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A Case Report of Eccrine Porocarcinoma on the Scalp

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Abstract

Eccrine porocarcinoma (EPC) is an exceptionally rare malignant adnexal neoplasm originating from the intraepidermal eccrine sweat duct, constituting < 0.01% of all cutaneous tumors. Its non-specific clinical presentation frequently results in misdiagnosis, and histopathological evaluation remains the diagnostic cornerstone. A 72-year-old female, who presented with a progressively enlarging, ulcerated mass on the left temporal region of the scalp. The lesion was surgically excised. Gross examination revealed a gray-brown nodular ulcerated mass with attached hair, measuring 3.5 × 2.5 × 2 cm, with solid gray-white areas and focal hemorrhage on the cut section. Microscopy demonstrated an intradermal malignant neoplasm maintaining continuity with the overlying epidermis, composed of nests, strands, and lobules of markedly pleomorphic poroid cells. The cells exhibited high nuclear-to-cytoplasmic ratios, hyperchromatic irregular nuclei, prominent nucleoli, focal clear cell change, nuclear grooving, increased mitotic activity (1–2/high-power field) including atypical mitoses, and a surrounding lymphoplasmacytic stromal infiltrate. These findings were diagnostic of EPC. Although the lower extremity is the most common site, EPC should be considered in the differential diagnosis of chronic ulcerated scalp lesions in the elderly. Complete surgical excision with tumor-free margins is essential to mitigate the risk of local recurrence and metastasis.

Keywords: Adnexal neoplasm, Eccrine porocarcinoma, Geriatric dermatology, Malignant poroma, Scalp tumor, Sweat gland carcinoma

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Introduction

Eccrine porocarcinoma (EPC) is a rare malignant neoplasm arising from the acrosyringium (the intraepidermal ductal portion of the eccrine sweat gland). It accounts for approximately 0.005–0.01% of all cutaneous malignancies.[1] The tumor predominantly affects elderly individuals, typically in the sixth to eighth decades of life, with no significant sex predilection.[2] While the lower extremities are the most frequently involved site (over 40% of cases), the head and neck region – including the scalp – is the second most common location.[3]

Clinically, EPC often manifests as a slowly enlarging, asymptomatic nodule, plaque, or ulcerated mass that can mimic squamous cell carcinoma, basal cell carcinoma, amelanotic melanoma, or even a benign pyogenic granuloma.[4] Due to this variable presentation, definitive diagnosis relies heavily on histopathological examination, which reveals malignant poroid cells with ductal differentiation, cytological atypia, and an infiltrative growth pattern. Immunohistochemistry (e.g., CK5/6, p63, epithelial membrane antigen [EMA], and carcinoembryonic antigen [CEA]) can assist in diagnostically challenging cases.[5] Given its potential for local recurrence (~20% of cases) and regional metastasis, prompt recognition and complete surgical excision are critical.[6] We present a case of EPC on the left temporal parietal scalp, emphasizing the clinicopathological correlation and the importance of histomorphology in resource-limited settings.

Case Presentation

A 72-year-old female, presented to the surgical outpatient department with a progressively enlarging, ulcerated mass on the left temporal region of the scalp (Figure 1). The lesion had been gradually increasing in size over the preceding several months. She reported occasional mild bleeding and serous discharge but denied significant pain. Her medical history included well-controlled hypertension and type 2 diabetes mellitus. There was no history of prior trauma, chronic radiation exposure, or similar cutaneous lesions. A clinical differential diagnosis of squamous cell carcinoma versus a malignant adnexal tumor was considered. Wide local excision with a 5-mm clinical margin was performed under local anesthesia, and the entire specimen was submitted for histopathological examination. Written informed consent was obtained from the patient and her husband for the publication of this case report.

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Gross Examination

The resected specimen consisted of a single gray-brown nodular ulcerated mass with attached hair and overlying skin, measuring 3.5 × 2.5 × 2.0 cm (Figure 2). The external surface was ulcerated and hemorrhagic. On cut section, the lesion appeared solid, gray-white, with focal areas of hemorrhage. The specimen was entirely processed for microscopic evaluation after routine formalin fixation.

Histopathological Findings

Microscopic examination revealed an intradermal neoplastic lesion maintaining distinct continuity with the overlying epidermis (acrosyringial connection) (Figure 3). The tumor was composed of irregularly shaped nests, anastomosing strands, and solid lobules

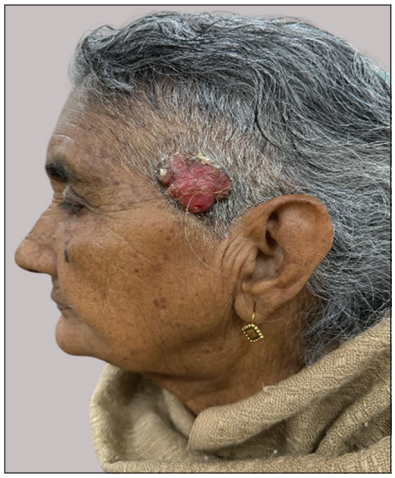

Figure 1: Patient presenting with ulcerative mass in the left temporal region of scalp

Figure 2: Excised mass from left temporal region

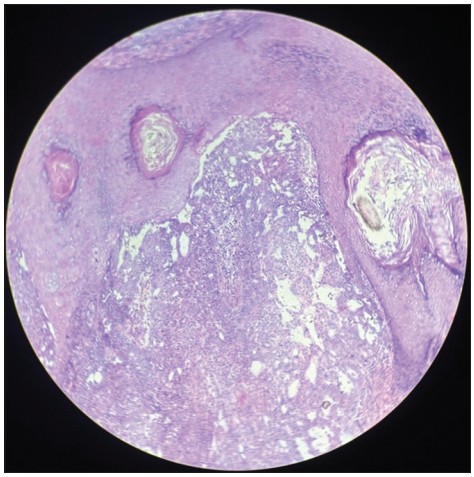

Figure 3: 100×: Hematoxylin and eosin image showing intradermal neoplastic lesion with epidermal connection

of atypical epithelial cells deeply infiltrating the dermis (Figure 4). The neoplastic cells exhibited marked cellular pleomorphism with a high nuclear-to-cytoplasmic ratio. The nuclei were hyperchromatic, irregularly contoured, and showed prominent eosinophilic nucleoli. The cytoplasm ranged from scant to

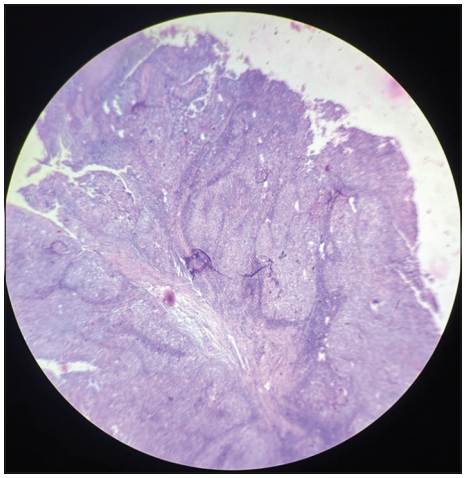

Figure 4: 40×: Hematoxylin and eosin image showing tumor cells arranged in nest, strands, and lobules

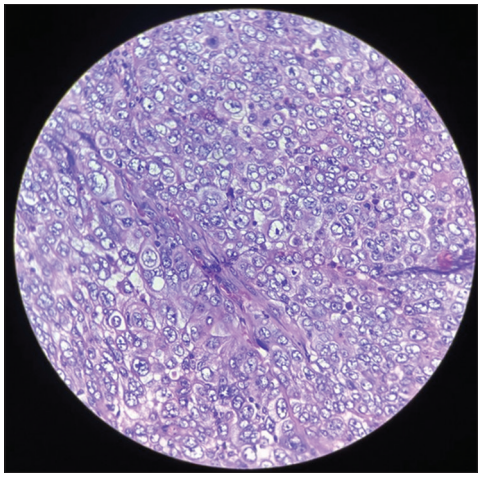

Figure 5: 400×: Hematoxylin and eosin image showing tumor cells with clear cytoplasm, nuclear grooving, and lobulation

moderately eosinophilic; however, distinct foci of clear cell change were noted, along with nuclear grooving and lobulation (Figure 5). Mitotic activity was brisk, averaging 1–2 mitoses per high-power field, and readily identifiable atypical mitotic figures were present. The surrounding fibrovascular stroma exhibited fibrous septae with dense lymphoplasmacytic inflammatory infiltrates. No definite lymphovascular or perineural invasion was identified in the sections studied.

Note: "*Immunohistochemistry was not performed due to logistical constraints in our rural setup; however, the classic histomorphological features – including the epidermal connection, poroid morphology, clear cell change, nuclear grooving, and atypical mitoses – were unequivocally diagnostic of eccrine porocarcinoma.*"

Discussion

EPC is one of the rarest cutaneous adnexal malignancies. It may arise *de novo* or undergo malignant transformation from a pre-existing benign eccrine poroma.[7] The present case exemplifies the typical demographic profile, affecting an elderly patient

with a slowly progressing nodule, although on a relatively less common site – the scalp. Involvement of the scalp poses additional clinical challenges regarding surgical margin clearance and cosmesis.

Histopathologically, distinguishing EPC from other cutaneous tumors is paramount. The presence of an intraepidermal connection, ductal differentiation, and characteristic "poroid" and "clear cell" populations effectively differentiates it from squamous cell carcinoma (which lacks ductal structures) and basal cell carcinoma (which shows peripheral palisading and retraction artifacts).[4] The nuclear grooving and lobulation observed in our case are also frequent features of poroid neoplasms. In equivocal cases, immunohistochemistry is highly useful; EPC tumor cells typically express CK5/6, CK7, p63, and p40, while CEA and EMA highlight intracytoplasmic lumina and ductal differentiation.[5] A high Ki-67 labeling index (>20%) is often associated with more aggressive biological behavior.[8]

Although our case did not reveal lymphovascular or perineural invasion, which are poor prognostic indicators, the presence of high mitotic activity and cytological pleomorphism warrants vigilant long-term follow-up. Wide local excision with histologically negative margins remains the standard of care.[6] For scalp lesions, Mohs micrographic surgery may be considered when available, as it maximizes margin control while preserving healthy tissue.[9] The rate of local recurrence is approximately 20%, while metastasis to regional lymph nodes, lungs, and bone occurs in 20–25% of cases, significantly reducing the 5-year survival rate to about 60%.[10]

The strength of this report lies in the detailed histomorphological documentation, which serves as a valuable diagnostic guide for pathologists in resource-constrained primary care settings. The primary limitation is the limited post-operative follow-up period available at the time of this writing; we plan to continue close surveillance of this patient for any signs of recurrence or distant spread.

Conclusion

EPC is a rare but potentially aggressive adnexal tumor. It should be considered in the differential diagnosis of elderly patients presenting with chronic, ulcerated, nodular lesions, and even on unusual sites such as the scalp. Histopathological evaluation remains the unequivocal cornerstone of diagnosis. Complete surgical excision with tumor-free margins is the treatment of choice to minimize the risk of local recurrence and metastasis, and long-term follow-up is essential.

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