Dermatology Practical & Conceptual

Dermoscopic Features of Eccrine Poromas in Diverse Skin Phototypes: A Retrospective Study of 26 Cases

Bengu Nisa Akay[1], Handan Merve Erol Mart[1], Aylin Okcu Heper[2]

1 Department of Dermatology, Faculty of Medicine, Ankara University, Ankara, Turkey
2 Department of Pathology, Faculty of Medicine, Ankara University, Ankara, Turkey

Key words: Adnexal tumor, Dermoscopy, Dermatoscopy, Eccrine poroma, Skin of color

Citation: Akay BN, Erol Mart HM, Heper AO. Dermoscopic Features of Eccrine Poromas in Diverse Skin Phototypes: A Retrospective Study of 26 Cases. *Dermatol Pract Concept*. 2025;15(2):5071. DOI: https://doi.org/10.5826/dpc.1502a5071

Accepted: December 18, 2024; **Published:** April 2025

Funding: None.

Competing Interests: None.

Authorship: All authors have contributed significantly to this publication.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Ethical Approval: This study was approved by the Ankara University Faculty of Medicine Clinical Research Ethics Committee under Approval No. I06-491-24. The patients in this manuscript have given written informed consent to publication of their case details.

Corresponding Author: Handan Merve Erol Mart, MD. Asagi Kayabasi Mah. Ismet Sayin Cad. Erem Sitesi A-Blok No:3 Nigde, Turkey. ORCID ID: 0000-0003-3409-8985. E-mail: handanmerveerol@gmail.com

ABSTRACT

Introduction: Eccrine poroma (EP) is a benign adnexal tumor. Establishing a definitive diagnosis based on clinical and dermoscopic findings can be challenging.

Objectives: The aim of this study was to perform a comprehensive analysis of the dermoscopic features of pigmented, hypopigmented, and nonpigmented variants of EP and to compare these dermoscopic features in patients with dark and light Fitzpatrick skin phototypes.

Methods: A total of 26 cases of histopathologically confirmed EP were included. Each case was categorized as pigmented, hypopigmented, or nonpigmented based on the melanin content within the lesion. Patients were classified according to their Fitzpatrick skin phototypes. Dermoscopic images were subjected to revised pattern analysis, and the results were compared with the existing literature.

Results: Regarding Fitzpatrick skin phototype, four (15.4%), 11 (42.3%), six (23.1%), and five (19.2%) patients had Fitzpatrick skin phototypes II, III, IV, and V, respectively. Of the cases, 17 (65.4%) were classified as nonpigmented, three (11.5%) as hypopigmented, and six (23.1%) as pigmented EP. All pigmented EP cases occurred in patients with dark skin and were located on non-acral sites. Polymorphic vascular pattern, branched vessels with rounded endings, linear-irregular vessels,

interlacing white areas around vessels, and collarettes were more frequently observed in patients with light skin. In contrast, clod vessels, coiled vessels, white lines, ulceration, fiber sign, scales, and structureless areas were more common in patients with dark skin.

Conclusions: This study underscores the significant dermoscopic diversity observed in EP, revealing distinct patterns based on pigmentation and Fitzpatrick skin phototypes.

Introduction

Eccrine poroma (EP) is an uncommon benign adnexal tumor originating from the acrosyringium of sweat glands. The exact cause of EP remains uncertain, though potential associations with trauma, radiation exposure, or scarring have been suggested [1]. EP typically presents between the fourth and sixth decades of life, with no significant sex predilection [2]. It predominantly affects the acral regions, accounting for approximately 50% of cases, due to the higher density of eccrine sweat glands in these areas [3]. However, EP can also arise on the trunk, head, and neck.

Clinically, EP lesions are highly variable, presenting as pink-to-red, soft papules, plaques, or nodules with surfaces that may be smooth, verrucous, or occasionally ulcerated and/or scaly [1]. Pigmented eccrine poromas (PEP) are exceedingly rare, constituting only 17% of cases, and are seen more often in individuals with darker skin tones. Unlike their nonpigmented counterparts, PEPs are usually found on non-acral sites [4, 5]. While most EPs are asymptomatic, some may present with itchiness or pain [6]. A definitive diagnosis of EP based on clinical and dermoscopic findings can be challenging. According to a study by Lallas et al., the dermoscopic features of EPs resemble those of angioma, seborrheic keratosis (SK), dermatofibroma, dermal nevus, Bowen disease, squamous cell carcinoma (SCC), basal cell carcinoma (BCC), and melanoma in situ [7]. Given the resemblance of EPs to other skin neoplasms and the potential for malignant transformation into porocarcinoma, surgical excision is generally recommended [8].

Objectives

This study examined 26 cases of EP, with the primary objectives being: 1) to thoroughly analyze and characterize the dermoscopic features of pigmented, hypopigmented, and nonpigmented variants of EP; 2) to compare these dermoscopic features between patients with darker and lighter Fitzpatrick skin phototypes.

Methods

A retrospective study was conducted to examine the dermoscopic characteristics of surgically excised and histopathologically confirmed EPs. Data on epidemiological, clinical, and dermoscopic features from 26 cases were collected from the database of the Ankara University Department of Dermatology and Venereology in Türkiye, covering the period from 2013 to 2024. The study received approval from the institutional ethics committee (approval no. I06-491-24, dated 05.08.2024). Informed consent was obtained from all patients participating in the study. Each case was classified as pigmented, hypopigmented (if it contained less than 20% pigmentation), or nonpigmented based on the melanin content within the lesion. Images were captured using various cameras and dermatoscopes in both polarized and nonpolarized modes. All dermoscopic images were independently assessed by two dermatologists (BNA and HMEM.) The dermoscopic evaluation proceeded according to revised pattern analysis with the assessment of patterns and colors and of clues due to pigmented and white structures as well as vessels [8]. Vessel analysis was also performed according to the classification of vessel morphology based on revised pattern analysis [9]. Lesions with a single vessel morphology were classified as monomorphic, while those with any combination of two or more vessels were classified as polymorphic. The observers consulted each other to reach a consensus on dermoscopic features when their initial evaluations differed. Given the small sample size, a descriptive analysis was conducted to report the frequency of each dermoscopic feature. Following a review of previous studies and descriptions, we categorized cherry-blossom vessels, flower-like vessels, floral vessels, chalice-like vessels, and leaf-like vessels under a unified category termed branched vessels with rounded endings. Additionally, interlacing white cords, mesh bands, and frog egg appearances were combined into a single feature labeled interlacing white areas around the vessels. This feature is defined as a white, interlacing background surrounding vessels of any morphology. We classified red lagoons, reddish globule/lacuna-like structures, and milky red lacuna-like areas as clod vessels. This term is used to describe structureless, round, and oval vessels that are larger than dotted vessels.

Results

The study included 26 patients (15 males and 11 females), with a mean age at diagnosis of 58.03 years (range: 18 to 86

years). Based on Fitzpatrick skin phototypes, four patients were classified as type II, 11 as type III, six as type IV, and five as type V. Lesions were distributed across various body regions, with more than half located on the lower extremities and acral regions. Morphologically, the lesions predominantly presented as nodules. Of the 26 cases, 17 were nonpigmented, three were hypopigmented, and six were pigmented. All pigmented poromas occurred in patients with Fitzpatrick skin phototypes IV or V and were located on non-acral sites. Among the hypopigmented poromas, two out of three were also found on non-acral sites. Patient characteristics and clinical features of the lesions are summarized in Table 1. Table 2 presents the dermoscopic structures observed in EPs and their frequencies across different patient groups. Polymorphic vessels were identified in 21 EPs, while monomorphic vessels were observed in four EPs. The most frequently detected vascular patterns were clod vessels and branched vessels with rounded endings. In half of the pigmented poromas, the vessel pattern was polymorphic, with the most common types being branched vessels with rounded endings, clod vessels, and coiled vessels. Vessels with other morphologies, such as looped or dotted vessels, were not identified. Additionally, one pigmented poroma exhibited no discernible vascular structure. In hypopigmented poromas, the vessel pattern was polymorphic in all cases. The most frequently observed vessel types were branched vessels with rounded endings, clod vessels, and looped vessels, which were present in 66.6% of the cases. Additionally, coiled, linear-irregular, and dotted vessels were observed in 33.3% of the cases. In nonpigmented poromas, 88.2% exhibited a polymorphic vascular pattern. The most common vessel types were clod vessels, branched vessels with rounded endings, coiled vessels, and linear-irregular vessels. The remaining cases displayed a variety of other vessel morphologies, including dotted vessels, branched vessels, looped vessels, reticular vessels, and helical vessels. Additional dermoscopic features identified included structureless areas in various colors (blue, gray, pink, white, yellow), ulceration, fiber sign, white lines, interlacing white areas around vessels, collarette, and scale. In pigmented poromas, structureless areas were predominantly blue and gray, while in nonpigmented poromas, they were typically pink and white. Ulceration and the fiber sign were observed in 83.3% of pigmented poromas and 33.3% of hypopigmented poromas. Among nonpigmented poromas, ulceration was present in 41.2% of cases, while the fiber sign was observed in 29.4% of cases. White lines were most frequently observed in pigmented poromas (66.6%), followed by hypopigmented poromas (33.3%), and were least common in nonpigmented poromas (11.8%). In contrast, interlacing white areas around vessels were exclusively seen in nonpigmented poromas (41.2%). The collarette was present only in hypopigmented (66.6%) and nonpigmented (23.5%) poromas. Scales without a collarette were observed exclusively in nonpigmented poromas (35.2%). Additionally, a comparison of the dermoscopic features of EP lesions in patients with darker (Fitzpatrick types IV and V) and lighter (Fitzpatrick types II and III) skin phototypes was planned. However, acral lesions were excluded from this analysis due to their lighter skin tone and distinct skin structure. In patients with skin of color, polymorphic vessel patterns were observed in 70% of cases. The most common vessel types were branched vessels with rounded endings (60%), clod vessels (60%), and coiled vessels (30%). Additionally, looped, dotted, and linear-irregular vessels were observed in 10% of the cases. In patients with lighter skin, polymorphic vessel patterns were observed in 87.5% of cases. The most common vessel types included branched vessels with rounded endings (62.5%), linear-irregular vessels (62.5%), clod vessels (50%), and branched vessels (25%). Additionally, coiled, looped, dotted, reticular, and helical vessels were each observed in 12.5% of cases. Vascular patterns in lighter skin tones were notably more diverse and distinct compared to those in darker skin tones. The prevalence of structureless areas was higher in patients with dark skin (70%) compared to those with lighter skin (50%). White

Table 1. Patient Characteristics and Clinical Features of the Lesions.

Characteristics	Value
Mean age ± SD, years	58.03±19.09 (range 18–86)
Sex	
Female	11 (42.3)
Male	15 (57.6)
Fitzpatrick skin phototype	
Type II	4 (15.4)
Type III	11 (42.3)
Type IV	6 (23.1)
Type V	5 (19.2)
Anatomic location	
Head/neck	4 (15.4)
Trunk	6 (23.1)
Upper extremities	0 (0)
Lower extremities	8 (30.8)
Acral regions	8 (30.8)
Morphology	
Papule	7 (26.9)
Plaque	4 (15.4)
Nodule	15 (57.7)
Pigmentation	
Nonpigmented	17 (65.4)
Hypopigmented	3 (11.5)
Pigmented	6 (23.1)

Data are presented as number and %, unless otherwise stated. *Abbreviations:* SD = standard deviation.

Table 2. Dermoscopic Structures in Eccrine Poromas and Their Frequencies in Different Patient Groups.

	Vessel Morphology			Vascular Structures									Structure-less areas	Ulceration	Fiber sign	White lines	Interlacing white areas around the vessels	Collarette	Scale
	None	Monomorphic	Polymorphic	Clod	Branched vessels with rounded endings	Coiled (Glomerular)	Linear-irregular	Looped (Hairpin)	Dotted	Branched	Helical	Reticular							
All cases N: 26	1 (3.8)	4 (15.4)	21 (80.8)	17 (65.3)	14 (53.8)	9 (34.6)	6 (23)	3 (11.5)	3 (11.5)	2 (7.7)	1 (3.8)	1 (3.8)	19 (73.1)	13 (50)	11 (42.3)	7 (26.9)	7 (26.9)	6 (23)	6 (23)
Pigmented poromas N: 6	1 (16.7)	2 (33.3)	3 (50)	3 (50)	3 (50)	2 (33.3)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	6 (100)	5 (83.3)	5 (83.3)	4 (66.6)	0 (0)	0 (0)	0 (0)
Hypopigmented poromas N: 3	0 (0)	0 (0)	3 (100)	2 (66.6)	2 (66.6)	1 (33.3)	1 (33.3)	2 (66.6)	1 (33.3)	0 (0)	0 (0)	0 (0)	2 (66)	1 (33.3)	1 (33.3)	1 (33.3)	0 (0)	2 (66)	0 (0)
Nonpigmented poromas N: 17	0 (0)	2 (11.8)	15 (88.2)	10 (58.8)	9 (52.9)	5 (29.4)	5 (29.4)	1 (5.9)	2 (11.8)	2 (11.8)	1 (5.9)	1 (5.9)	9 (52.9)	7 (41.2)	5 (29.4)	2 (11.8)	7 (41.2)	4 (23.5)	6 (32.5)
Patients with dark skin types N: 10*	1 (10)	2 (20)	7 (70)	6 (60)	6 (60)	3 (30)	1 (10)	1 (10)	1 (10)	0 (0)	0 (0)	0 (0)	7 (70)	8 (80)	5 (50)	4 (40)	2 (20)	1 (10)	3 (30)
Patients with lighter skin types N: 8*	0 (0)	1 (12.5)	7 (87.5)	4 (50)	5 (62.5)	1 (12.5)	5 (62.5)	1 (12.5)	1 (12.5)	2 (25)	1 (12.5)	1 (12.5)	4 (50)	3 (37.5)	3 (37.5)	2 (25)	4 (50)	1 (12.5)	1 (12.5)

*: One patient with dark skin phototype and seven patients with lighter skin phototype were excluded from this analysis due to the location of their lesions in the acral region.

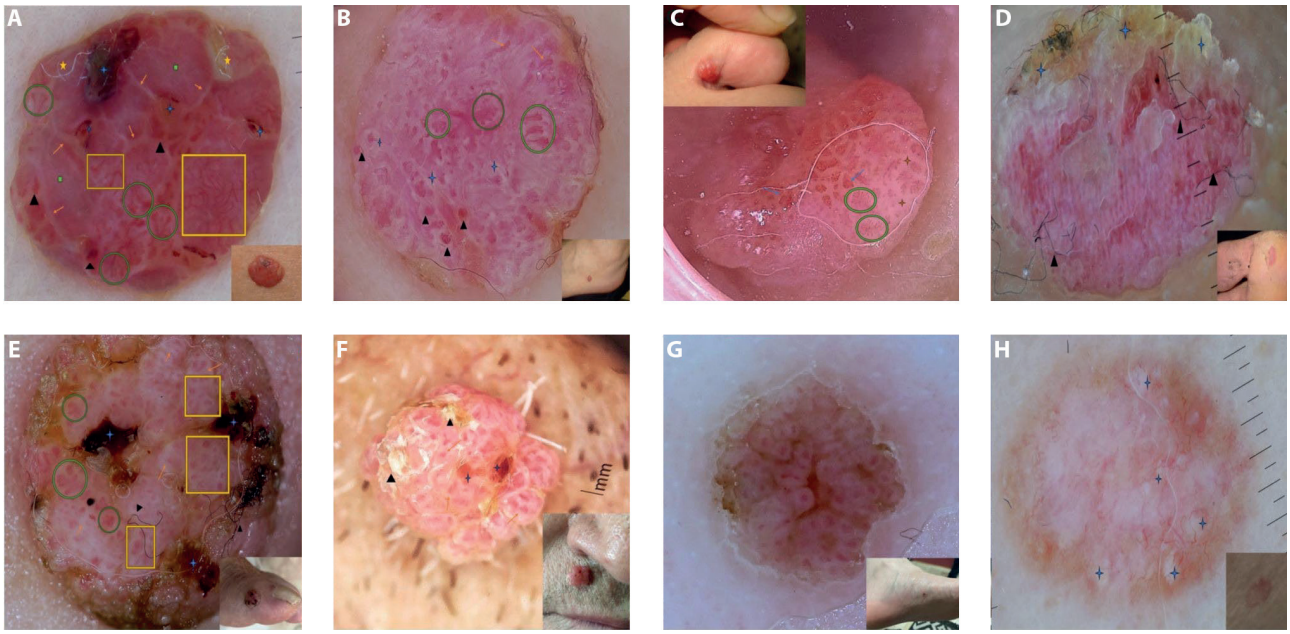

Figure 1. Clinical and dermoscopic features of eight nonpigmented poroma cases. (A) Nonpigmented nodule on the lateral side of the right gluteus. Polymorphic vessels include clod vessels (black arrowhead), vessels with rounded endings (green circles), linear irregular and branched vessels (yellow squares), pink-white structureless areas (green small squares), interlacing white areas around vessels (orange arrows), ulceration with blood crusts (blue stars), and fiber sign (yellow stars). (B) Nonpigmented nodule on the lateral side of the left foot. Polymorphic vessels include clod vessels (black arrowhead), hairpin (orange arrows) and branched vessels with rounded endings (green circles), interlacing white areas around centered vessels (blue stars), peripheral collarette of scale. (C) Nonpigmented nodule on the fifth toe of the left foot. Polymorphic vessels include clod vessels (blue arrows) and branched vessels with rounded endings (green circles), interlacing white areas around centered vessels (orange stars). (D) Nonpigmented plaque on the sole of the right foot. Pink-white structureless areas, white lines, dotted and clod vessels in lines, scales (blue stars) and fiber sing (black arrowheads). (E) Nonpigmented nodule on the left big toe. Polymorphic vessels include centered clod, coiled (yellow squares) and branched vessels with rounded endings (green circles), pink-white structureless background, interlacing white areas around vessels (orange arrows), ulceration covered by blood spots and black crusts (blue stars) and fiber sign (black arrowheads). (F) Nonpigmented papule located on the face. Centered coiled and clod vessels (orange arrows), interlacing white areas around vessels, scales (black arrowheads) and ulceration (blue stars). (G) Nonpigmented papule located on the medial side of the left foot. Polymorphic vessels include centered clod and coiled vessels, peripheral yellow crusts. and white collarette. (H) Nonpigmented plaque on the back. Polymorphic vessels including linear irregular, branched and helical vessels (some are sharply in focus, some are not), pink-white structureless background with numerous white clods (blue stars).

lines were more prevalent in patients with dark skin (40%) than in those with lighter skin (25%). In contrast, interlacing white areas around vessels were observed more frequently in patients with lighter skin (50%) than in those with dark skin (20%). The prevalence of ulceration and the fiber sign was significantly higher in patients with dark skin (80% and 50%, respectively) compared to those with lighter skin (37.5% for both features). The occurrence of scales was also more common in patients with dark skin (30%) than in those with lighter skin (12.5%). The collarette was observed almost equally in both patient groups, with 12.5% in patients with lighter skin and 10% in those with dark skin. All of these dermoscopic structures are illustrated in Figures 1–3, with detailed explanations. Figure 1 shows eight nonpigmented cases, while Figure 2 displays six pigmented cases in the first two rows and three hypopigmented cases in the last row. We would like to highlight two interesting cases: one mimicking infiltrative BCC (Figure 1H) and the other resembling pigmented nodular BCC (Figure 2F). The first case involved a 70-year-old woman who presented with a nonpigmented plaque on the back. Dermoscopic examination revealed polymorphic vessels, including linear-irregular, branched, and helical vessels (some sharply in focus, others not), along with a pink-white structureless background featuring numerous white clods resembling multiple aggregated yellow-white (MAY) globules. The second case involved a 41-year-old woman with a pigmented nodule on the forehead. Dermoscopic features included an eccentric distribution of brown, gray, and black clods, gray, pink, and white structureless areas, tiny ulcerations, coiled vessels, and a fiber sign. The histopathological features of this case are shown in Figure 3. Eccrine poroma (EP) was first described by Pinkus in 1956 [10]. Despite this early recognition, the dermoscopic features of poromas have not been extensively studied and are primarily documented in small case series. Ferrari et al. presented seven cases of nonpigmented EPs,

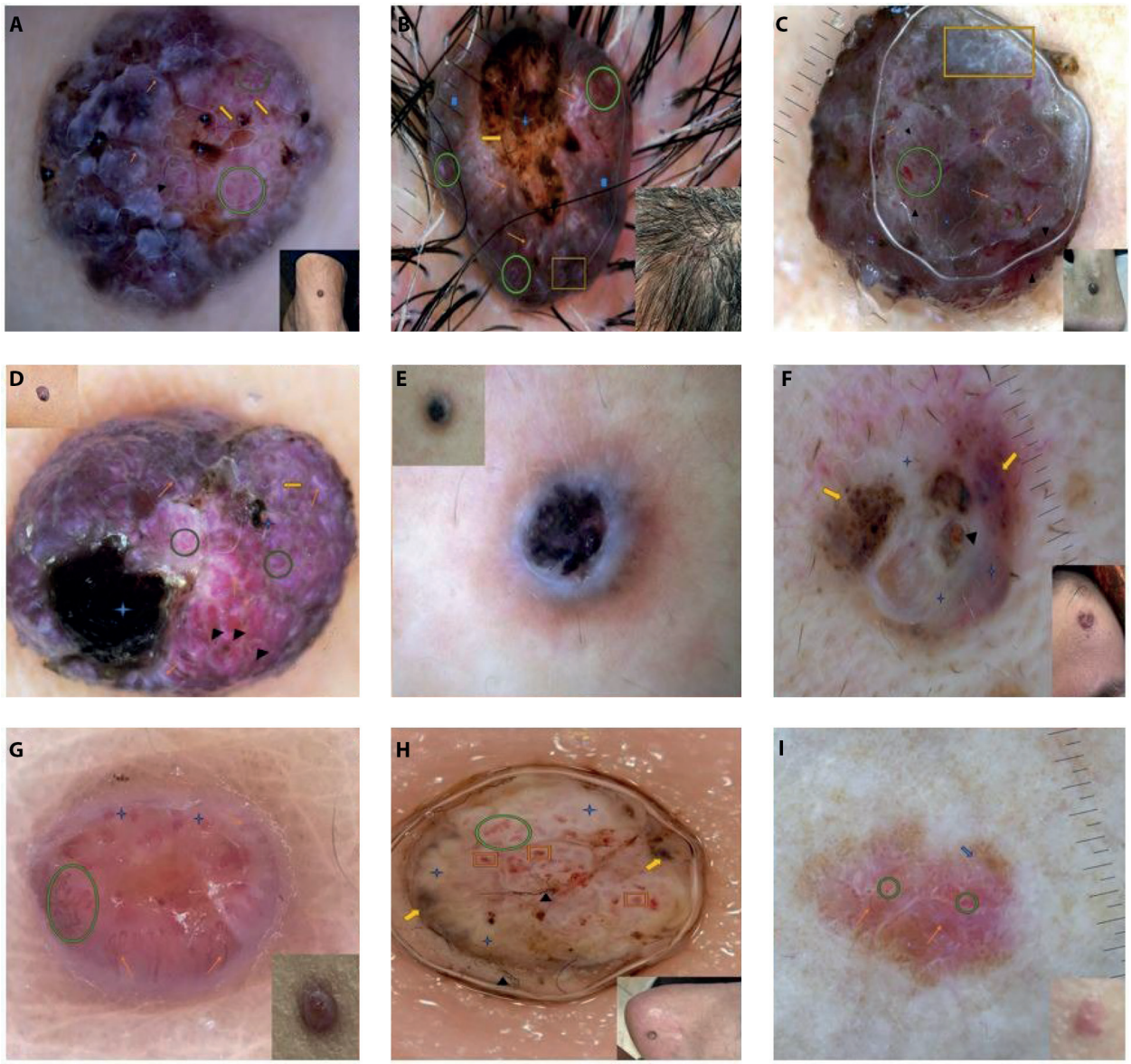

Figure 2. Clinical and dermoscopic features of six cases of pigmented poroma and three cases of hypopigmented poroma. (A) Pigmented nodule on the left anterior lower leg. Polymorphic vessels include branched vessels with rounded endings (green circles) and clod vessels (yellow arrow), white lines (orange arrows), blue-gray structureless areas, ulceration and hemorrhagic crusts (blue stars), and fiber sign (black arrowhead). (B) Pigmented nodule on the scalp. Polymorphic vessels include branched vessels with rounded endings (green circles) and clod vessels (yellow square), white lines (orange arrows), central ulceration with crusted blood spots (blue star), brown-gray structureless areas (blue square), and fiber sign (yellow arrow). (C) Pigmented nodule on the dorsum of the left foot. Branched vessels with rounded endings (green circles), pink and gray structureless areas (blue stars), white lines (yellow rectangle), fiber sign (black arrowheads) and blood spots (orange arrows). (D) Pigmented nodule on the right lower leg. Polymorphic vessels include clod (black arrowheads) and coiled (green circles) vessels, pink-gray structureless areas, white lines (orange arrows), ulceration covered by a black hemorrhagic crust (blue stars), and fiber sign (yellow arrow). (E) Pigmented nodule on the back. Central ulceration covered by black hemorrhagic crusts, surrounded by a blue-white structureless area, with an outermost erythematous brownish halo. (F) Pigmented nodule on the forehead. Eccentric distribution of brown, gray, and black clods (yellow arrows), gray, pink, and white structureless areas (blue stars), tiny ulceration and coiled vessels inside (black arrowhead), and fiber sign. (G) Hypopigmented nodule on the right leg. Polymorphic vessels include branched vessels with rounded endings (green circles), clod (blue stars), and hairpin (looped) vessels (orange arrows), central ulceration, peripheral gray purplish structureless areas, collarette of scales, and peripheral brown halo. (H) Hypopigmented nodule on the medial side of the left foot. Polymorphic vessels include centered clod, coiled and looped vessels, peripheral gray structureless areas, gray clods (yellow arrows), yellow-white structureless areas (blue stars), fiber sign (black arrowheads), and brown collarette. (I) Hypopigmented nodule on the right lower leg. Polymorphic vessels include dotted (blue arrow), linear irregular (orange arrows), and branched vessels with rounded endings (green circles), white lines, and peripheral brown clods.

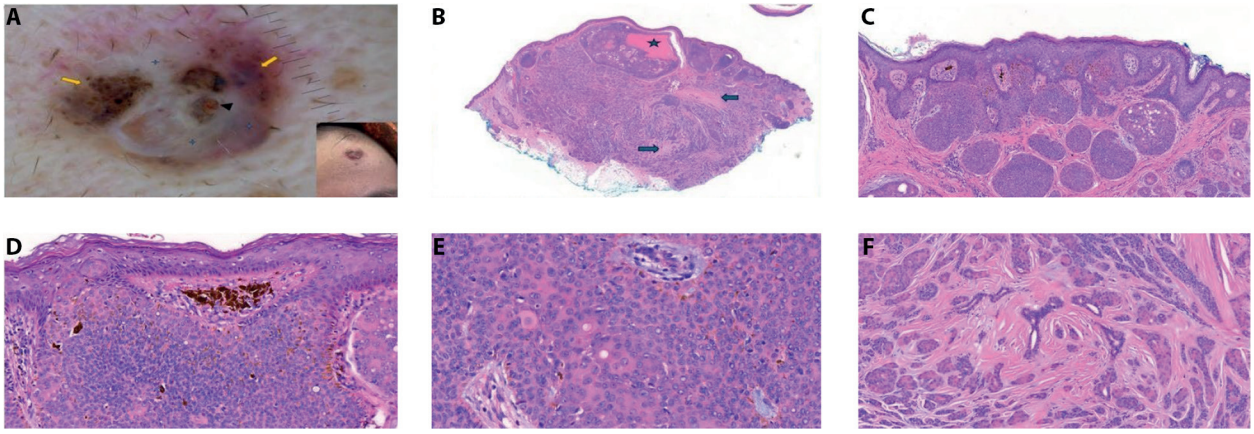

Figure 3. Histopathological features of the pigmented poroma case mimicking nodular BCC. (A) The clinical and dermoscopic images of the case as a reminder. (B) A neoplasm occupying whole dermis composed mainly of small groups of cells except few large superficial groups, some of which connected to epidermis. In the center of the neoplasm collagenous stroma is noticed in some area (arrows). Cystic spaces are present also (asterisk); H&E, x1.7. (C) The closer view of the poroid cell groups connected to the epidermis. Some of the cells appear darker and slightly basaloid, while others have a lighter appearance; H&E x9.6. (D) The close view of the darker poroid cells with rounded or ovoid nuclei and scant cytoplasm. Some poroid cells have melanin pigment, and the tumor includes few melanophages in the stroma; H&E, x26.5. (E) There are few cuticular cells with eosinophilic ample cytoplasm intermixed with darker poroid cells, some of which have melanin pigment; H&E x41.2. (F) This area of the neoplasm is composed of small ductuli and groups of cuticular cells embedded in a sclerotic stroma. A few slightly darker poroid cells with scant cytoplasm are seen also; H&E, x15.5.

noting that hairpin (looped) and glomerular (coiled) vessels were the most frequently observed vascular structures, followed by linear-irregular vessels. Additionally, four of these cases exhibited polymorphous vessels. The authors associated pink-white structureless areas and the white-to-pink halo with dermal lamellar fibroplasia and fibrinoid edema surrounding dilated vessels. The reddish-white globule-like structures observed in their series were reminiscent of milky red globules seen in melanoma or red lacunae typical of vascular lesions [11]. We have referred to these reddish globule-like structures as clod vessels, which were the most common vascular pattern observed in our cases (65.3%). The terms "flower-like" and "leaf-like" blood vessels were first introduced by Aydingöz to describe looped vessels that have ramifications with circular endings, creating a flower-like or leaf-like appearance [12]. Subsequent studies have referred to these as "chalice-form" and "cherry-blossom" vessels [13]. Shalom et al. observed these structures in 42% of their cases, with coiled (53%) and looped (47%) vessels being the predominant patterns. The variability in dermoscopic appearance, including coiled, looped, and branched vessels with rounded endings, may be attributed to the angle of the vessels relative to the skin surface [6]. Notably, branched vessels with rounded endings have been described as a specific clue in the diagnosis of eccrine poroma [13]. In contrast, 'oak-leaf-like' vessels in BCC were described by Pogorzelska-Dyrbuś using super-high magnification dermoscopy, suggesting that these vascular structures may be under-detected in BCC [14]. Cavallo et al. hypothesized that branched vessels with rounded endings represent the early stages of a small, nodular BCC. As the tumor grows, these vessels may evolve into the classic arborizing vessels commonly seen in BCC. The authors propose including these vessels in the panel of atypical vascular dermoscopic patterns for BCC and recommend surgical excision with histological examination when they are found, in conjunction with other suggestive clues, to exclude a BCC diagnosis [15]. We identified branched vessels with rounded endings in pigmented (50%), hypopigmented (66.6%), and nonpigmented (52.9%) poromas. However, these vessels were more localized and less numerous in pigmented poromas, necessitating careful examination (see Figure 2). "Interlacing white cords" refers to intersecting white bands that give lesions a septate, lobular appearance. Though these bands may appear avascular, they often surround structureless "islands" containing blood vessels. This feature can be seen with both polarized and nonpolarized dermatoscopy [6]. In addition to interlacing white areas around vessels, our study identified short linear white lines in seven cases, potentially associated with fibrosis. The "fiber sign," characterized by fibers trapped in microulcerated areas due to serum leakage, is a notable indicator of ulcerative malignant lesions such as BCC [16]. However, it can also be observed in benign conditions such as eczema and prurigo nodularis. Ulceration and the fiber

sign were prominent findings in our poroma cases (50% and 42.3%, respectively). A collarette is defined as a narrow rim of loosened keratin that overhangs the periphery of a circumscribed skin lesion. In addition to EP, collarettes can be seen in various conditions, including clear cell acanthoma, pyogenic granuloma, acral fibrokeratoma, and others [17]. We observed collarettes and scales in nearly a quarter of our patients. MAY globules, as described by Navarrete-Dechent et al., are high-specificity dermoscopic structures associated with high-risk BCC. These structures appear as clusters of white-to-yellowish clods and are visible with both polarized and nonpolarized light. Other tumors displaying MAY globules include trichoepithelioma, microcystic adnexal carcinoma, and SCC [18]. We encountered a case of nonpigmented poroma with numerous white clods, potentially indicative of calcification. PEPs exhibit variable melanin content, leading to a range of colors and dermoscopic patterns. Kuo and Ohara documented two cases of PEP characterized by blue-gray ovoid nests, blue-gray dots, and arborizing vessels. They emphasized the importance of recognizing these dermoscopic features to avoid misdiagnosis as BCC [19]. Pigmented poromas can also display globule-like structures, comedo-like openings, spoke-wheel areas, and maple leaf-like structures similar to those in pigmented BCCs [20]. However, the vessels in poromas were generally less sharply focused compared to the arborizing vessels of BCC, likely due to their deeper dermal location [12]. Minagawa and Koga assessed 12 cases of PEP and identified two main types, one resembling pigmented BCC and the other mimicking SK. Histologically, deeper tumors were more similar to pigmented BCC, while those with hyperkeratosis resembled SK [21]. We did not observe milia-like cysts or comedo-like openings commonly seen in seborrheic keratoses. In a systematic review examining the common clinical and dermoscopic features as well as the potential differential dermoscopic characteristics of follicular, sebaceous, and apocrine-eccrine adnexal tumors, the authors highlighted that the poroma family has the potential to closely mimic a wide range of both benign and malignant skin lesions [22]. As a result, these tumors have rightfully earned the title of "great imitator," as coined by Lallas et al. [7]. Porocarcinoma, a malignant variant of EP, may arise de novo or from the malignant transformation of long-standing, untreated EP. Signs that may raise suspicion for malignant transformation of a preexisting poroma include spontaneous bleeding, itching, pain, ulceration, or rapid growth within a short period of time [23]. Dermoscopically, polymorphous vessels, including coiled, hairpin, and linear vessels, have been noted at all stages of progression, with no significant difference in vascular morphology between benign and malignant forms [24]. It is advisable to perform a histopathological examination on any suspicious nodular lesion with polymorphous vessels and ulceration, especially in older patients, to avoid missing a potential malignancy [25].

Conclusions

The limitations of this study include the rarity of EPs, which often leads to an underestimation of their prevalence and challenges in achieving a large sample size for meaningful statistical analysis. Despite these limitations, we identified distinct forms of EP with respect to pigmentation and patient skin phototypes, including two cases with BCC-like characteristics.

This study underscores the significant dermoscopic diversity observed in EP, revealing distinct patterns based on pigmentation and Fitzpatrick skin phototypes. The identification of specific vascular patterns such as branched vessels with rounded endings, clod vessels, and interlacing white areas provides valuable insights into the dermoscopic landscape of EP. Notably, polymorphic vascular patterns, branched vessels with rounded endings, linear-irregular vessels, interlacing white areas around vessels, and collarettes were more frequently observed in patients with lighter skin phototypes. In contrast, clod vessels, coiled vessels, white lines, ulceration, the fiber sign, scales, and structureless areas were more common in patients with darker skin phototypes. Increased awareness of these dermoscopic features among dermatologists is essential for the early recognition and appropriate management of this rare entity. The observed variability in dermoscopic features between pigmented and nonpigmented EPs, along with differences related to skin phototypes, emphasize the need for heightened awareness and detailed examination of these lesions.

Acknowledgments: The microscopic figures of these cases were prepared by the digital pathology system obtained with the project (14A0230003) supported by Ankara University Scientific Fund (BAP).

References

1. Nicolino R, Zalaudek I, Ferrara G, et al. Dermoscopy of eccrine poroma. *Dermatology*. 2007;215(2):160-3. DOI: 10.1159/000104270
2. Conforti C, Giuffrida R, Seabra Resende FS, et al. Dermoscopic features of nonpigmented eccrine poroma. *Clin Exp Dermatol*. 2019 Dec;44(8):937-38. DOI: 10.1111/ced.13913
3. Almeida FC, Cavalcanti SM, Medeiros AC, Teixeira MA. Pigmented eccrine poroma: report of an atypical case with the use of dermoscopy. *An Bras Dermatol*. 2013 Sep-Oct;88(5):803-6. DOI: 10.1590/abd1806-4841.20131255
4. Bombonato C, Piana S, Moscarella E, Lallas A, Argenziano G, Longo C. Pigmented eccrine poroma: dermoscopic and confocal features. *Dermatol Pract Concept*. 2016 Jul;6(3):59-62. DOI: 10.5826/dpc.0603a12

5. Ha DL, Lee GW, Shin K, et al. Characteristic Clinical and Dermoscopic Features of Nonvolar Poroma. *J Cutan Med Surg*. 2021 Mar-Apr;25(2):142-49. doi:10.1177/1203475420952432
6. Shalom A, Schein O, Landi C, Marghoob A, Carlos B, Scope A. Dermoscopic findings in biopsy-proven poromas. *Dermatol Surg*. 2012 Jul;38(7 Pt 1):1091-6. DOI: 10.1111/j.1524-4725.2012.02407.x
7. Lallas A, Chellini PR, Guimarães MG, et al. Eccrine poroma: the great dermoscopic imitator. *J Eur Acad Dermatol Venereol*. 2016 Oct;30(10):e61-e63. DOI: 10.1111/jdv.13302
8. Chessa MA, Patrizi A, Baraldi C, Fanti PA, Barisani A, Vaccari S. Dermoscopic-Histopathological Correlation of Eccrine Poroma: An Observational Study. *Dermatol Pract Concept*. 2019 Oct;9(4):283-91. DOI: 10.5826/dpc.0904a07
9. Kittler H, Riedl E, Rosendahl C, Cameron A. Dermatoscopy of unpigmented lesions of the skin: a new classification of vessel morphology based on pattern analysis. *Dermatopathology: Practical and Conceptual*. 2008.
10. Goldman P, Pinkus H, Rogin JR. Eccrine poroma; tumors exhibiting features of the epidermal sweat duct unit. *AMA Arch Derm*. 1956 Nov;74(5):511-21. PMID: 13361538.
11. Ferrari A, Buccini P, Silipo V, et al. Eccrine poroma: a clinical-dermoscopic study of seven cases. *Acta Derm Venereol*. 2009; 89(2):160-4. DOI: 10.2340/00015555-0608
12. Aydingoz IE. New dermoscopic vascular patterns in a case of eccrine poroma. *J Eur Acad Dermatol Venereol*. 2009 Jun;23(6):725-6. DOI: 10.1111/j.1468-3083.2009.03182.x
13. Espinosa AE, Ortega BC, Venegas RQ, Ramírez RG. Dermoscopy of non-pigmented eccrine poromas: study of Mexican cases. *Dermatol Pract Concept*. 2013 Jan;3(1):25-8. DOI: 10.5826 /dpc.0301a07
14. Pogorzelska-Dyrbuś J. "Oak-leaf-like" Loop Vessels in Super-high Magnification Dermoscopy of Basal Cell Carcinoma. *Dermatol Pract Concept*. 2022 Jul;12(3):e2022147. DOI: 10.5826/dpc .1203a147
15. Cavallo F, Mazzoletti V, Zelin E, Avallone G, et al. 'Poroma-like' branched vessels with rounded endings in dermoscopy of basal cell carcinoma: a new unusual structure. *Clin Exp Dermatol*. 2023 Sep 19;48(10):1177-79. DOI: 10.1093/ced/llad225
16. Rosendahl C, Cameron A, Tschandl P, Bulinska A, Zalaudek I, Kittler H. Prediction without Pigment: a decision algorithm for non-pigmented skin malignancy. *Dermatol Pract Concept*. 2014 Jan;4(1):59-66. DOI: 10.5826/dpc.0401a09
17. Takada T. Diagnostic features of a non-pigmented eccrine poroma with a collarette: Histopathological and dermoscopic correlation. *Clin Case Rep*. 2021 Mar;9(3):1601-04. DOI: 10.1002 /ccr3.3848
18. Navarrete-Dechent C, Liopyris K, Rishpon A, et al. Association of Multiple Aggregated Yellow-White Globules With Nonpigmented Basal Cell Carcinoma. *JAMA Dermatol*. 2020 Aug 1; 156(8):882-890. DOI: 10.1001/jamadermatol.2020.1450
19. Kuo HW, Ohara K. Pigmented eccrine poroma: a report of two cases and study with dermatoscopy. *Dermatol Surg*. 2003 Oct;29(10):1076-9. DOI: 10.1046/j.1524-4725.2003.29308.x
20. dos Santos BS. Clinical and dermoscopic features of eccrine poroma. *Indian J Dermatol Venereol Leprol*. 2015 May-Jun;81(3): 308-9. DOI: 10.4103/0378-6323.154787
21. Minagawa A, Koga H. Dermoscopy of pigmented poromas. *Dermatology*. 2010 Aug;221(1):78-83. DOI: 10.1159/000305435
22. Lai M, Muscianese M, Piana S, et al. Dermoscopy of cutaneous adnexal tumours: a systematic review of the literature. *J Eur Acad Dermatol Venereol*. 2022 Sep;36(9):1524-40. DOI: 10.1111/jdv .18210
23. Le NS, Janik S, Liu DT, et al. Eccrine porocarcinoma of the head and neck: Meta-analysis of 120 cases. *Head Neck*. 2020 Sep;42(9):2644-59. DOI: 10.1002/hed.26178
24. Sgouros D, Piana S, Argenziano G, et al. Clinical, dermoscopic and histopathological features of eccrine poroid neoplasms. *Dermatology*. 2013;227(2):175-9. DOI: 10.1159/000354152
25. Kyrmanidou E, Fotiadou C, Kemanetzi C, et al. Eccrine Poroma: Pathogenesis, New Diagnostic Tools and Association with Porocarcinoma-A Review. *Diagnostics (Basel)*. 2023 Aug 16;13(16). DOI: 10.3390/diagnostics13162689