

CASE REPORT: RESOLUTION OF BACTERIAL CELLULITIS IN A PATIENT WITH TYPE 2 DIABETES MELLITUS

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ABSTRACT

Bacterial cellulitis is characterized by erythema, warmth, edema, and tenderness to palpitation, and neutrophil recruitment due to bacterial infiltration. A 60-year old male with a history of type 2 diabetes mellitus presented with a case of bacterial cellulitis. Physical examination showed well-demarcated erythematous blanching patches over left lower limb with pain and swelling, which was warm and tender. Laboratory data was notable for neutrophil infiltration. A clinical diagnosis of bacterial cellulitis was made on the basis of these findings. The patient was treated with a regimen of antipyretic, anti-bacterial and anti-inflammatory regimen in addition to his regular diabetic medication. His treatment regimen was supplemented with vitamins and anti-oxidants. This treatment resulted in resolution of cellulitis in this patient.

Key words: *Diabetes mellitus, Cellulitis, Treatment*

INTRODUCTION

Acute onset of large erythematous plaque, fever and leukocytosis with neutrophil predominance following injury caused during paring of nail resulting in bacterial cellulitis.

CASE

A 60-year old male with a history of type 2 diabetes mellitus with fasting glucose 170 mg/dl and postprandial glucose levels of 375 mg/dl. He had hypertension, did not exercise or perform other physical activities, presented with generalized weakness and erythema of left lower limb. Patient did not have history of collagen vascular disease or recent changes, and did not report use of skin products, detergents or medication. Patient had presented with fever, chills, headache and nausea. Physical examination showed well-demarcated erythematous blanching patches over left lower limb with pain and swelling, which was warm and tender (Figure 1). There was no lymphoid etiology as his leukocyte count was 17,800 per millimeter with 80% neutrophil predominance.

A.



B.



Figure 1: A case of bacterial cellulitis (A) Before treatment; (B) After treatment

Treatment was started with oral Amoxicillin and Clavulanate with antihistamines, Acetofenac, and Paracetamol to reduce pain. Amiloride and Furesimide combination was given to reduce edema. Later,

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Azithromycin (500 mg) was given, which resulted in complete restoration of limb to normal. His diabetic medication (1 mg Glimepiride and 500 mg Metformin) was continued during the course of his treatment for cellulitis. Overall, his condition improved considerably when vitamins and antioxidants were added. This entire treatment was given for 21 days.

DISCUSSION

Cellulitis is a common acute bacterial infection, which causes inflammation of deep dermis and surrounding subcutaneous tissue. It presents as a poorly demarcated, warm, erythematous area, which is associated with edema, and is tender to palpitation (Brown and Watson, 2020). There is infiltration of cytokines and neutrophils to the affected area after bacterial invasion leading to an epidermal response (Richmond and Harris, 2014). Risk factors for cellulitis include any factors that can cause breakdown of skin barriers such as injuries, surgical incisions, intravenous site punctures, fissures between toes, insect and animal bites, and other skin infections (Quirke *et al.*, 2017). It can usually occur in patients with comorbidities like diabetes mellitus, venous insufficiency, peripheral arterial disease, and lymphedema (Kaye *et al.*, (2019). It can occur commonly in middle-aged and older adults. The clinical diagnosis of cellulitis is based on the presence of spreading erythematous inflammation of the deep dermis and subcutaneous tissue. It is rarely bilateral. Cellulitis can affect the lymphatic system and cause underlying lymphadenopathy (Brown and Watson, 2020). Patient had type 2 diabetes mellitus, which is a major risk factor for development of cellulitis. The combination of antibiotics and anti-inflammatory medications had a positive outcome on the resolution of cellulitis. Diabetes mellitus can impair the immune system and as a result, increase the risk of infections (Lachmandas *et al.*, (2018). In the present case, poor immunity due to diabetes mellitus could be considered a probable cause for bacterial cellulitis. Supplementation of treatment regimen with vitamins and antioxidants was able to boost immunity and resolve the infection.

Declaration of competing interest

None declared

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None

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