

## Dermatoscopy of Plantar Keloids in Three Patients

Dear editor,

Keloid is a type of scar formed due to abnormal proliferation of dermal fibrous tissue in response to trauma in predisposed individuals.<sup>[1]</sup> Keloids are rarely reported over palms and soles and this is attributed to sparseness of pilosebaceous units at these sites.<sup>[2]</sup> However, in patients with keloids on palms or soles, they are often under/(mis) diagnosed due to low index of suspicion and reluctance of the health care providers to biopsy such lesions. Dermatoscopy, a non-invasive diagnostic tool, can help in such circumstances. In this report, we describe the dermatoscopic features of plantar keloid in three patients.

**Case 1:** A middle-aged lady presented to us with an erythematous painful nodular lesion over her soles, which followed an excision procedure done for callosities two years back. There was no personal or family history of keloids. On examination, well-defined pinkish to erythematous firm nodulo-plaque lesion was present over medial border of left sole, with overlying greyish white scales and surrounding hyperkeratotic rim [Figure 1a]. Clinical differentials of plantar keloid and eccrine poroma were considered. Dermatoscopic examination showed a clear demarcation of the lesional tissue from uninvolved skin, with a scaly rim differentiating the two. Characteristically, dermatoglyphics were absent from the lesional skin. In addition, linear vessels, bright white scales, and yellow-white areas were noted over lesional skin [Figure 1b]. Histopathology showed hyperkeratosis in the epidermis, dense thick hyalinised collagen bundles in the dermis confirming the diagnosis of keloid [Figure 2]. The patient was treated with intralesional corticosteroids and had a reasonable response.



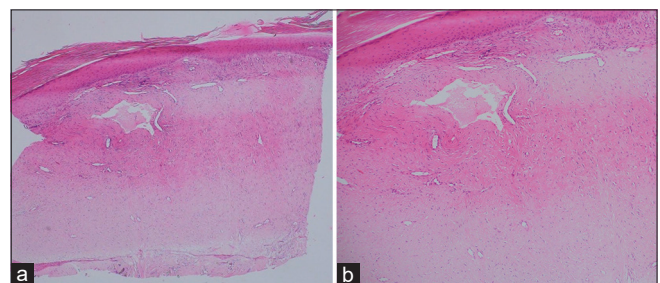
**Figure 1:** (a) Index case of plantar keloid showing well-defined erythematous nodular growth with overlying adherent whitish scales over medial surface of left sole. (b) Dermatoscopy of same lesion shows a well-defined keratotic rim (black arrow), loss of dermatoglyphics, linear telangiectatic vessels (blue arrow head), yellowish white areas (circle) along with overlying semi-adherent whitish scales (red arrowhead). (DermLite DL4, 10x magnification, polarized mode)

**Case 2:** A 50-year-old man presented with an 8-month history of a painful reddish nodular lesion over the left foot with a history of fissuring and bleeding from the lesion. On examination, a well-defined pinkish nodulo-plaque lobulated lesion, which was firm to hard in consistency was present on lateral borders of the left sole with overlying greyish white scales and fissuring [Figure 3a]. On dermatoscopy, clear demarcation of the lesion from uninvolved skin, which was separated by a scaly rim and absence of dermatoglyphics could be appreciated. In addition, globular vessels, bright white scales, and yellowish-white areas were seen [Figure 3b]. Histopathology confirmed the diagnosis of keloid.

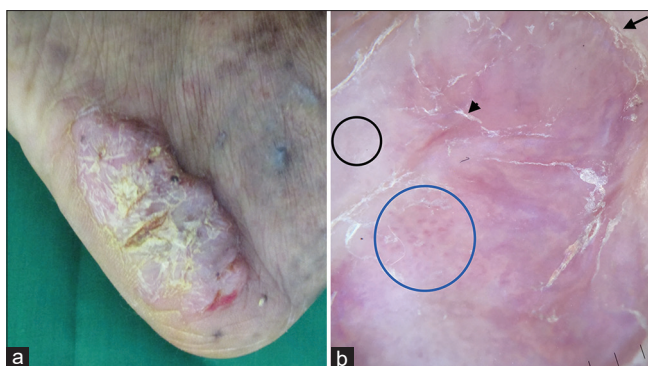
**Case 3:** A 45-year-old man presented with a 6-month history of an erythematous plaque over the right sole. Examination revealed an irregular erythematous plaque on medial sole with overlying whitish scales and hyperkeratotic rim surrounding the lesion [Figure 4a]. Dermatoscopic features were similar to the previous two cases [Figure 4b].

Plantar and palmar keloids are characterized by round or polycyclic, firm to hard, nodular growths giving a poly-lobulated appearance.<sup>[2]</sup> On dermatoscopy, our patients showed a clear demarcation of the lesional tissue from uninvolved skin, with loss of dermatoglyphics from the lesional skin. This represents the dermal origins of the lesion, wherein the abnormal scar tissue extends beyond the confines of the initial insult forming a hyperkeratotic rim. Peripherally placed linear and punctate vessels and semi-adherent scales represented ongoing inflammation and tissue re-organization and yellowish-white areas represent areas of scarring and collagen deposition.

Keloids on plantar surface are often confused with plantar fibromatosis, neuroma, and eccrine poroma. Dermatoscopy of plantar fibromatosis and plantar neuroma have not been



**Figure 2:** (a) Intact epidermis with stratified squamous epithelium and dermis is homogeneously collagenized. (H&E 40x) (b) On higher magnification dermis is densely collagenized, vascularized and show sparse lymphocytic infiltrate with lack of adnexal structures suggestive of keloid. No granulomas were present. (H&E 100x)

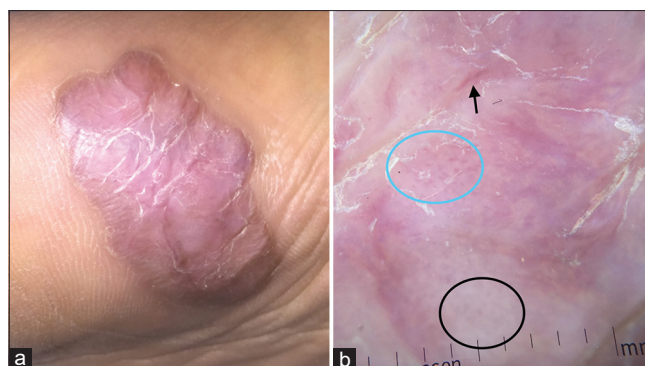


**Figure 3:** (a) Another case of plantar keloid showing well-defined pinkish nodulo-plaque lobulated lesion over lateral borders of left sole and overlying greyish white scales and fissuring. (b) On dermatoscopy clear demarcation of the lesional tissue from uninvolved skin with a scaly rim (black arrow) and absence of dermatoglyphics can be appreciated. In addition, globular vessels (blue circle), bright white scales (arrow head) and yellowish white areas are seen (black circle). (DermLite DL4, 10x magnification, polarized mode)

described in the literature. However, there should be no loss of dermatoglyphics or presence of a hyperkeratotic rim in plantar fibroma or neuroma as they are expansile lesions stretching the overlying plantar skin. Dermatoscopy of infantile digital fibromatosis has been reported to show telangiectasia, white dots, and linear white constructions without overlying scales.<sup>[3]</sup> Neuroma of non-volar skin shows arborizing vessels on reddish background, a central white spot, and peripheral hyperpigmentation.<sup>[4]</sup> Presence of features such as polymorphic vascular pattern—glomerular, hairpin, and linear irregular vessels, branched vessels with rounded endings, yellow structureless areas and milky red areas will help to differentiate eccrine poroma.<sup>[5]</sup>

Dermatoscopy of histoid or nodular leprosy can show shiny white areas, peripheral rim of brownish pigmentation, and linear branching vessels; however, hyperkeratotic rim and loss of dermatoglyphics are not seen. Characteristically, crown vessels are a feature of histoid leprosy, but plantar keloids show clusters of linear and globular vessels throughout the lesion.<sup>[6]</sup>

In conclusion, hyperkeratotic rim, loss of dermatoglyphics, yellowish-white areas, and globular and linear vessels are salient dermatoscopic features of plantar keloid and help in differentiating from other dermatosis occurring over palms and soles.



**Figure 4:** (a) Plantar keloid showing an irregular erythematous plaque on medial aspect of right sole with overlying whitish scales. (b) On dermatoscopy linear (arrow) and punctate vessels (blue circle), few yellow and pinkish areas (black circle) and whitish scales are seen. (DermLite DL4, 10x magnification, polarized mode)

### Acknowledgements

We acknowledge the contribution of Dr Rajsmitta Bhattacharjee and Dr Debajyoti Chatterjee in patient management.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

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<b>Website:</b> www.idoj.in	<b>Quick Response Code</b> 
<b>DOI:</b> 10.4103/idoj.IDOJ_491_21	

**How to cite this article:** Gupta P, Daroach M, Bishnoi A, Vinay K. Dermoscopy of plantar keloids in three patients. *Indian Dermatol Online J* 2022;13:532-4.

**Received:** 29-Jul-2021. **Revised:** 16-Aug-2021.

**Accepted:** 10-Sep-2021. **Published:** 24-Jun-2022.

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