Granulomatous slack skin of the thigh developing since childhood

Hadeel Mitwalli, MD,[a] Abdulaziz Alsalhi, MD,[a] Lama Alzamil, MD,[a] and Khalid Alekrish, MD[b]

Key words: case report; granulomatous slack skin; mycosis fungoides; skin.

INTRODUCTION

Granulomatous Slack Skin (GSS) is an exceedingly uncommon variant of mycosis fungoides (MF),[1] that manifests as an indurated pendulous plaque commonly affecting the skin folds.[2] The mean age of those afflicted is 37 years.[2] Despite the challenge of determining the condition's incidence rate owing to its rarity, GSS was estimated to constitute 1.2% of MF cases in the younger population.[3] The association between GSS and classic Hodgkin lymphoma (CHL) is well established in the literature.[4] Herein, we describe a case of thigh GSS developing since the age of 7 in a 33-year-old female with CHL.

Abbreviations used:

CD: clusters of differentiation
CHL: classic Hodgkin lymphoma
GSS: granulomatous slack skin
MF: mycosis fungoides

CASE REPORT

We report the case of a 33-year-old female who was admitted to our hospital for the treatment of stage IV-B nodular sclerosis CHL. During admission, we were consulted for an incidental finding of a neglected chronic disfiguring thigh lesion that was first noted at the age of 7. At that time, the patient and her parents recall the gradual emergence of a brown, elevated, initially non-saggy lesion of roughly 10 × 10 cm and accompanied by minimal itching. Over the years, this lesion retained its appearance, expanded, sagged, and never subsided. Twenty-six years after the lesion initially appeared, the patient complained of back discomfort, unexplained fever, and weight loss. Multiple lymph node biopsies confirmed the diagnosis of nodular sclerosis CHL.

Physical examination of the cutaneous lesion revealed a 30 × 14 cm, solitary, well-demarcated, atrophic, and pendulous-like brown plaque associated with marked tissue laxity over the medial aspect of the right thigh (Fig 1).

Apart from leukopenia of 2.9 × 10^9/L (normal range 4.5-11.0 × 10^9/L), complete blood count was within normal limits. Metabolic panel, liver function test, and renal function tests were all within the normal range.

Histopathological analysis revealed a dense atypical lymphocytic dermal infiltration (Fig 2, *A* and *B*). Multinucleated giant cells engulfing atypical lymphocytes were also noted (Fig 2, *B*). Elastic Verhoeff–Van Gieson stain showed loss of elastic fibers accompanied by substantial lymphocytic infiltration (Fig 2, *C*). Epidermotropism was not seen (Fig 2, *D*). Immunohistochemistry revealed neoplastic T-lymphocytes positive for clusters of differentiation (CD) 3 and CD4 with loss of CD7 and negative for CD8 and CD30 (Fig 3). Based on the clinical manifestations and the histopathological findings, the diagnosis of GSS subtype of MF was made.

The treatment of CHL commenced with 6 cycles of doxorubicin, bleomycin, vinblastine, and dacarbazine, coupled with twice daily application of mometasone furoate 0.1% cream to the GSS-afflicted region. Six months after the last session of chemotherapy, the

From the Department of Dermatology, College of Medicine, King Saud University, Riyadh, Saudi Arabia[a]; College of Medicine, King Saud University, Riyadh, Saudi Arabia.[b]

Funding sources: None.

IRB approval status: Not applicable.

Previous presentations: This manuscript has not been presented at any conferences or meetings, local or international.

Patient consent: Consent for the publication of all patient photographs and medical information was provided by the authors at the time of article submission to the journal stating that all patients gave consent for their photographs and medical information to be published in print and online and with the understanding that this information may be publicly available.

Correspondence to: Khalid Alekrish, MD, College of Medicine, King Saud University, PO Box 56810, Riyadh, 11564, Saudi Arabia. E-mail: khalidalekrish@gmail.com.

JAAD Case Reports 2023;33:30-2.

2352-5126

https://doi.org/10.1016/j.jdcr.2023.01.002

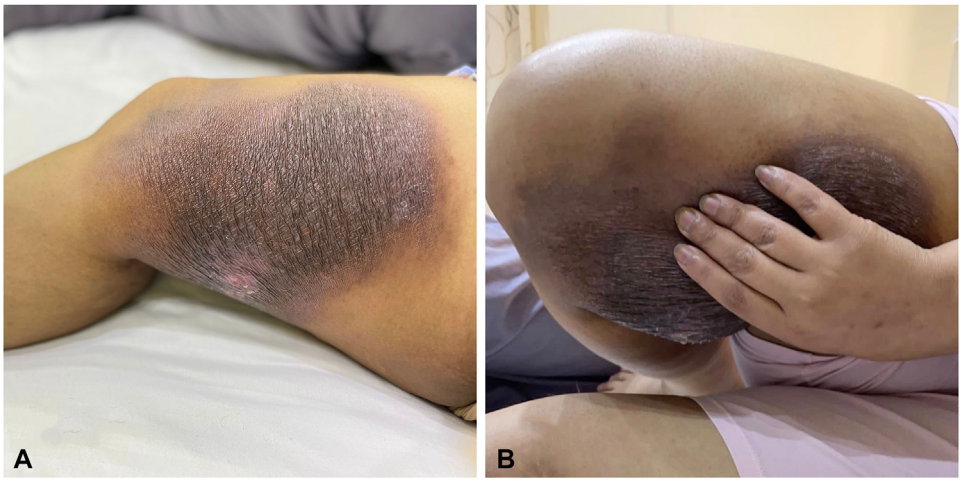

Fig 1. Physical examination of granulomatous slack skin. **A,** Solitary, well-demarcated, atrophic, and pendulous-brown plaque associated with noticeable tissue laxity with an area of erosion over the medial aspect of the right thigh. **B,** Augmentation of tissue laxity when affected skin is directed toward the ground.

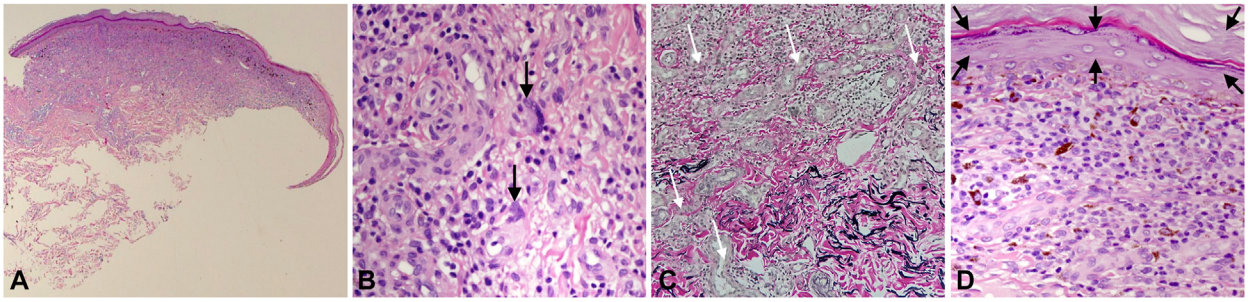

Fig 2. Histology of granulomatous slack skin. **A,** Epidermal atrophy accompanied by dermal lymphocytic infiltration extending to the reticular dermis (hematoxylin & eosin, 20×). **B,** Dense lymphocytic infiltration of the dermis with few multinucleated giant cells (*arrows*) engulfing atypical lymphocytes (hematoxylin & eosin, 400×). **C,** Loss of elastic fibers (*white arrows*) at the site of lymphocytic infiltration (Verhoeff–Van Gieson stain, 200×). **D,** Dense lymphocytic infiltration of the dermis without epidermotropism (*arrows*) (hematoxylin & eosin, 400×).

patient was in remission, and with regard to the cutaneous lesion, the itchiness, albeit mild, had resolved. Despite this, the size and texture of the lesion remained unchanged.

DISCUSSION

GSS is an exceedingly uncommon MF variant with some subtle but unique findings clinically and histologically.[1] GSS accounts for about 1.2% of pediatric MF cases.[3] As observed herein, apart from the complaint of the disfiguring nature of the lesion, patients with GSS usually do not have any symptoms. Early in the development of the lesion, an infiltrating, dark-brown plaque with an atrophic, violaceous center can be appreciated.[5] The skin eventually sags and takes on a distinctive, pendular-like appearance; nevertheless, this change might take years to develop after the first emergence of the plaque. Loss of elastic fibers in skin folds (Fig 2, *C*) leading to a reduction in recoil capability is the primary reason behind the pendulous appearance of the skin in GSS.[6-8] The reason such microscopic change affects intertriginous areas, such as the axilla and groin,[2] is not well understood.

In nearly 30% of instances, lymphoproliferative malignancies, particularly CHL, were associated with GSS.[4] In some cases, 1 or 2 decades may pass before a patient with GSS is diagnosed with CHL.[4] The pathophysiology behind this association is not yet fully understood. In one report, it was demonstrated that Hodgkin lymphoma, cutaneous T-cell lymphoma, and lymphomatoid papulosis all developed from the same T-cell clone.[9] This common variable

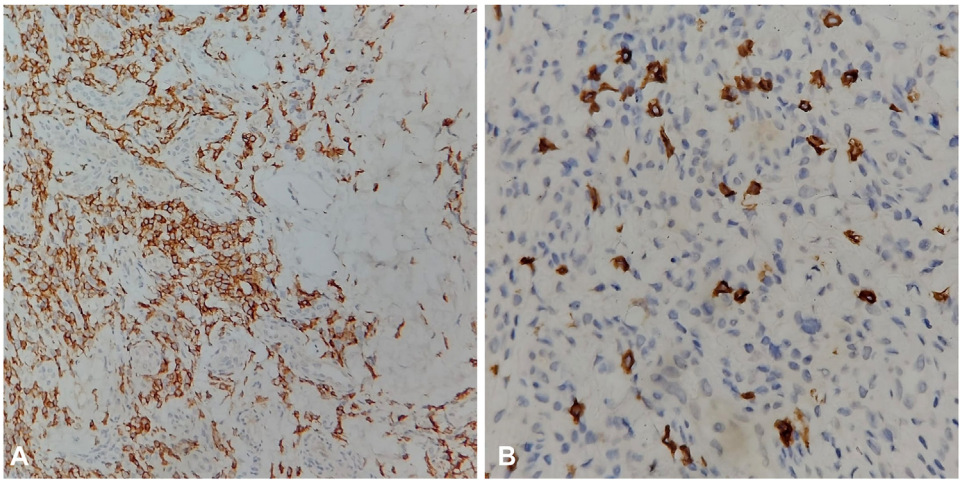

Fig 3. Immunohistochemistry of granulomatous slack skin. **A,** $CD4^+$ neoplastic T-lymphocytes (CD4 immunohistochemistry stain, 200×). **B,** CD8- neoplastic T-lymphocytes in a background of $CD8^+$ reactive lymphocytes (CD8 immunohistochemistry stain, 400×).

was postulated as a potential explanation for this correlation in some GSS cases.[4]

Reports have estimated the age of lesion onset to be between 14 and 69 years, with a mean age of 37.[2,6] Nevertheless, the risk of neoplastic lymphocyte transformation into large cells, resulting in a more aggressive disease, was significantly greater in children than adults.[3] Diagnosis is usually late regardless of the age group, and up to 10 years may pass between the development of the initial cutaneous lesion and the diagnosis of GSS.[3,10] Because of the strong association between GSS and other lymphoproliferative disorders, such as CHL, early recognition and surveillance of GSS is imperative.

Conflicts of interest

None disclosed.

REFERENCES

1. Burg G, Kempf W, Cozzio A, et al. WHO/EORTC classification of cutaneous lymphomas 2005: histological and molecular aspects. *J Cutan Pathol*. 2005;32(10):647-674. https://doi.org/10.1111/j.0303-6987.2005.00495.x
2. van Haselen CW, Toonstra J, van der Putte SJC, van Dongen JJM, van Hees CLM, van Vloten WA. Granulomatous slack skin. *Dermatology*. 1998;196(4):382-391. https://doi.org/10.1007/s001050050698
3. Jung JM, Lim DJ, Won CH, Chang SE, Lee MW, Lee WJ. Mycosis fungoides in children and adolescents: a systematic review. *JAMA Dermatol*. 2021;157(4):431-438. https://doi.org/10.1001/jamadermatol.2021.0083
4. DeGregorio R, Fenske NA, Glass LF. Granulomatous slack skin: a possible precursor of Hodgkin's disease. *J Am Acad Dermatol*. 1995;33(6):1044-1047. https://doi.org/10.1016/0190-9622(95)90316-x
5. Balus L, Bassetti F, Gentili G. Granulomatous slack skin. *Arch Dermatol*. 1985;121(2):250-252. https://doi.org/10.1001/archderm.1985.01660020108030
6. Shah A, Safaya A. Granulomatous slack skin disease: a review, in comparison with mycosis fungoides. *J Eur Acad Dermatol Venereol*. 2012;26(12):1472-1478. https://doi.org/10.1111/j.1468-3083.2012.04513.x
7. El-Khoury J, Kurban M, Abbas O. Elastophagocytosis: underlying mechanisms and associated cutaneous entities. *J Am Acad Dermatol*. 2014;70(5):934-944. https://doi.org/10.1016/j.jaad.2013.12.012
8. Tronnier M. Cutaneous disorders characterized by elastolysis or loss of elastic tissue. *J Ger Soc Dermatol*. 2018;16(2):183-191. https://doi.org/10.1111/ddg.13430
9. Davis TH, Morton CC, Miller-Cassman R, Balk SP, Kadin ME. Hodgkin's disease, lymphomatoid papulosis, and cutaneous T-cell lymphoma derived from a common T-cell clone. *N Engl J Med*. 1992;326(17):1115-1122. https://doi.org/10.1056/NEJM199204233261704
10. Jomaa B. Lymphome cutané épidermotrope associé à une chalazodermie granulomateuse. *Ann Dermatol Vénéréol*. 1987;114:1402-1405.