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Eccrine poroma mimicking a supernumerary finger: Clinical and dermoscopic features

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Abstract
Eccrine poroma is a rare benign adnexal tumor originating from the sweat glands, often presenting with varied clinical appearances. This report describes a unique case where an eccrine poroma clinically resembled a supernumerary finger, posing a diagnostic challenge. We detail the clinical examination and dermoscopic evaluation used to distinguish the lesion from other digital growths. Dermoscopy revealed characteristic features such as a polymorphous vascular pattern and white areas correlating with the tumor's histopathology. Surgical excision was performed, confirming the diagnosis. This case highlights the importance of dermoscopy in identifying atypical presentations of eccrine poroma, aiding early and accurate diagnosis to guide appropriate management and avoid misdiagnosis.

Keywords: Eccrine Poroma, Supernumerary Finger, Dermoscopy, Clinical Features, Benign Skin Tumor, Adnexal Neoplasm

Introduction

Eccrine poroma is an uncommon benign adnexal tumor that originates from the intraepidermal portion of the eccrine sweat glands. First described by Pinkus *et al*. in 1956, eccrine poromas represent a subset of adnexal tumors characterized by slow-growing, solitary lesions predominantly occurring on the palms and soles, sites rich in eccrine glands. Although these tumors are typically benign and asymptomatic, their clinical presentations are remarkably heterogeneous, often leading to diagnostic challenges for clinicians.

The eccrine poroma's clinical morphology varies from small, skin-colored or erythematous papules to larger, nodular masses with a verrucous or polypoid appearance. This variability can obscure the diagnosis, especially when the lesion mimics other cutaneous neoplasms or non-neoplastic growths. In rare instances, eccrine poromas may simulate unusual anatomical structures, such as a supernumerary finger, further complicating the clinical picture and prompting consideration of congenital anomalies or other tumor types.

Supernumerary digits, or polydactyly, are common congenital malformations involving an extra finger or toe and are usually evident at birth. When a skin lesion mimics a supernumerary digit later in life, it raises diagnostic dilemmas that necessitate careful clinical and histopathological evaluation to exclude other etiologies. The distinction between an eccrine poroma presenting as a digit-like mass and a true supernumerary finger is essential for appropriate management and prognosis.

Dermoscopy, a non-invasive diagnostic tool, has gained increasing utility in the evaluation of adnexal tumors, including eccrine poromas. It provides enhanced visualization of subsurface structures and vascular patterns, which are often characteristic and aid in differentiating these tumors from malignant lesions or other benign growths. Despite its growing use, the dermoscopic features of eccrine poromas are not fully standardized, and atypical presentations continue to challenge clinicians. Recognizing distinctive dermoscopic clues is therefore pivotal in reducing unnecessary biopsies or extensive surgical interventions.

Histopathological examination remains the gold standard for definitive diagnosis, revealing nests of uniform cuboidal cells with ductal differentiation within a fibrous stroma. Nonetheless, a preoperative diagnosis supported by clinical and dermoscopic findings can guide therapeutic decisions, especially considering the benign nature of the tumor and its excellent prognosis following complete excision.

Given the rarity of eccrine poromas mimicking a supernumerary finger, the current report aims to present a unique case highlighting its clinical and dermoscopic features. We discuss the diagnostic challenges encountered and underscore the importance of integrating clinical examination with dermoscopy to improve diagnostic accuracy. This case contributes to the limited literature on unusual presentations of eccrine poromas and reinforces the role of dermoscopy as a valuable adjunct in dermatological practice.

Methods

Study Design and Setting

This study is a descriptive case report involving a patient presenting with a rare clinical manifestation of eccrine poroma. The research was conducted at the Department of Dermatology, [Institution Name], a tertiary care center specializing in cutaneous oncology and dermatopathology. Ethical approval for the study was obtained from the Institutional Review Board (IRB approval number: XXX), and the patient provided written informed consent for publication and clinical photographs.

Patient Selection and Clinical Assessment

A single patient presenting with a nodular lesion resembling a supernumerary finger on the distal phalanx of the right hand was evaluated between [Month, Year] and [Month, Year]. Inclusion criteria for the study were as follows:

- Solitary digital lesion with clinical suspicion of adnexal tumor or digital anomaly.
- No prior surgical intervention or biopsy at the lesion site.
- Availability of complete clinical, dermoscopic, and histopathological data.

Exclusion criteria included patients with multiple lesions, prior treatment altering the lesion, or systemic diseases potentially affecting skin morphology.

Upon presentation, the patient's demographic data, medical history, and symptomatology were recorded. A thorough physical examination of the lesion was performed, documenting size, color, texture, and anatomical location. Photographs were taken under standardized lighting conditions.

Dermoscopic Evaluation

Dermoscopy was performed using a polarized light dermoscope (model and manufacturer), enabling detailed visualization of subsurface morphological structures. Both contact and non-contact dermoscopic techniques were employed.

The dermoscopic features evaluated included:

- Vascular patterns (e.g., polymorphous vessels, glomerular, linear irregular).
- Color variations (red, white, brown areas).
- Structural elements such as milky-red globules, white lines, and background coloration.
- Presence of any ulceration or scaling.

Images were captured digitally and analyzed independently by two experienced dermatologists to minimize observer bias. Discrepancies were resolved by consensus.

Surgical Excision and Histopathological Analysis

Following clinical and dermoscopic evaluation, the lesion was surgically excised under local anesthesia using a standardized elliptical excision technique with adequate margins to ensure complete removal.

The excised tissue was fixed in 10% buffered formalin and sent for histopathological examination. Routine hematoxylin and eosin (H&E) staining was performed on 4-micron thick sections. Histological parameters analyzed included:

- Tumor architecture and cellular morphology.
- Presence of ductal differentiation and connection to the epidermis.
- Mitotic activity and cellular atypia.
- Stromal features such as fibrosis or inflammation.

Immunohistochemical staining for markers including cytokeratin (CK) 5/6 and carcinoembryonic antigen (CEA) was performed to confirm eccrine differentiation when indicated.

The histopathological diagnosis was made by two independent dermatopathologists blinded to the clinical data to ensure objectivity.

Data Analysis

Given the descriptive nature of the study and the focus on a single case, quantitative statistical analysis was not applicable. Instead, qualitative synthesis of clinical, dermoscopic, and histopathological findings was performed to establish correlations.

The findings were compared with existing literature on eccrine poromas, particularly focusing on cases mimicking digital anomalies.

Limitations

This study's limitations include its single-case design, limiting generalizability. The absence of follow-up beyond [X months] restricts long-term outcome assessment. However, the detailed documentation of clinical and dermoscopic features contributes valuable insight into this rare presentation.

Results

Clinical Presentation

A 56-year-old male patient presented with a slowly enlarging nodular growth on the volar aspect of the distal phalanx of the right little finger. The lesion had been present for approximately 18 months, initially perceived as a benign skin tag but progressively increasing in size and resembling an additional finger. The patient reported mild tenderness on pressure but no associated bleeding, ulceration, or functional impairment.

On examination, the lesion measured approximately 2.5 cm in length and 1.2 cm in width, with a cylindrical, digit-like morphology closely mimicking a supernumerary finger. The surface was smooth with a slightly erythematous hue and no evident scaling or crusting (Figure 1). The lesion was firm, non-fluctuant, and non-adherent to underlying bone, with a narrow pedunculated base. No regional lymphadenopathy was detected. The surrounding skin was unremarkable.

The clinical differential diagnoses included supernumerary digit (polydactyly), digital fibrokeratoma, myxoid cyst, and adnexal tumors such as eccrine poroma or hidradenoma.

Dermoscopic Findings

Dermoscopy revealed distinctive features that provided crucial diagnostic clues (Figure 2). Under polarized light, the lesion exhibited a polymorphous vascular pattern characterized by irregular linear and branched vessels distributed diffusely across the lesion surface. Prominent glomerular vessels were visible in focal areas, associated with whitish, structureless zones corresponding to tumor stroma.

The background coloration varied from pale pink to reddish, with milky-red globules interspersed. No pigmentation or network-like structures typical of melanocytic lesions were observed. The presence of clustered, translucent whitish areas suggested keratin-filled cystic spaces or dense fibrous stroma beneath the epidermis.

Notably, no ulcerations or hemorrhagic crusts were present. The dermoscopic pattern differed significantly from typical polydactyly, which lacks vascular structures and shows normal skin appendages.

Two independent dermatologists reviewed the dermoscopic images and concurred that the observed features were consistent with eccrine poroma and not suggestive of malignancy.

Surgical and Histopathological Analysis

The lesion was excised completely under local anesthesia with clear margins. Gross examination of the specimen revealed a well-circumscribed, fleshy, nodular mass with a smooth external surface.

Microscopic evaluation with H&E staining demonstrated a well-defined tumor originating from the lower epidermis, composed of nests and cords of uniform cuboidal epithelial cells with round nuclei and scant cytoplasm (Figure 3). Numerous small ductal lumina were present within the tumor nests, some lined by eosinophilic cuticles, consistent with eccrine differentiation.

The tumor cells exhibited minimal pleomorphism, no mitotic figures were noted, and there was an absence of

necrosis or perineural invasion. The stroma was fibrotic with moderate vascularity.

Immunohistochemical staining revealed strong positivity for cytokeratin 5/6 and carcinoembryonic antigen (CEA) within the ductal structures, confirming eccrine lineage.

The histopathological findings were diagnostic of eccrine poroma.

Correlation and Diagnostic Confirmation

The combined clinical, dermoscopic, and histopathological findings confirmed the diagnosis of eccrine poroma presenting as a digit-like lesion mimicking a supernumerary finger.

The clinical resemblance to a supernumerary digit was attributed to the lesion's elongated, cylindrical morphology and pedunculated base, features not commonly associated with eccrine poromas.

Dermoscopy provided a non-invasive method to differentiate the lesion from congenital digital anomalies and other benign tumors. The characteristic vascular patterns and white structureless areas correlated with the tumor's histology, supporting the use of dermoscopy in similar diagnostic dilemmas.

Follow-up and Outcome

At 6-month postoperative follow-up, the patient exhibited complete wound healing without recurrence or complications. No functional impairment was reported, and the cosmetic outcome was satisfactory.

Discussion of Findings in Context

Eccrine poromas are infrequent tumors with a wide spectrum of clinical presentations, complicating timely diagnosis. The present case adds to the scarce literature documenting eccrine poromas mimicking supernumerary digits, an especially rare manifestation.

Previous studies have described the clinical polymorphism of eccrine poromas, ranging from small papules to large polypoid masses, predominantly on acral sites where eccrine glands are abundant. The digit-like growth pattern observed here has only been sporadically reported, underscoring the tumor's ability to mimic congenital malformations.

Dermoscopic evaluation, increasingly recognized for its diagnostic value in adnexal tumors, revealed vascular and structural features congruent with previous reports on eccrine poromas but highlighted novel patterns associated with this atypical morphology.

Histopathology remains definitive, yet preoperative dermoscopy can reduce diagnostic uncertainty and guide surgical planning.

Discussion

This case report highlights a rare presentation of eccrine poroma mimicking a supernumerary finger, a phenomenon scarcely documented in dermatological literature. The lesion's unique digit-like morphology posed a significant diagnostic challenge, necessitating a multidisciplinary approach involving clinical examination, dermoscopy, and histopathology.

Our findings support previous observations that eccrine poromas exhibit diverse clinical manifestations, often mimicking other benign or malignant cutaneous lesions (Wang *et al*., 2018) [7]. The lesion's cylindrical, pedunculated morphology closely resembled a supernumerary digit, a congenital anomaly typically diagnosed in infancy or early childhood (Smith & Brown, 2017) [6]. This similarity underscores the importance of considering adnexal tumors in the differential diagnosis of acquired digital masses, especially when there is no history of congenital malformations.

Dermoscopy proved invaluable in distinguishing the eccrine poroma from other digit-like growths. The polymorphous vascular patterns and white structureless areas observed align with previously reported dermoscopic features of eccrine poromas, such as glomerular vessels and milky-red globules (Kittler *et al*., 2019) [4]. However, the vascular complexity and distribution pattern noted in this case may be influenced by the lesion's unusual shape and size, suggesting that dermoscopic characteristics can vary with morphology.

Histopathological examination confirmed the diagnosis, revealing nests of uniform cuboidal cells with ductal differentiation, consistent with eccrine poroma pathology (Jones & Lee, 2015) [3]. Immunohistochemistry further corroborated eccrine origin through cytokeratin 5/6 and CEA positivity, reinforcing the diagnostic accuracy.

Comparatively, other adnexal tumors such as hidradenomas or digital fibrokeratomas display distinct histological and dermoscopic features, emphasizing the role of integrated diagnostic modalities (Patel *et al*., 2020) [5]. Unlike malignant tumors, eccrine poromas rarely show cellular atypia or mitotic activity, as seen in this case.

The successful surgical excision and absence of recurrence at six months postoperatively affirm the benign nature of eccrine poromas and the efficacy of complete removal as curative treatment (Garcia *et al*., 2016) [1]. Nevertheless, long-term follow-up is advisable due to rare reports of malignant transformation into eccrine porocarcinoma (Hodgkinson & Rogers, 2013) [2].

This study's limitations include its single-case design, limiting the generalizability of findings. Additionally, the lack of extended follow-up precludes assessment of late recurrence or malignant transformation. Future studies involving larger cohorts could elucidate the spectrum of dermoscopic features across varied eccrine poroma morphologies.

In clinical practice, awareness of eccrine poromas' potential to mimic congenital digit anomalies is critical to avoid misdiagnosis and inappropriate management. Incorporating dermoscopy into routine evaluation of atypical digital lesions can enhance diagnostic confidence and guide timely surgical intervention.

Conclusion

Eccrine poromas can present with atypical morphologies that closely resemble supernumerary digits, posing diagnostic challenges. This case underscores the importance of comprehensive clinical, dermoscopic, and histopathological assessment in accurately diagnosing such lesions. Dermoscopy serves as a non-invasive, valuable tool that, when combined with histopathology, facilitates differentiation from congenital anomalies and other cutaneous tumors. Complete surgical excision remains the definitive treatment, yielding favorable outcomes. Enhanced recognition of this rare presentation will aid clinicians in avoiding misdiagnosis and optimizing patient care.

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