

Dermoscopy of Pseudoepitheliomatous Hyperplasia Tattoo Reaction Pattern

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Keywords: dermoscopy, pseudoepitheliomatous hyperplasia, squamous cell carcinoma, tattoo

Citation: Behera B, Kumari R, Gochhait D, Ayyanar P. Dermoscopy of pseudoepitheliomatous hyperplasia tattoo reaction pattern. *Dermatol Pract Concept*. 2022;12(3):e2022121. DOI: <https://doi.org/10.5826/dpc.1203a121>

Accepted: November 29, 2021; **Published:** July 2022

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Funding: None.

Competing interests: None.

Authorship: All authors have contributed significantly to this publication.

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Introduction

Delayed cutaneous tattoo reactions are a relatively rare occurrence and include, lichenoid, granulomatous, allergic, pseudoepitheliomatous (PEH), and pseudolymphoma. Dermoscopic features of delayed tattoo reaction patterns are rarely reported [1].

Case presentation

A 21-year-old male had a one-year history of a slow-growing, asymptomatic lesion over a blue tattoo. It started six months after the tattooing. Cutaneous examination showed solitary erythematous to bluish verrucous plaque over the tattoo (Figure 1A). Dermoscopic examination under non-polarized mode revealed two distinct zones. The central area had white scales, white to pinkish-white structureless area, comedo-like opening with keratotic plugging, white circles, red globules, hemorrhage, hairpin, and linear

irregular vessels. The peripheral zone showed a gray-white to bluish-white structureless area (Figure 1, B and C). The differential diagnoses included were lupus vulgaris, tuberculosis verrucosa cutis (TBVC), chromoblastomycosis, and granulomatous tattoo reaction pattern. Histology showed hyperkeratosis, parakeratosis, pseudoepitheliomatous hyperplasia, spongiosis, and lymphocytic exocytosis. In addition to tattoo pigment, the dermis had a subepidermal band-like, perivascular and peri-adnexal predominant lymphocytic infiltration and occasional plasma cells. Also, the epidermis showed focal keratinocyte swelling, dyskeratotic cells, and the dermis showed an increased number and dilated dermal blood vessels. (Figure 2, A and B). Other investigations were within normal limits. The diagnosis of PEH tattoo reaction pattern was made, and the patient was treated with intralesional triamcinolone acetonide 40 mg/ml.

PEH is the result of benign hyperplasia of the epidermal and adnexal epithelium. Tattoo-induced PEH is a rare

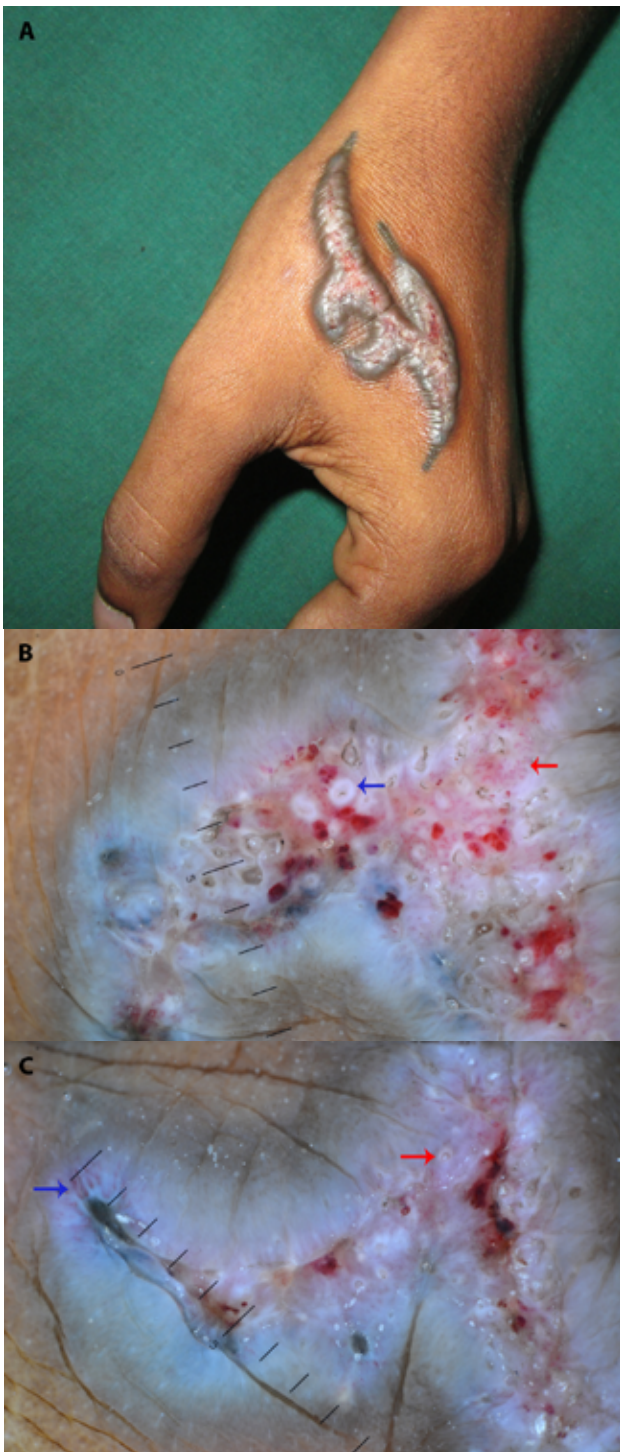


Figure 1. (A) Solitary erythematous to bluish verrucous plaque over the tattoo. (B) Dermoscopic examination under nonpolarized mode (HEINE DELTA20®, 10X magnification) shows white scales, white to pinkish-white structureless area, comedo-like opening with keratotic plugging, white circles (blue arrow), red globules, hemorrhage, and linear irregular vessels (red arrow). (C) The peripheral zone shows a gray-white to bluish-white structureless area and hairpin vessels (blue arrow). Red arrow points white circle.

benign reaction pattern commonly to red or purple pigment. Differentiating PEH from squamous cell carcinoma (SCC) is vital to reduce patient morbidity and cosmetic disfigurement, as the latter can occur independently over

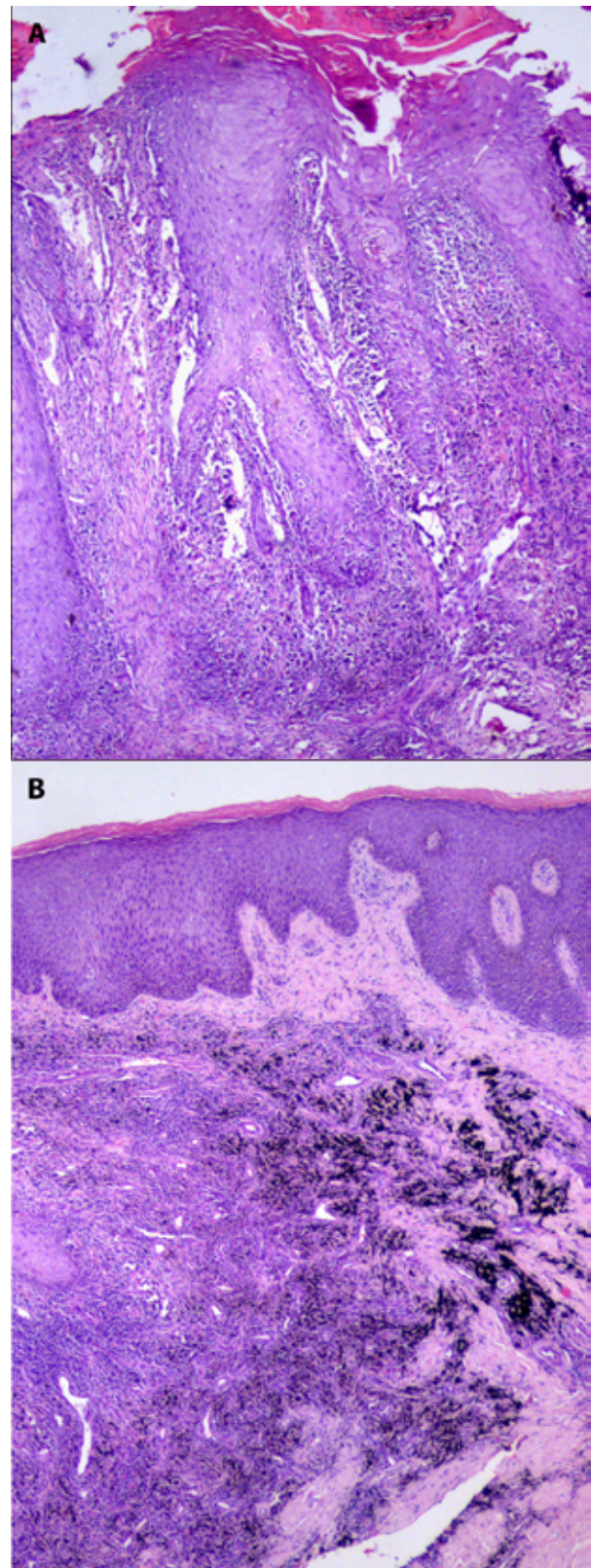


Figure 2. (A) Histology shows pseudoepitheliomatous epidermal hyperplasia (H & E, X100). (B) A subepidermal band-like, perivascular and periadnexal, predominant lymphocytic infiltration, along with tattoo pigments (H&E, X100).

tattoo or arise from the PEH. The early onset and lesions confinement to the tattoo margins favors PEH, while a late onset and involvement beyond the tattoo border suggest SCC.

A homogenous violaceous pattern with follicular white-yellow halo was reported in a case of tattoo pseudolymphoma [1]. The dermoscopic features described for SCC are scales, keratin, white circles around a dilated and plugged follicular infundibulum, white structureless area, blood spots, and hairpin, linear, linear irregular, glomerular, or polymorphic vascular pattern [2]. In the index case, the following dermoscopic features overlapped with SCC: white homogenous area, keratotic follicular plugging surrounded by white circles, and polymorphous vascular structures. However, the patient age, temporal correlation, and circumscription of the plaque, along with dermoscopic findings, were suggestive of PEH.

The dermoscopic features described for other differential diagnoses are the following: lupus vulgaris shows a diffuse or localized yellow-orange structureless area and linear branching vessels; TBVC displays a yellowish-red to yellowish-brown areas, scales, and out-of-focus vascular structures; chromoblastomycosis is reported to have scale, crust, and yellow structureless and pink-white areas; and granulomatous tattoo reaction shows crystalline structures and orange structureless area [3-5].

Conclusions

We are reporting the clinico-dermoscopic-pathologic features of a case of PEH tattoo reaction pattern. Dermoscopy

may help distinguish PEH from other differential diagnoses described above, but not from SCC, in which case only clinical and anamnestic data may help in their differentiation.

References

1. Kendel M, Tonic RJ, Bradamante M, et al. Dermoscopy of a tattoo pseudolymphoma. *Dermatol Pract Concept*. 2019;9(1):17-19. DOI: 10.5826/dpc.0901a04. PMID: 30775141; PMCID: PMC6368077.
2. Rosendahl C, Cameron A, Argenziano G, Zalaudek I, Tschandl P, Kittler H. Dermoscopy of squamous cell carcinoma and keratoacanthoma. *Arch Dermatol*. 2012;148(12):1386-1392. DOI: 10.1001/archdermatol.2012.2974. PMID: 22986634.
3. Jakhar D, Gupta RK, Sarin N. Dermoscopy of Tuberculosis Verucosa Cutis. *Indian Dermatol Online J*. 2020;12(1):206-207. DOI: 10.4103/idoj.IDOJ_292_19. PMID: 33768061; PMCID: PMC7982051.
4. Jayasree P, Malakar S, Raja H, Gopinathan Nair N. Dermoscopic features in nodular chromoblastomycosis. *Int J Dermatol*. 2019 ; 58(5):e107-e109. DOI: 10.1111/ijd.14344. Epub 2018 Dec 18. PMID: 30565211.
5. Bombonato C, Argenziano G, Lallas A, Moscarella E, Ragazzi M, Longo C. Orange color: a dermoscopic clue for the diagnosis of granulomatous skin diseases. *J Am Acad Dermatol*. 2015;72 (1 Suppl):S60-S63. DOI: 10.1016/j.jaad.2014.07.059. PMID: 25500047.