVBRH hospital's dermatology ward on January 8, 2021, with a Fluid-filled Lesion arm, trunk, back, and face for 8 months with mild to severe itching and pain, as well as a burning feeling on the arm, trunk, back, and face. She came to AVBRH for further Bullous Pemphigoid therapy.

### 2.2 Primary Concern and Symptoms

She was apparently OK 8 months ago until she got a fluid-filled pea-size lesion on her arm. It began slowly and became more noticeable as time went on. Scratching was mild to moderate, with a burning sensation on occasion. The tumour grew in size and expanded to the other arm, trunk, and back later. The lesion then continued to grow in size and quantity over the next 5-6 months, accompanied by mild to severe irritation. After a few days, she was brought to a private hospital and treated for it. Then, on January 8, 2021, she arrived at AVBRH hospital for further treatment of Bullous pemphigoid.

### 2.3 Medical, Family and Psychosocial History

She had been admitted 2 months prior to this in a private hospital for the same, and treatment was given in the form of oral medication and cream (Cap.Cefixime BD, Cap. Phagolac BD, Tab. Lupipan SR BD, Tab. Bypride TDS, L/A Fusee B Cream TDS, TTab. Omnacortil 10mg BD For 5 Day,Cycloxan 100 Mg OD For 5 Day), but she only (detail was not available ). She received therapy for it. She has solid interpersonal interactions with her family members, and there is no history of diabetes, hypertension, asthma,

cancer, liver disease, renal illness, or autoimmune disease in her family. The patient appears to be worried and sad. Her bowel and urine habits are normal, but her sleeping pattern is disrupted by itching, and she does not have any undesirable habits such as cigarette chewing.

### 2.4 Physical Examination and Clinical Finding

During the physical exam, The patient is alert, cooperative, and clearly aware of time, location, and person. She was in discomfort, distressed, frightened, pale, cyanosed, dehydrated, and afebrile, with all vital parameters normal and a slim body constructed. Her body mass index (BMI) was 20.5kg/m2 and she weighed 43kg. She stood 1.45m tall. Her neurological, chest, and abdominal examinations revealed that she was in good health. , Multiple fluid-filled vesicles and bullae on an erythmatous base with multiple row region over B/L,UL,B/L,LL, Trunkand Back, Face with extreme itching. Bullae had a tight expression on their faces. BSA is around 30%, while bulla spread is about 5%.

### 2.5 Timeline

She appeared to be well eight months ago. when a fluid-filled pea-size sore appeared on her arm It started slowly and was insidious at first. Itching was mild to severe, with an occasional scorching feeling. Later, the lesion grew in size and began to spread to the other arm, trunk, and back. The patient then went to a private doctor for therapy, which included oral and topical treatments, but only provided short relief.

Over the next 5-6 months, the lesion grew in size and number again, this time in conjunction with mild to moderate itching. The patient was then given medication in the form of oral and local treatments, but only received brief alleviation.

She was brought to a private hospital after a few days and received therapy in the form of oral and topical medications, but the alleviation was only short. On January 8, 2021, she was sent to the AVBRH hospital for further treatment.

## 3. DIAGNOSTIC ASSESSMENT

Blood studies were also performed based on the patient's medical history, physical examination, and skin examination. Hemoglobin 10.8gm, WBC Count 13100cu.mmis raised, RBS- glucose plasmarandom 446mg percent is increased, and RBS- glucose plasmarandom 446mg percent is increased. hb A1C 10.17 A1C NGSPis increased, lipid profile VLDL is 18 mg/dl is decreased, LDL is 69 mg/dl is decreased, total protein is 5.5g/DL is decreased, albumin 2.7g/DL is decreased, total protein is 5.5g/DL is decreased, albumin 2.7g/DL is decreased, hb A1C 10.17 A1C NGSP is decreased, lipid profile VLDL is 18 mg/ urea 15 mg/dl, creatinine 0.5 mg/dl, potassium 3.5 mmol/L, sodium130 mm\l Urine test (Routing) Urin albumin is nil,pus cell and epithelial cell counts are 1-2 cells/hpf, sugar is 2++, urin ketone is negative, and Hepatitis B surface antigen is negative. The ophthalmologist examined the fundus in both eyes and found moderate to severe nonproliferative diabetic retinopathy. A skin sample was taken from the hand and a report was received. A segment from a very little brownish white tissue fragment measuring less than o.5X 0.5X 0.2 cm reveals histological characteristics indicative with Bullous pemphigoid, USG According to the abdomenreport, the current scan revealed no evident abnormalities.

Diagnostic difficulty: During the diagnostic examination, there was no difficulty.

The doctor identified a case of Bullous phemphoid with DM type 2 after a physical and cutaneous examination and research.

Bullous pemphigoid usually goes away on its own after a few months, although it can last up to five years.

As previously stated, treatment can give symptomatic alleviation of discomfort and itching.

### 3.1 Therapeutic Intervention

The sufferer was given medical attention. The patient's first treatment consisted of intravenous normal saline to rectify dehydration. Hyperglycemia was treated with an injection of insulin. She followed the dietician's advice as well. Dietician recommended two white eggs per day, which are 1320 calories, high in fibre and protein, moderate in carbohydrate, and low in fat. RBS charting 2 hourly monitoring, strict input and output chart monitoring TPR tracking six times a day, and patient blood pressure monitoring Insulin Mixtard 22U/16U, Defcort 12 Mg 2-1, Glicazide 80 Mg BD, Tab Cyclophosphamide BD were all prescribed for her ( 50 Mg -25 Mg) Tab. Nicoglow 250 Mg OD, Tab. Lasix BD (20-20),

Tab. Neurobion Forte OD, Tab. Shelcal 50 Mg BD, Tab Orofer XT OD, Cap. Doxepin 10 Mg BD, Tab. Dailyshine 60000IU (Once A Week), L/A Saline Soaks BD 30 Min, L/A Omate –F OD, L/A Oilatum BD, L/A Liquid Paraffin OD.

### 3.2 Change in Therapeutic Intervention

She was started on s/s insulin, then switched to Injulin Mixtard 30/70 (18-18 Units), T. metformin SR 500mg, and diabetic panal for a day. T. metformin sr 500mg, insulin lantus (0-8 units) and insulin Mixtard 30/70 (18-18 units). She was scheduled for a 3-day Dexa Simple Pulse Therapy infusion (1st day, 50 mg dexa in 250 ml of 5% dextrose) after which her RBS levels continued to rise constantly from 6pm, despite taking insulin Lantus (glargine) (0-8 units) and insulin Mixtard 30/70 (18-18 units) and T. metformin sr 500 mg. She was sent to Micu for insulin infusion therapy when her blood sugar levels were not controlled.

### 3.3 Follow-up and Outcomes

Symptomatic alleviation of pain and itching, according to clinical and patient evaluations. The condition of the patient has improved. She also diets and provides health education.

Important diagnostic and other test results that should be followed up on: To slow the advancement of the disease and to alleviate any signs and symptoms that have developed. After a month, the doctor recommended a follow-up appointment and prescribed a blood test, blood sugar level, and eye exam to determine the disease's development.

Adherence to the intervention and tolerability: the patient took all of the recommended drugs on a regular basis. She followed the dietician's advice as well. Dietician recommended 2 white eggs per day, 1320 calories, high fibre, moderate carbohydrate, and low fat. Her adherence to the intervention was excellent.

## 4. DISCUSSION

Pemphigoid is a combination of the Greek words pemphix (bulla, blister) and eidos (healing) (form). With an annual frequency of 0.2 to three cases per 100,000 people, BP is the most prevalent of the blistering illnesses. The illness has no gender preference, however it is more frequent in those over the age of 75. Young people and children may be impacted as well, but this is far less often [5].

Female sex and older age are both risk factors for BP in this patient. Despite not experiencing symptoms, the patient was diagnosed with type 2 diabetes mellitus due to high blood glucose and confirmed with raised glycated hemoglobin (HbA1c) [6]. Without preceding use of corticosteroids, diabetes mellitus has been linked to high blood pressure. This, according to a case control study, can predispose to DM, however no such research has been conducted [7]. associations with a certain kind Increased skin fragility owing to hyperglycemia and the generation of autoantibodies via glycosylation of dermal proteins are the processes at work. Although Type 1 diabetes is thought to be the most closely linked to auto antibodies and autoimmune illness, Type 2 diabetes is more likely in this patient due to her advanced age [8]. The usage of dipeptidyl peptidase IV inhibitors like vidagliptin and sitagliptin has been linked to an increased risk of BP group [9].

## 5. CONCLUSION

BP is an autoimmune blistering dermatologic illness that manifests clinically as tight bullae on normal or erythematous skin. Based on clinical history, physical examination, and skin biopsy, BP with dm type 2 was diagnosed. As previously stated therapy can give symptomatic relief from pain and itching, as well as the healing of certain blisters.

## CONSENT

Before taking this case, the patients and their families were informed, and informed agreement was acquired from both the patients and their family.

## ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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