The eruption of multiple bullosis diabeticorum along with hyperglycemic state after receiving high dose systemic corticosteroid

Kittipong Wantavornprasert MD,

Jade Wititsuwannakul MD.

ABSTRACT:

WANTAVORNPRASERT K, WITITSUWANNAKUL J. THE ERUPTION OF MULTIPLE BULLOSIS DIABETICORUM ALONG WITH HYPERGLYCEMIC STATE AFTER RECEIVING HIGH DOSE SYSTEMIC CORTICOSTEROID. THAI J DERMATOL 2019; 35: 182-186.

DIVISION OF DERMATOLOGY, DEPARTMENT OF INTERNAL MEDICINE, FACULTY OF MEDICINE, CHULALONGKORN UNIVERSITY, BANGKOK, THAILAND.

Bullosis diabeticorum was reported to have an association with diabetes mellitus and prediabetic states. The typical presentation of this condition is a single or multiple non-inflammatory bulla that generally abruptly appear on the acral part of the body. The diagnosis can be made by the exclusion of other causes and confirmed by histopathologic examination and direct immunofluorescent study. While the pathogenesis is still unknown, several conditions such as long-standing diabetes with neuropathy or vascular insufficiency, and the alteration of blood glucose level, were proposed to be related with these eruptions.

We report a case of a middle-aged diabetic female patient who developed multiple non-inflammatory bullae on her left foot after receiving high dose systemic corticosteroid.

Key words: Bullosis diabeticorum, Diabetes mellitus, Skin manifestation

From: Department of Internal. Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Corresponding author: Jade Wititsuwannakul MD, email: jademdcu@gmail.com

Received: 24 April 2019 Revised: 19 June 2019 Accepted: 19 August 2019

Introduction

Bullosis diabeticorum is one of the rare cutaneous manifestations which was reported to have an association with diabetes mellitus and prediabetic states[1]. Herein, we reported a case of multiple bullosis diabeticorum that suddenly appeared overnight during hospitalization, which might be associated with poorly controlled hyperglycemic state.

Case report

A 51-year-old Burmese woman presented with multiple tense bullae on the dorsum of left foot during admission at King Chulalongkorn Memorial Hospital. These lesions abruptly appeared overnight.

She was admitted to the hospital due to cauda equina syndrome, which was caused by a growing pre-existing right peritoneal mass compressing the spinal cord. She had been diagnosed with relapsed aggressive non-Hodgkin lymphoma eight months prior to admission. She had stage I left-sided breast cancer with complete remission for 11 years and well-controlled type 2 diabetes mellitus for 5 years. Her glycated hemoglobin (HbA1C) level was 6.9% and her blood glucose was well controlled by a single oral hypoglycemic agent.

Upon admission, intravenous dexamethasone was promptly given at a dose of 20 mg daily in combination with radiotherapy for her condition.

After receiving high dose intravenous corticosteroid, her blood sugar levels significantly increased; therefore, insulin therapy was initiated. On the 5th day after admission, she developed multiple tense bullae on the dorsum of left foot. She could not feel pain, burning or any discomfort before the eruption due to the absence of sensory perception. She denied any preceding trauma, insect bites, heat exposure or direct contact with any medications or chemicals around the affected part.

The patient did not exhibit any obvious sign of physical distress. On dermatological examination, multiple localized tense bullae filled with clear fluid were seen on the left foot. The surrounding skin and the base of the lesions appeared normal, without any sign of inflammation. (Figure 1) Conjunctivae, oral and genital mucosa appeared unremarkable.

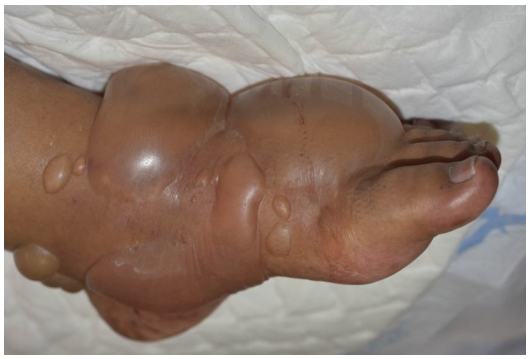

Figure 1 Multiple tense non-inflammatory bullae with clear fluid on left foot

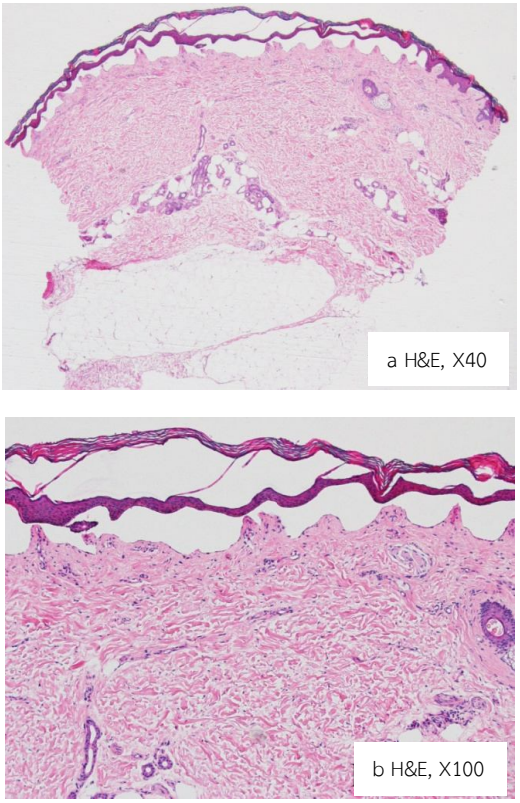

Figure 2 Histopathological examination (H&E) revealed subepidermal blister with sparse superficial perivascular lymphocytic infiltrate.

Two skin biopsies were performed on the lesional and perilesional skin. The section revealed subepidermal blister with sparse superficial perivascular lymphocytic infiltrate. (Figure 2) Direct immunofluorescence of skin specimen did not show deposition of immunoreactants. The histopathological findings were suggestive of non-inflammatory bullous dermatosis. Microscopic examination of aspirated fluid revealed no microorganism. Aerobic bacterial culture from the vesicular fluid was negative. Laboratory analysis showed normal complete blood count without eosinophilia.

After excluding other possible causes of non-inflammatory bullous lesions, i.e. infections, physical processes and autoimmune vesiculobullous diseases, the patient was finally diagnosed with multiple bullosis diabeticorum. The lesions were treated with simple aspiration. Apart from topical antibiotics ointment, neither topical nor systemic treatment was given. After a period of follow up, the previous lesions resolved and there was no new lesion (Figure 3).

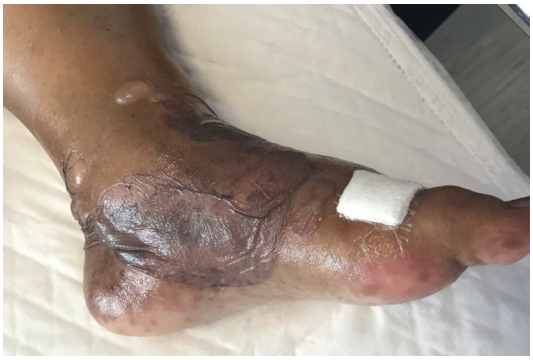

Figure 3 Resolution of lesions after simple aspiration without new bullous formation.

Discussion

Various cutaneous manifestations were reported to be associated with diabetes mellitus (DM) and prediabetic state, including acanthosis nigricans, skin tags, granuloma annulare,

necrobiosis lipoidica, scleroedema diabeticorum, diabetic dermopathy, rubeosis faciei, pruritus, and bullosis diabeticorum[1]. These cutaneous manifestations are seen in approximately one third of diabetic patients during the entire course of the disease[2].

Bullosis diabeticorum (BD), also referred to as bullous disease of diabetes, diabetic bulla and diabetic blister, is a rare benign lesion, which occurred in only 0.5% of diabetic cases[3,4]. This condition manifests as tense bullous formation without apparent inflammation. Typically, the bullae appear suddenly and spontaneously overnight and dissolve within a few weeks without scarring[1,2]. However, the bullae are seldom hemorrhagic and could heal with atrophy or scarring[5]. Lesions usually appear unilaterally on acral areas especially the distal part of lower extremities. However, bilateral lesions, multiple lesions in asymmetrical distribution as well as involvement of other parts, such as the trunk and arms, could also be found[1]. BD is usually asymptomatic, painless and non-pruritic, although some patients could have a burning sensation at the onset of eruption.

To diagnosis BD, other non-inflammatory bullous skin conditions including bullous impetigo, friction bullae, edematous bullae, bullae due to burns or trauma, bullous drug reaction, bullous pemphigoid (BP), and epidermolysis bullosa acquisita must be ruled out. A complete history taking together with appropriate investigations such as histologic examination, direct immunofluorescent (DIF) study and/or blood sampling for BP antibodies detection, and microbial identification, are mandatory to aid the diagnosis.

Histologically, the feature of BD is non-specific. Different levels of separation could be found, varying from subepidermal to below the dermoepidermal junction without acantholysis. DIF staining is negative for C3, IgM, IgA, and IgG.

Despite the unknown pathogenesis, BD is believed to be linked with neuropathy or vascular insufficiency due to a strong correlation with long-standing diabetes and those who face diabetic complications[6]. Other previously proposed risk factors and mechanisms include blood glucose changes, uncontrolled diabetes or poor glycemic control, ultraviolet light, radiation, trauma, renal insufficiency, autoimmune disease, magnesium and calcium levels[5].

However, there are also reports of either concomitant appearance of this skin alteration with prediabetic state or initial presentation of DM[7,8]. Furthermore, cases of BD in young children and both type 1 and type 2 diabetic patients with good glycemic status have also been documented[9].

Generally, BD could gradually resolve within a few weeks but often recurs, either in the previously affected area or a new location[10]. The

mainstay of treatment interventions are composed of symptomatic management, proper glycemic control, and prevention of secondary bacterial infection[2] to avoid prolonged healing period[10] and decrease the risk of limb-threatening problems.

Our case is an example of the presence of BD in type 2 diabetic patient with long-standing course but has well glycemic controlled. Although vascular assessment and neurological evaluation were not performed in this patient, we proposed that a rapid increase in blood glucose might be linked to the eruption of BD.

Potential conflicts of interest

None.

References

1. Bustan RS, Wasim D, Yderstraede KB, Bygum A. Specific skin signs as a cutaneous marker of diabetes mellitus and the prediabetic state - a systematic review. Dan Med J 2017;64.
2. Lima AL, Illing T, Schliemann S, Elsner P. Cutaneous Manifestations of Diabetes Mellitus: A Review. Am J Clin Dermatol 2017; 18: 541-53.
3. Romano G, Moretti G, Di Benedetto A, et al. Skin lesions in diabetes mellitus: prevalence and clinical correlations. Diabetes Res Clin Pract 1998; 39: 101-6.
4. Ghosh SK, Bandyopadhyay D, Chatterjee G. Bullosis diabeticorum: A distinctive blistering eruption in diabetes mellitus. Int J Diabetes Dev Ctries 2009; 29: 41-2.
5. Mendes AL, Miot HA, Haddad VJ. Diabetes mellitus and the skin. An Bras Dermatol 2017; 92: 8-20.
6. Basarab T, Munn SE, McGrath J, Russell Jones R. Bullosis diabeticorum. A case report and literature review. Clin Exp Dermatol 1995; 20: 218-20.
7. Pons S, Ortiz Medina A. [Bullosis diabeticorum]. Med Cutan Ibero Lat Am 1979; 7: 55-62.
8. Cantwell AR Jr, Martz W. Idiopathic bullae in diabetics. Bullosis diabeticorum. Arch Dermatol 1967; 96: 42-4.
9. Chiriac A, Costache I, Podoleanu C, Naznean A, Stolnicu S. Bullosis Diabeticorum in a Young Child: Case Report of a Very Rare Entity and a Literature Review. Can J Diabetes 2017; 41: 129-31.
10. Lipsky BA, Baker PD, Ahroni JH. Diabetic bullae: 12 cases of a purportedly rare cutaneous disorder. Int J Dermatol 2000; 39: 196-200.