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PLANTAR BASAL CELL CARCINOMA IN A PATIENT WITH XERODERMA PIGMENTOSUM. IMPORTANCE OF DERMOSCOPY FOR EARLY DIAGNOSIS OF NON-PIGMENTED SKIN CANCER

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Basal cell carcinoma (BCC) is the most common type of skin cancer in white populations but only a small minority of these lesions are seen on acral locations.^{1,2} The presentation of BCC on acral sites has been related to predisposing factors such as Gorlin-Goltz Syndrome (GGS), trauma, scar, radiation or intake of carcinogens such as arsenic.³

Xeroderma Pigmentosum (XP) is a rare autosomal-recessive, cancer-prone genodermatosis characterized by a defect in the repair of DNA damage caused by UVR, which induces a 1000-fold increased risk to develop cutaneous malignancies.⁴

Dermoscopic examination has been described as a useful tool improving the diagnostic accuracy in pigmented skin lesions, but it is also useful in the visualization of non-pigmented skin conditions by allowing recognition of structures that are not discernible to the naked eye.⁵

Reflectance confocal microscopy (RCM) is a noninvasive imaging technique that has been shown to enhance diagnosis of skin tumors as it allows the *in vivo* identification of characteristic architectural and cytological substrates of the epidermis and superficial dermis at almost histological resolution.^{6,7}

We report the case of a 46-year-old white woman affected by Xeroderma Pigmentosum and history of multiple melanomas presenting with a superficial BCC in her left sole. Careful exploration of the patient allowed the detection of small palmar pits (figure 1a) dermoscopically showing the previously described red globules arranged in parallel lines on top of the ridges as well as the geographic borders (figure 1b).⁸ On her left sole a, 0.5cm × 0.6cm measuring flesh-colored, erosive lesion was observed (figure 2a). The patient was not aware this lesion. Dermoscopic examination (DermLite Photo, 3Gen, Dana Farber) revealed

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the presence of brown/gray dots, and multiple micro-ulcerations in the periphery of the lesion, similar to those seen in superficial BCC in non-acral skin. Another interesting finding was the interruption of the dermatoglyphics (figure 2b).

RCM (Vivascope 1500, Lucid, Inc., Henrietta, NY) showed dendritic cells around eccrine ducts. (figure 2c-d), that may correspond to Langerhans cells, but no other criteria for BCC such as hyporefractile nodules with peripheral cleft-like dark spaces or increased vascularity and tortuosity were recognized. RCM examination was limited to the upper layers of the epidermis due to thick acral hyperkeratoses.

Histopathologic analysis revealed the presence of an atypical basaloid cell proliferation forming multifocal nests in the epidermal basal layer with infiltration of the superficial dermis (figure 2e-f) confirming the diagnosis of BCC.

Only 44 cases of plantar BCC have been reported in the literature so far. Roth *et al*⁹ documented a clinico-pathologic study based on 20 cases of BCC of the sole and plantar-like surfaces from adjacent lower lateral and medial aspects of the foot, for a period of six years. These 20 cases of BCC of the plantar surface constituted only 0.004% of the total number of specimens received in a podiatric laboratory. This study demonstrates the rarity of this location.

In patients with XP, early diagnosis of skin cancer is crucial to prevent morbidity but the presence of a huge number of actinic lesions makes detection difficult. Malvey *et al*¹⁰ reported that the dermoscopic findings in the skin cancers in patients with XP were similar to those described in patients not affected by this disease.

Cabo *et al*³ reported the dermoscopy of a nodular BCC in the palm of a Gorlin Goltz patient in contiguity with volar pits. They suggested that volar are predisposed to develop BCC instead of being initial forms of BCC since volar pits are more frequently found than volar BCC in Gorlin-Goltz syndrome. In our case, no pits were seen in the soles.

The true origin of BCC is still a matter of discussion. The fact that it may be found at the acral surfaces, where there are no hair follicles, contradicts the hypothesis that these lesions derive from cells of the hair follicle. Indeed, it have been postulated other possibilities such as originating from basal layer cells, from eccrine glands, or from epidermal stem cells.¹ In our case, RCM examination revealed the presence of dendritic cells, which were also described in BCC by Segura *et al*⁷ as corresponding to Langerhans cells, distributed around the eccrine ducts in the epidermis of the BCC; suggesting that this might be a clue to understand the true origin of BCC.

To the best of our knowledge this is the first dermoscopic description of a plantar superficial BCC in the context of a patient affected with XP. Additionally our patient presented multiple acral solar lentigos and palmar pits. For the latter we hypothesize that palmar pits may represent early stages or predisposing lesions of BCCs and may induced by ultraviolet damage. Digital dermoscopy of palmar pits could be of great interest to elucidate the nature of such lesions.

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REFERENCES

1. Salomao P, Kopke LF, MacHado-Pinto J. Palmar basal cell carcinoma: Case report and literature review. *Dermatol Surg.* 1999; 25:908–910. [PubMed: 10594608]
2. Ee HL, Tan SH, Kumarasinghe SP. Plantar basal cell carcinoma: A possible eccrine origin. *Clin Exp Dermatol.* 2004; 29:678–679. [PubMed: 15550153]
3. Cabo H, Kolm I, Puig S, Malvey J. Palmar basal cell carcinoma in a patient with gorlin-goltz syndrome. *Arch Dermatol.* 2007; 143:813–814. [PubMed: 17576964]
4. Suzuki H, Kalair W, Shivji GM, Wang B, Toto P, Amerio P, Kraemer KH, Sauder DN. Impaired ultraviolet-b-induced cytokine induction in xeroderma pigmentosum fibroblasts. *J Invest Dermatol.* 2001; 117:1151–1155. [PubMed: 11710926]
5. Zalaudek I, Argenziano G, Leinweber B, Citarella L, Hofmann-Wellenhof R, Malvey J, Puig S, Pizzichetta MA, Thomas L, Soyer HP, Kerl H. Dermoscopy of bowen's disease. *Br J Dermatol.* 2004; 150:1112–1116. [PubMed: 15214896]
6. Salerni G, Lovatto L, Carrera C, Palou J, Alos L, Puig-Butille JA, Badenas C, Malvey J, Puig S. Correlation among dermoscopy, confocal reflectance microscopy, and histologic features of melanoma and basal cell carcinoma collision tumor. *Dermatol Surg.* 2011; 37:275–279. [PubMed: 21281387]
7. Segura S, Puig S, Carrera C, Palou J, Malvey J. Dendritic cells in pigmented basal cell carcinoma: A relevant finding by reflectance-mode confocal microscopy. *Arch Dermatol.* 2007; 143:883–886. [PubMed: 17638732]
8. Kolm I, Puig S, Iranzo P, Malvey J. Dermoscopy in gorlin-goltz syndrome. *Dermatol Surg.* 2006; 32:847–851. [PubMed: 16792654]
9. Roth MJ, Stern JB, Haupt HM, Smith RR, Berlin SJ. Basal cell carcinoma of the sole. *J Cutan Pathol.* 1995; 22:349–353. [PubMed: 7499575]
10. Malvey J, Puig S, Marti-Laborda RM. Dermoscopy of skin lesions in two patients with xeroderma pigmentosum. *Br J Dermatol.* 2005; 152:271–278. [PubMed: 15727638]

Figure 1.
(a) Clinical image of palmar pits and a solar lentigo on the left palm; (b) Dermoscopy of a palmar pit with aligned red globules on top of the acral ridges and geographic borders. Adjacent a solar lentigo is visible;

Figure 2.

(a) Clinical image of a 0.5cm $\times$ 0.6cm measuring flesh-colored, erosive lesion, and a solar lentigo on left foot; (b) Dermoscopy image (DermLite Photo, 3Gen, Dana Farber) showing brown/gray dots, multiple micro ulcerations in the periphery and interruption of the fingerprints; (c) RCM (0.5 mm $\times$ 0.5 mm) image (Vivascope 1500, Lucid, Inc., Henrietta, NY) showing dendritic structures in the stratum granulosum corresponding to Langerhans cells; (d) mosaic (2 $\times$ 1.5 mm) showing the distribution of dendritic cells around eccrine ducts; (e and f) Histopathological images showing multifocal basal cell proliferation in the epidermal basal layer infiltrating superficial dermis (e) HEX100; f) HEX 40).