# Dermoscopic features of cutaneous post-transplant lymphoproliferative disorder in a renal transplant recipient

Hua Xian Elizabeth Wang, MBBS,[a] Po Yin Tang, MBBS (Melb), BMedSc,[b] and Choon Chiat Oh, MBBS, MRCP, MCI, MSc[a]

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## INTRODUCTION

Post-transplant lymphoproliferative disorders (PTLDs) consist of lymphoid proliferations in patients on immunosuppressants post hematological or solid organ transplantation. They tend to be of B-cell origin and frequently harbor the Epstein-Barr virus (EBV) genome. They typically affect extranodal sites but rarely the skin. As they can have protean manifestations, including nodules, ulcers, and plaques,[1] dermoscopy can be a useful clinical adjunct to support clinical diagnosis of lesions suspicious for PTLDs in post-transplant patients. It can also help us identify suitable sites for biopsy if similar reported features are seen and could potentially be used as screening for recurrence or resolution in patients already undergoing treatment.

Herein, we report the first dermoscopic findings of cutaneous PTLD of the EBV-positive diffuse large B-cell lymphoma (DLBCL) subtype in a renal transplant recipient. We also attempt to draw parallels with dermoscopy findings of primary cutaneous lymphoma and outline treatment options.

*Abbreviations used:*

| | |
|---|---|
| DLBCL: | diffuse large B-cell lymphoma |
| EBV: | Epstein-Barr virus |
| PCBCL: | primary cutaneous B-cell lymphoma |
| PTLD: | post-transplant lymphoproliferative disorder |
| R-CHOP: | 5-drug combination chemotherapy including rituximab, cyclophosphamide, hydroxydaunorubicin hydrochloride (doxorubicin), oncovin (vincristine), and prednisone |

## CASE SYNOPSIS

The case describes a 62-year-old Chinese male with a background of renal transplant 15 years ago, on immunosuppressants prednisolone, mycophenolic acid, and sirolimus. He presented with a 4-month history of a rash over the left calf. He was asymptomatic at the time of presentation. On examination, there was an erythematous nodule on a background of hyperpigmented patches over the left calf (Fig 1).

Dermoscopy of the erythematous nodule showed a salmon-colored background with some white structureless areas, white lines, white hairpin structures, and unfocused dotted vessels (Fig 2). A skin biopsy of the erythematous nodule was done which showed dense superficial-to-deep dermal, diffuse-to-slightly-nodular infiltrate of large, atypical lymphocytes. Immunostaining demonstrated a confluent and diffuse CD 20 (+) CD 79a (+) large B-cell lymphomatous proliferation, showing diffuse nuclear positivity for in situ hybridization for EBV-encoded small RNA.

He subsequently underwent a positron emission tomography computed tomography scan which showed no suspicious fluorodeoxyglucose-avid focus to suggest the underlying malignancy. The bone marrow trephine and aspirate showed no evidence

From the Department of Dermatology, Singapore General Hospital, Singapore[a]; and Department of Pathology, Singapore General Hospital, Singapore.[b]

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Correspondence to: Choon Chiat Oh, MBBS, MRCP, MCI, MSc, Department of Dermatology, Singapore General Hospital, Outram Rd, Singapore, 169608. E-mail: oh.choon.chiat@singhealth.com.sg.

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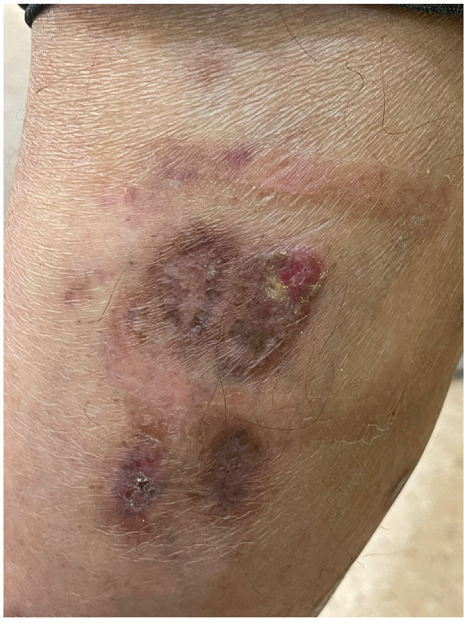

**Fig 1.** Clinical examination showed an erythematous nodule on a background of hyperpigmented patches over the left calf.

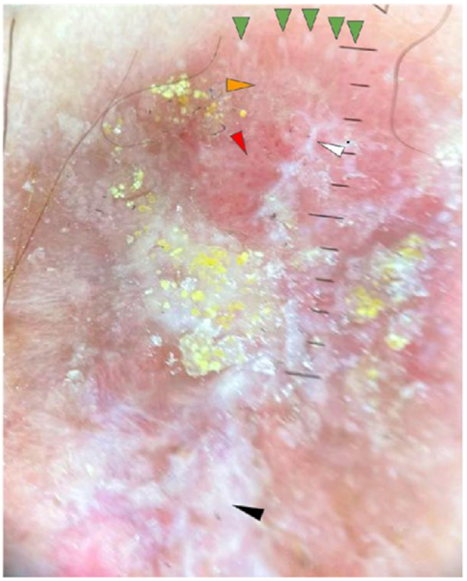

**Fig 2.** Polarised dermoscopy findings of white structureless areas (*black arrowhead*), white lines (*white arrowhead*), white hairpin structures (*green arrowheads*), unfocused dotted vessels (*red arrowhead*) on a salmon pink background (*orange arrowhead*) *(Heine DeltaOne Dermoscope).*

of lymphoma, and flow cytometry showed no evidence of clonal B cells. His serum EBV polymerase chain reaction returned as 4.3 log (19,830 copies). He was diagnosed with stage 1E monomorphic PTLD of the EBV-positive DLBCL subtype. Mycophenolic acid was stopped, and he was planning for radiotherapy to the left calf.

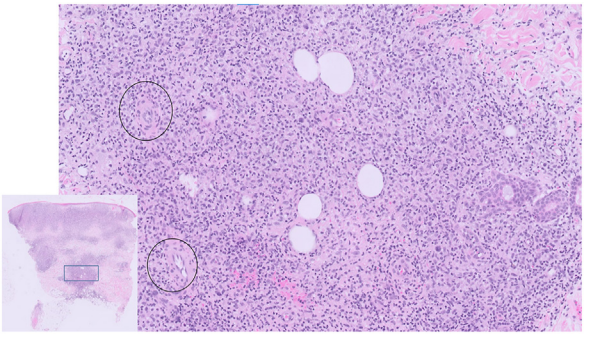

**Fig 3.** Deep dermal lymphocytic infiltrate (*black rectangle*) surrounded by blood vessels (*black circles*) seen on H&E ×100 magnification.

## CASE DISCUSSION

We describe the first dermoscopic findings of monomorphic PTLD of the EBV-positive DLBCL subtype. As there are no other case reports for comparison, we attempt to establish the significance of our dermoscopic findings by drawing parallels to dermoscopic findings of primary cutaneous lymphoma.

On review of the literature, the main nonvascular features of primary cutaneous B-cell lymphoma (PCBCL) on dermoscopy were salmon-pink-colored background, white structureless areas, and white circles/lines.[2-5] The salmon pink color likely corresponds in the histology to the deep dermal lymphocytic infiltrates (Fig 3) along with the increased vascular flow because of angiogenesis that accompanies the neoplastic process of lymphoma.[2] The white structureless areas and white circles/lines likely correspond to the deep dermal fibrosis seen on histology (Fig 4). As our dermoscopic findings of the aforementioned case correspond to those seen in PCBCL, they are likely significant findings of PTLD of the B-cell subtype.

In terms of vascular features, the main vascular findings for PCBCL are serpentine or arborizing vessels[2,3] that correspond to angiogenesis that accompanies the neoplastic process.[5] Our vascular findings however were of unfocused dotted vessels. This likely corresponds to blood vessels seen within the Grenz zone (Fig 4). However, there are case reports of primary cutaneous DLBCL showing dotted vessels on dermoscopy.[6] In addition, dotted vessels were also seen in other case reports of cutaneous PTLD.[7] Thus, unfocused dotted vessels are a potentially significant vascular feature for B-cell PTLD.

In terms of cutaneous T-cell lymphoma, mycosis fungoides is the most common type, with dermoscopy features including linear vessels, spermatozoa-like structures, and orange-yellowish patchy areas. None of these features are seen in our dermoscopy

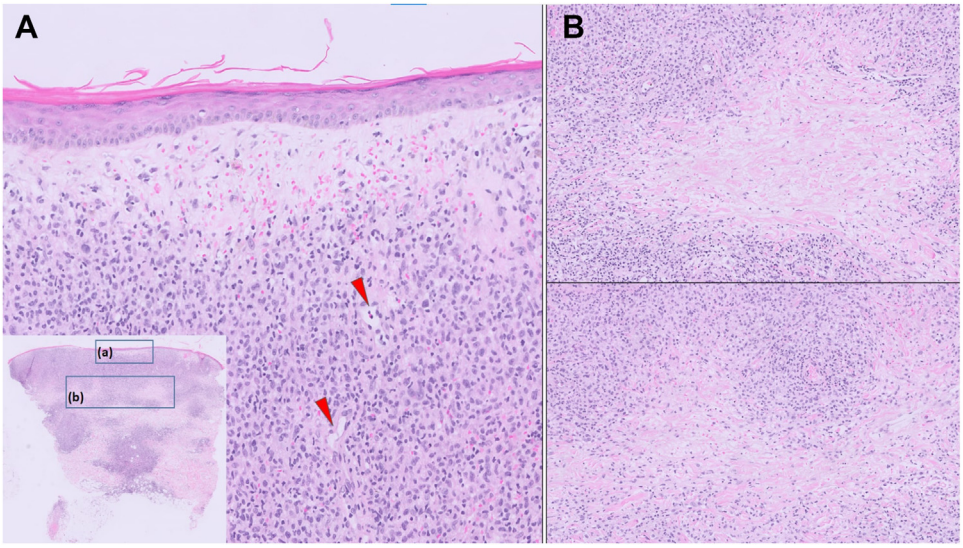


**Fig 4.** **A,** Unfocused dotted vessels corresponding to blood vessels seen in the Grenz zone (*red arrows*) at H&E ×200 magnification. **B,** White structureless areas, white lines and white hairpin structures corresponding to dermal fibrosis seen on histology at H&E ×100 magnification.

**Table I.** Table showing common dermoscopy findings of squamous cell carcinoma, basal cell carcinoma, melanoma, and Kaposi sarcoma

| Common cutaneous malignancy in transplant patients | Dermoscopy findings |
|---|---|
| Squamous cell carcinoma | Dotted and/or glomerular vessels distributed focally at the periphery |
| | Rosettes |
| | White circles or keratin pearls |
| | Ulcerations |
| | Brown dots or globules arranged in a linear configuration |
| Basal cell carcinoma | Arborizing blood vessels |
| | Leaf-like structures |
| | Large blue-gray ovoid nests |
| | Multiple blue-gray nonaggregated globules |
| | Spoke wheel–like structures/concentric structures |
| Melanoma | Atypical vascular structures |
| | Atypical network |
| | Shiny white lines |
| | Atypical dots and/or globules |
| | Off-centered blotch |
| | Blue-white veil overlying raised areas |
| | Regression structures |
| Kaposi sarcoma | Bluish-red coloration |
| | Rainbow pattern |
| | White lines |
| | White clods |

findings, likely due to the fact that our case is of PTLD of the B-cell subtype.

When comparing the dermoscopy findings of B-cell PTLD with other common malignancies post transplant, such as squamous cell carcinoma, basal cell carcinoma, Kaposi's sarcoma, and melanoma (Table I), the dermoscopic finding of white hairpin structures appears unique to B-cell PTLD. This is not a previously recognized dermoscopic feature and may correspond to the histology of dermal fibrosis (Fig 4). In addition, our constellation of findings appears dissimilar to the common set of findings seen in the other cutaneous malignancies, indicating that dermoscopy could be a useful

noninvasive method to distinguish between PTLD and them.

The limitation of this discussion includes that our literature review did not yield many case reports on dermoscopy findings of PTLD. As such, a comparative analysis could not be done to determine the significance of our dermoscopic findings. The only other case report identified describes dermoscopy findings of cutaneous PTLD of the B-cell plasma cell neoplasm subtype,[7] and this shared some similarities with our findings in the form of dotted vessels. With more cases reported in the future, we may then be able to further qualify our findings as significant.

In addition, majority of the case reports in the literature for PCBCL were of extranodal marginal zone lymphoma and follicle center lymphoma subtypes and not DLBCL, and thus, we were not able to make a more accurate comparison between our case, which is PTLD of the DLBCL subtype, with primary cutaneous DLBCL.

The mainstay of treatment of cutaneous PTLD is the reduction of immunosuppression which can be combined with surgery or radiation for localized lesions. Other treatment options include rituximab monotherapy or R-CHOP. Finally, novel therapies include interleukin 6 and interleukin 10 monoclonal antibodies and IFN-alpha.[8]

## CONCLUSION

This case reports the first description of dermoscopic findings of cutaneous PTLD of the EBV-positive DLBCL subtype. Further dermoscopic descriptions would be useful in corroborating the findings. It also highlights the utility of polarized dermoscopy in the early identification of potentially malignant skin conditions that can prompt the physician to recommend a skin biopsy to confirm the diagnosis and institute treatment early.

### Conflict of interest

None disclosed.

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