International Journal of Research in Dermatology
Sankesara KR et al. Int J Res Dermatol. 2025 May;11(3):263-265
http://www.ijord.com

DOI: https://dx.doi.org/10.18203/issn.2455-4529.IntJResDermatol20251051

Case Report

Acquired reactive perforating collagenosis in association with non-Hodgkin lymphoma: two case reports of a rare association

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Received: 04 February 2025
Revised: 12 March 2025
Accepted: 01 April 2025

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ABSTRACT

Acquired reactive perforating collagenosis (ARPC) is the most common form of acquired perforating dermatoses. These are uncommon and underdiagnosed clinical entities characterised by trans epidermal elimination of degenerate collagen, elastin and other connective tissue components. It primarily affects individuals with underlying systemic conditions, most notably diabetes mellitus and chronic kidney disease, particularly those undergoing dialysis. ARPC presents clinically as pruritic, hyperkeratotic papules and nodules, often with central umbilication or crusting, predominantly appearing on the extremities, trunk and areas subject to repetitive trauma or friction, which are believed to trigger or exacerbate the disease. The pathogenesis remains unclear, but trauma, microangiopathy and metabolic disturbances are thought to contribute to its development. Diagnosis is confirmed through histopathology, revealing collagen extrusion through the epidermis. Despite various therapeutic measures, the curative effect is not satisfactory and symptoms can only be improved rather than cured. Here we report a new observation of ARPC occurring in two patients with non-Hodgkin lymphoma.

Keywords: Acquired reactive perforating collagenosis, Non-Hodgkin lymphoma, Perforating dermatosis

INTRODUCTION

Perforating dermatoses are a group of disorders with trans epidermal elimination of degenerated material from the upper dermis. These are divided into primary and secondary forms. According to eliminated material, the four classical forms of primary perforating dermatosis are Kyrle's disease (KD), reactive perforating collagenosis (RPC), elastosis perforans serpiginosa (EPS) and perforating folliculitis (PF) eliminating keratin, collagen, elastic fibers and degenerated follicular contents respectively.

The secondary forms of these four disorders; which present in adults, are collectively known as acquired perforating dermatosis (APD). APD are seen in adults in association with diabetes mellitus and chronic kidney disease.[1] Here we report two rare cases of ARPC in association with non-Hodgkin lymphoma.

CASE REPORT

Case 1

An 81-years-old male patient presented with chief complain of intensely itchy skin lesions all over body except face for eight months. The clinical examination revealed multiple papulo-nodular and ulcerative lesions with central crusting and peripheral scaling over the extremities and back (Figure 1a). Senile purpura was noted on bilateral forearm. Along with the development of skin lesions, patient started having generalized

weakness, fever and lymphadenopathy and was diagnosed as immunoblastic T-cell lymphoma stage 4 based on 18F-FDG whole-body PET-CT findings, hematological investigations, bone marrow biopsy and immunohistochemistry six months ago. Patient was under chemotherapy CHOP (cyclophosphamide, doxorubicin, vincristine, prednisolone).

His medical history revealed concomitant diabetes mellitus and ischemic heart disease for more than 15 years for which he had undergone CABG 12 years ago and on regular same medicines since last 5 years with good control of both the diseases.

Laboratory investigations showed HbA1c (6.8%) (normal-<5.7%) average blood sugar 143mg/dl, prostatic specific antigen (6.8 ng/ml) (0-4 ng/ml), absolute eosinophilic count (834/microliter) (20-500/mcl), absolute monocyte count (1218/microliter) (200-1000/mcl). Other blood investigations including serum IgE level, renal function test and liver function tests, were within reference range. USG abdomen and pelvis showed mild prostatomegaly.

Histopathological examination from skin lesion showed cup shaped invagination of the epidermis containing keratin plug along with inflammatory infiltrate of neutrophils with debris and extruded collagen fibers (Figure 1b) leading to the diagnosis of ARPC.

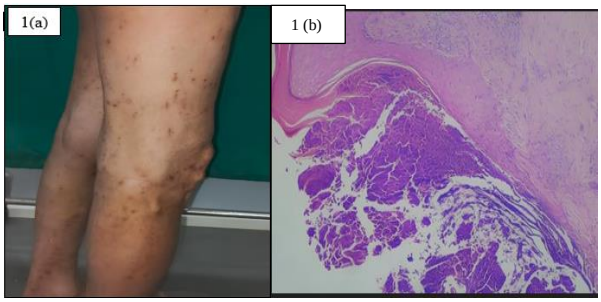

Figure 1: (a) Hyperpigmented hyperkeratotic papules with centre crusting over bilateral upper limbs and lower limbs; (b) haematoxylin-eosin-stained section showing cup shaped invagination of the epidermis into upper dermis containing keratin plug along with inflammatory infiltrate of neutrophils with debris and extruded collagen fibres are seen (40X).

Case 2

A 62-years-old female patient presented to Dermatology OPD with chief complaints of itchy skin lesions over both upper limbs and lower limbs for 6 months. On clinical examination; multiple discrete hyperpigmented lichenified papules with central crusting and scaly margins over bilateral lower legs and forearms were observed (Figure 2a).

Patient was diagnosed with mantle cell lymphoma before 2 months; on the basis of cervical lymph node biopsy with immunohistochemistry. The disease was Stage 3 at the time of diagnosis as per 18F-FDG whole body PET-CT study. Routine investigations showed HbA1C- 6.52% (normal-<5.7%), average blood sugar 123 mg/dl (Normal- 70-110 mg/dl), S.LDH-419 (Normal-125-220 U/l). Complete blood count, liver function tests and renal function tests were normal. Patient is a known case of Diabetes Mellitus type 2 who has been taking treatment regularly for 10 years. Patient is on chemotherapy (Rituximab, Bendamustine)

Biopsy from the skin lesions showed cup shaped invagination of the epidermis, containing hyperkeratotic plug of keratin and perforating through epidermis. Confirming the diagnosis of ARPC (Figure 2b).

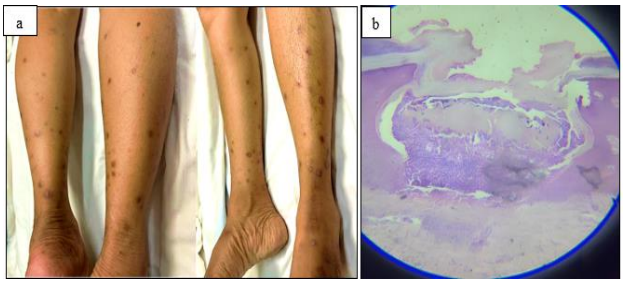

Figure 2: (a) Discrete hyperpigmented lichenified papules with central crusting over bilateral lower limbs; (b) haematoxylin-eosin-stained section showing cup shaped invagination with inflammatory debris and extruded collagen fibres (4X).

DISCUSSION

ARPC is the most common perforating disorder among APD. Some authors prefer the term APD for all acquired disorders of perforation as often a combination of collage, elastin and keratin is seen along with other material.[2,3] The exact pathogenesis of ARPC is not known but it is thought to result from dermal connective tissue dysplasia and decay often due to local trauma. The keratinocytes exposure to advanced glycation end product (AGE)-modified interstitial collagen (types I and III) by scratching induces terminal differentiation of Keratinocytes via the AGE receptor (CD36), bringing about the upward movement of keratinocytes together with glycated collagen in patients of diabetes.[4]

ARPC is commonly seen associated with diabetes mellitus and renal disease. It is also reported with various other diseases like hepatic, endocrinological disorders, HIV infection, tuberculosis, atopic dermatitis, etc. APD disorders have been reported with malignancies like thyroid carcinoma, prostate carcinoma, metastatic breast carcinoma, renal cell carcinoma, acute myelogenous leukemia and Hodgkin's lymphoma. Due to several case reports of association with malignancy, APD has been considered a paraneoplastic disorder by Imran N.[1] Indian

literature has reported ARPC following insect bite and Erlotinib-induced ARPC in patient with lung adenocarcinoma.[5,6]

There are no case reports of ARPC in Non-Hodgkin lymphoma (NHL) as we have seen. APD in Hodgkin lymphoma may occur due to intense itching associated with lymphoma but same cannot be explained for NHL.

Moreover, both our patients had different types of NHL-immunoblastic T cell lymphoma and mantle cell lymphoma. Though our cases had diabetes mellitus, both had controlled diabetes and disease process was directly related to the diagnosis of NHL. Non-Hodgkin lymphoma may be considered among the list of malignancies which might cause ARPC due to yet unknown mechanisms.

CONCLUSION

In conclusion, we report two rare cases of ARPC in association with non-Hodgkin T-cell lymphoma. While APD is commonly associated with renal failure, diabetes and Hodgkin lymphoma, there are rare reports of its association with T-cell lymphoma.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Sankesara KR, Shihora MK, Joshi KN, Ramani DP, Patel KB. Acquired reactive perforating collagenosis in association with non-Hodgkin lymphoma: two case reports of a rare association. Int J Res Dermatol 2025;11:263-5.