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Case Report

# Scleredema adultorum of buschke: An overlooked dermal complication of diabetes

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## Abstract

Scleredema diabeticorum is a rare skin disorder characterized by the stiffening and hardening of subcutaneous tissues on the upper back and posterior neck. Patients with this condition typically experience pain and stiffness in the neck. Here, we present a case of a 47-year-old female with type 2 diabetes mellitus who exhibited skin tightness and painful hard swelling over nape of neck for 1 month. Treating scleredema diabeticorum is challenging, since its pathogenesis is poorly understood. As there is paucity in the studies, we have reviewed the clinical, histopathological and ultrasonography characteristics of the disease to help practitioners with better understanding.

**Keywords:** Scleredema diabeticorum, Ultrasonography, Histopathology, Diabetes

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## 1. Introduction

Scleredema diabeticorum (SD) is associated with diabetes mellitus, affecting both type 1 and type 2 patients.[1] It is linked to prolonged hyperglycaemia, obesity, and poor metabolic control.[2] SD accounts for approximately 20% of all scleredema cases. Here, we report a case of SD in a 47-year-old female with long-standing diabetes mellitus.

## 2. Case History

A 47-year-old female, presented at the dermatology outpatient department with complaints of painful hard swelling over nape of neck for 1 month with restriction in the range of movement of neck. She was a known case of type 2 diabetic mellitus for 10 years. She had history of recurrent wound in bilateral lower legs. Patient also complained of numbness and tingling sensation over bilateral arms on doing day to day activities.

Examination findings revealed single indurated plaque over nape of neck extending to mid scapular region as shown in **Figure 1**. Since history was suggestive of long-standing uncontrolled diabetes, a routine check-up of blood investigations and biopsy were planned. A 4mm punch biopsy from the swelling over nape of neck was done on the same day and sent for histopathological examination. As patient failed to come for the follow up with blood investigation reports, we couldn't proceed further.


**Figure 1:** Clinical image showing edema and induration over the nape of the neck.

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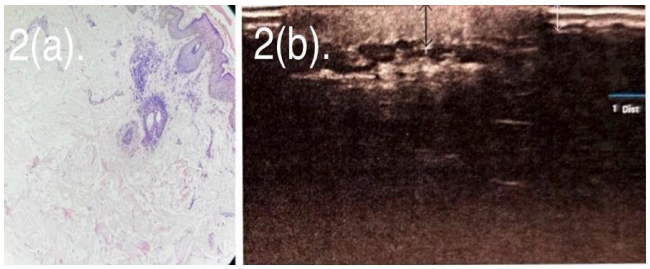


**Figure 2:** (**a**): Histopathological image depicting increased collagen deposition within the dermis, separated by clear spaces; (**b**): Ultrasonography image illustrating dermal thickening on the affected side (indicated by a double-headed black arrow) compared to the adjacent unaffected control side (marked by a double-headed white arrow).

Histopathological examination revealed thickened collagen fibre separated by clear spaces in the dermis as shown in **Figure 2**a. Collagen appeared to extend into the subcutaneous fat. Superficial dermis showed mild to moderate peri adnexal mononuclear cell infiltration. Fasting and post-prandial blood sugar levels were deranged. Ultrasound of the cutaneous lesions were performed which showed increased thickness in dermis (**Figure 2**b)

## 3. Discussion

Scleredema Diabeticorum (SD) is a rare and often unrecognized manifestation of diabetes, primarily affecting obese, poorly controlled insulin-treated diabetes.[1] It presents as diffuse symmetrical skin tightness over the neck, shoulders, and occasionally upper extremities, limiting range of motion.[2] The exact pathophysiology is unknown, but chronic poor glycaemic control likely plays a central role, potentially involving nonenzymatic glycosylation processes that damage collagen fibres and increase collagen and mucin production in the dermis.[3] Non-diabetic precipitating factors include idiopathic type and post infective type with acute onset, usually following streptococcal upper respiratory tract infection. Diagnosis is confirmed through biopsy, revealing dermal thickening and mucin deposits.[4] Ultrasonograpgy shows 1.thickening of the dermis, 2.multiple strong echogenic spots and/or posterior shadowing in the dermis.[5] There is no standard treatment protocol due to SD's rarity and refractory nature, but controlled hyperglycaemia remains the first therapeutic step.[5]

The treatment of scleredema diabeticorum involves several modalities with varying success.[6] Improved glycemic control is often the first step, with some studies showing partial improvement in skin lesions, though results are inconsistent.[6] Antibiotics are used when post-streptococcal infection is the main precipitating factor.[5] Immunosuppressive therapies like cyclosporine, corticosteroids, and methotrexate have shown limited and inconsistent results.[6] Electron-beam radiotherapy can provide temporary relief in severe cases but lacks durability.[6] Phototherapy, particularly UVA-1, and photochemotherapy (PUVA) have demonstrated promising results by modulating collagen synthesis, making them viable options in the absence of reliable alternatives.[6] Personalized treatment is crucial to optimize outcomes.[5,7,8]

## 4. Conclusion

Scleredema diabeticorum represents a chronic and debilitating condition that arises from poorly managed diabetes mellitus. The diagnosis of Scleredema diabeticorum primarily relies on clinical manifestations and supporting histopathological findings. Given that biopsy is an invasive procedure, it can provoke considerable distress in patients. Although ultrasound examinations have been performed in the context of Scleredema diabeticorum, such practices are not conducted routinely. The application of ultrasound imaging to assess cutaneous lesions may significanty enhance the diagnostic process of Scleredema diabeticorum. This technique could facilitate the localization of skin biopsy sites and potentially obviate the necessity for invasive diagnostic interventions like biopsy.

## 5. Source of Funding

None.

## 6. Conflict of Interest

None.

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