



CASE REPORT

DIABETES WITH CELLULITIS: A CASE REPORT OF ULCERATION AND CELLULITIS IN A PATIENT OF DIABETES MELLITUS

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ABSTRACT

Diabetes mellitus is a hyperglycemic state due to insulin resistance or decreased insulin production. It increases the tendency to develop thrombosis and infections in the body. It may cause impairment of various physiological mechanisms like coagulation factors, platelet functions, and altered vascular structure which may predispose the patient to thrombotic events. The altered immune system leading to infectious events tends to be way more threatening in diabetic patients than in non-diabetic patients. Cellulitis on the other hand is a bacterial infection of the dermis and subcutaneous tissue which may occur at any age typically involving lower extremities. In this current report, we delineate a case of cellulitis occurring in a diabetic patient, which is a major predisposing factor.

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INTRODUCTION

Diabetes mellitus (DM) is a chronic metabolic disorder characterized by persistent hyperglycemia due to insufficient insulin production or resistance to insulin action, or both. The major effects of diabetes are seen as diabetic retinopathy, diabetic nephropathy, and peripheral neuropathy. It is well known that individuals with DM are at a higher risk of infections, particularly skin and soft tissue infections, due to immune system impairments and compromised blood circulation. One such common and potentially serious infection is cellulitis, which affects the deeper layers of the skin and underlying tissues. Diabetic cellulitis often presents with more severe inflammation, widespread tissue involvement, and a slower response to treatment compared to non-diabetic individuals. Additionally, the presence of hyperglycemia creates a favorable environment for bacterial proliferation, further complicating infection control. If left untreated or inadequately managed, cellulitis in diabetic patients can progress to more severe conditions such as deep tissue abscesses, necrotizing fasciitis, osteomyelitis, or even sepsis, leading to significant morbidity and, in extreme cases, amputation. Early recognition and prompt management of cellulitis in diabetic patients are crucial to prevent complications and ensure optimal recovery. Treatment typically involves a combination of glycemic control, appropriate antibiotic therapy, wound care, and, in some cases, surgical intervention. Presenting complaints of the patient involves numbness, varicosity of lower extremities, dryness, ulcers, and bilateral pedal edema. Diagnostic tests that can be employed- history of patient, CBC, blood sugar estimation, HbA1C, KFT, LFT, ECG, and X-Ray.

CASE REPORT

A female, 45 years old was admitted to our hospital on 9th of February 2025 with chief complaints of shortness of breath since 7 days. The patient also had anasarca, bilateral knee joint pain, and inability to stand and walk. On examination, the patient was conscious and oriented, with vitals indicating bradycardia with normal body temperature and blood pressure. No pallor, icterus, cyanosis, clubbing, or lymphadenopathy was found but bilateral pedal edema was present which was tender. The patient had been suffering from diabetes mellitus type II for the past 10 years for which she was taking medication from a local practitioner. She had 3 of her fingers of left lower limb amputated previously in some other hospital due to diabetic foot. She was on regular insulin and oral anti-hyperglycemic medication and had a history of hypothyroidism. On evaluation, the ECG showed bradycardia and the X-ray showed bilateral pleural effusion. The patient had a similar complaint for the past 5-6 years for which she was previously admitted to different hospitals. On presentation, the CBC report showed.

hemoglobin	9.0 gm/dl
Total Leucocyte count	10420
Polymorphs	95%
Lymphocytes	4%
Monocytes	1%
eosinophils	0%
Platelet count	120000/mm ³
RBC count	3.26 million/mm ³
HCT	28.5%
RDW-CV	15.5%

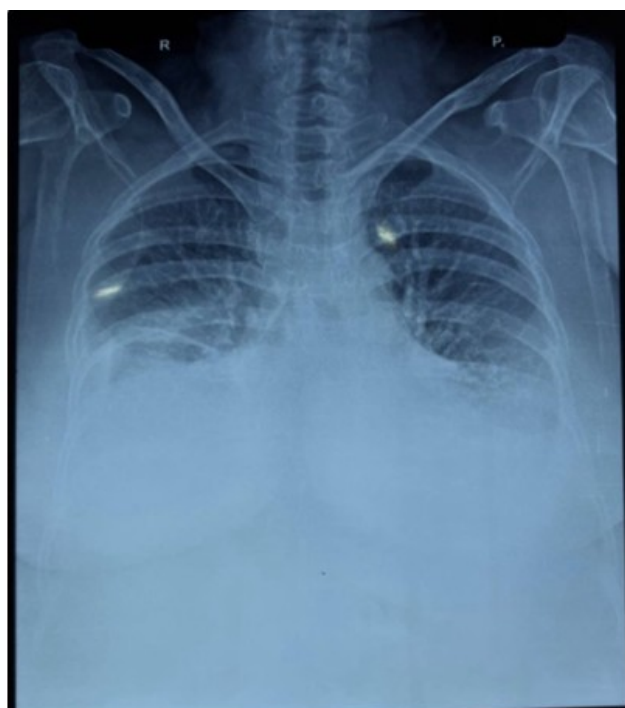
The reports suggest mild anemia and mild thrombocytopenia. Meanwhile, upon her blood sugar examination, she had a Fasting blood sugar of 176.2mg/dl, and her HBA1C was found to be 7.2%. The kidney function test report showed.

Blood Urea	94.7mg/dl
Serum creatinine	3.06mg/dl
Serum uric acid	10.8mg/dl
Calcium	8.5mg/dl

The KFT report suggests increased levels of blood urea, serum creatinine, and serum uric acid indicating renal impairment. The liver function test report showed

Serum alkaline phosphatase	224IU/L
Gamma glutaryl transferase	160.3U/L
Total proteins	4.82gm/dl
albumin	2.42gm/dl

The LFT suggests increased serum ALP, and GGT, with low serum albumin. The patient had developed cellulitis and ulcers on both of her lower limbs. Considering all these findings, a diagnosis of diabetes mellitus associated with cellulitis was made. The color doppler report is still under review and the patient is kept in the Intensive Care Unit (ICU) at our hospital.



DISCUSSION

Cellulitis is a rare comorbidity of diabetes mellitus. Diabetes mellitus tends to increase thrombosis and infection. The altered immune system can lead to the development of cellulitis, and bacterial infections of the dermis and subcutaneous tissue. It is characterized by leg ulcer, bilateral pedal edema, varicosity of veins. Common symptoms include weakness, fatigue, mild anemia and thrombocytopenia. Complications include amputations, inability to walk or stand, pleural effusion, renal impairment, and bradycardia. In our case, the patient presented with bilateral pedal pitting edema with leg ulcers and increased varicosity. The patient was unable to walk or stand. On routine tests, there were indications of renal impairment. Early recognition and prompt management of cellulitis in diabetic patients are crucial to prevent complications and ensure optimal recovery. Treatment typically involves a combination of glycemic control, appropriate antibiotic therapy, wound care, and, in some cases, surgical intervention.

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