

Image Diagnosis: Bullosis Diabeticorum

Ashok Kumar Pannu, MD¹; Varun Suryadevara, MD¹

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CASE PRESENTATION

A 40-year-old woman presented to the Emergency Department with swelling of the right lower limb, pain in the abdomen, and vomiting. The patient had a 16-year history of diabetes mellitus (DM) (early-onset type 2 DM or maturity-onset diabetes of the young). Initially, she received oral antidiabetic drugs; however, 4 months earlier, subcutaneous insulin was started for poor glycemic control. She had a history of distal symmetric sensory polyneuropathy with sensory loss and numbness of both feet, which predisposed her to develop painless ulcers over the tip of the toes of the left foot during the previous few months.

Seven days before admission, the patient developed swelling of the right lower limb involving the leg and foot, which was insidious in onset, gradually progressive, and painless. A painless, tense, bullous lesion over the same foot erupted overnight. The next day, she had diffuse pain in the abdomen, multiple episodes of vomiting, and was admitted to our Emergency Room. On admission, her blood glucose level was 500 mg/dL, serum ketones results were positive, and blood gas analysis showed a high anion gap metabolic acidosis. She was diagnosed with diabetic ketoacidosis, and she received intravenous saline and insulin infusion. Antibiotics were added for suspected cellulitis of the right lower limb.

Examination of the lower limbs revealed bilateral pitting edema extending to the knee on the right side. A tense, nontender bullous lesion, 6 cm x 8 cm in size, with minimal surrounding erythema was present over the medial malleolus of the right foot, suggesting bullosis diabeticorum (Figure 1). The left foot had nontender neuropathic ulcers with blackish discoloration and thick calluses over the bony prominences of the great and second toes. Multiple reddish-brown papules and plaques were present bilaterally in the pretibial regions, suggesting



Figure 1. Photograph showing bullosis diabeticorum.

diabetic dermopathy (Figure 2). Neurologic examination showed absent ankle and knee jerks. Sensations for fine touch and vibration were absent over both legs, and joint position sensation was lost in the toes bilaterally. Motor power test results were normal except bilaterally in the ankles (4 out of 5). The peripheral pulses were intact.

Laboratory investigation showed an elevated glycosylated hemoglobin value (16.4%), macroalbuminuria (1.2 g in 24-hour urine), severe hypoalbuminemia (2.4 g/dL), and normal renal function test results. Results of ultrasonography of the lower limbs showed subcutaneous edema without any deep venous thrombosis or abscess. Aspiration of the bullous lesion yielded a clear fluid, which was sterile on culture.

The diabetic ketoacidosis resolved with treatment, and the patient was discharged on subcutaneous insulin therapy and oral medications. Three weeks into the treatment, her plasma glucose levels improved and the bulla healed without scarring.

DISCUSSION

Certain skin conditions like diabetic dermopathy, bullosis diabeticorum, and necrobiosis lipoidica diabeticorum are frequently associated with an increased likelihood of microvascular complications of DM.^{1,2} Thus, their presence indicates poor glycemic control and enables early



Figure 2. Photograph showing diabetic dermopathy (single arrow) and neuropathic ulcers (double arrows). Bullosis diabeticorum appears to be healing on the right foot.

recognition and treatment of microvascular disease.

Diabetic dermopathy (diabetic shin spots) is common and is seen in up to half of diabetes patients.¹ It begins as reddish-brown papules or plaques in the pretibial region, which progress into circular hyperpigmented scars.¹⁻³

Bullosis diabeticorum, or diabetic bulla, is rare and usually occurs in long-standing type 1 DM but can also occur in poorly controlled type 2 DM.²⁻⁴ However, as there is no direct correlation with glycemic control, it also rarely occurs in prediabetes and undiagnosed diabetes.⁵ The lesion occurs spontaneously and abruptly (without any antecedent trauma) as painless, noninflammatory, and sterile bullae. It is usually confined to the distal lower extremities; however, it can also occur at other acral sites. The lesion often resolves spontaneously within 2 to 6 weeks without scarring. It can be complicated

Author Affiliations

¹ Department of Internal Medicine, Post Graduate Institute of Medical Education and Research, Chandigarh, India

Corresponding Author

Ashok Kumar Pannu, MD (gawaribacchi@gmail.com)

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with secondary infection or rarely by osteomyelitis.⁴ The exact etiopathogenesis is unknown. Recurrence may occur and often in the same locations.^{1,6,7}

Necrobiosis lipidica diabetorum occurs in less than 1% of cases, most often in young women with type 1 diabetes.¹ The lesion is usually a reddish-brown plaque with irregular margins on the pretibial area, which may have atrophic centers and central ulceration.¹⁻³

The index case emphasizes that these conditions can also predict an acute hyperglycemic complication that carries high morbidity and mortality. Early recognition of the etiology of the patient's lower limb lesions may have led to timely control of her hyperglycemia, potentially preventing her subsequent hospitalization. ❖

Disclosure Statement

The author(s) have no conflicts of interest to disclose.

Authors' Contributions

Ashok Kumar Pannu, MD, participated in patient management, collected patient data, conceived the idea, and drafted and revised the manuscript. Varun Suryadevara, MD, participated in patient management and collected patient data.

How to Cite this Article

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