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Case Study

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MALIGNANT TRICHOEPITHELIOMA MIMICKING BASAL CELL CARCINOMA: A RARE FOLLICULAR ADNEXAL MALIGNANCY

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ABSTRACT

Malignant trichoepithelioma is a rare follicular adnexal malignancy with overlapping features of trichoblastic carcinoma. It is characterized by follicular germinative differentiation with mixed basaloid and squamoid morphology.[1,2] The lesion may closely mimic basal cell carcinoma or squamous cell carcinoma on routine microscopy. We report a rare scalp lesion in a 58-year-old male presenting as a progressively enlarging ulceroproliferative growth. Histopathological examination revealed infiltrative nests, cords and lobules of atypical epithelial cells showing basaloid morphology with focal squamoid differentiation, keratin pearl formation, horn cyst-like structures, stromal desmoplasia, brisk mitotic activity and focal necrosis.[5,6] Immunohistochemistry showed positivity for BerEP4, CK5/6, Bcl-2 and PHLDA1 with elevated Ki-67 labeling index, supporting follicular adnexal differentiation and malignant transformation.[7,8] This case illustrates the diagnostic difficulty encountered in differentiating follicular adnexal tumors from other keratinizing cutaneous neoplasms. Our findings emphasize the importance of clinicopathological correlation in rare adnexal tumors.

KEYWORDS: Malignant trichoepithelioma, trichoblastic carcinoma, follicular adnexal tumor, scalp neoplasm, basaloid neoplasm, keratin pearl.

INTRODUCTION

Malignant trichoepithelioma is an uncommon malignant follicular adnexal neoplasm currently regarded within the spectrum of trichoblastic carcinoma.[1] Historically, overlapping terminology including malignant trichoblastoma and trichoblastic carcinoma has been used in the literature[2,5] The lesion may arise de novo or through malignant transformation within a pre-existing trichoepithelioma or trichoblastoma[6]

Histologically these tumors may exhibit basaloid, matrical and squamoid differentiation, making distinction from basal cell carcinoma, squamous cell carcinoma, proliferating trichilemmal tumor and basosquamous carcinoma challenging[3,4] Immunohistochemistry serves as a supportive adjunct in diagnostically difficult cases. Markers such as PHLDA1, BerEP4, CK5/6, CD10, and Bcl-2 provides contributory evidence for follicular germinative differentiation[7,9] Elevated Ki-67 proliferation index may indicate malignant transformation and aggressive biologic behavior.[10]

Since limited number of cases have been reported in the literature; clinicopathological characterization of these tumors remains incomplete. We report a rare case of malignant trichoepithelioma involving the scalp with overlapping basaloid and squamoid morphology, highlighting the diagnostic challenges encountered during histopathological evaluation.

CASE REPORT

A 58-year-old male presented with a progressively enlarging ulceroproliferative scalp lesion of three years' duration. According to the clinical history, the lesion initially appeared as a small papular swelling and gradually enlarged over time. During the preceding six months, rapid enlargement associated with intermittent bleeding and crusting was noted. Gross examination revealed a skin-covered soft tissue specimen measuring 3 × 2.5 cm with an overlying ulcerative lesion measuring 2 × 1.5 cm. Cut surface showed a grey-white tumor with focal areas of necrosis.

Microscopic examination exhibited infiltrative nests, trabeculae, cords and lobules of atypical epithelial cells embedded within a desmoplastic stromal background. Several tumor islands showed peripheral basaloid cells with focal palisading, while other areas demonstrated conspicuous squamoid differentiation with prominent keratin pearl formation and horn cyst-like structures. The tumor cells showed moderate to marked nuclear

pleomorphism, hyperchromasia, irregular nuclear contours and occasional conspicuous nucleoli.

Brisk mitotic activity including atypical mitotic figures was identified together with focal apoptotic debris and comedo-type necrosis. Tumor infiltration into the deep dermis and superficial subcutaneous tissue was observed. Adjacent areas resembling trichoepithelioma with follicular differentiation suggested malignant transformation within a pre-existing follicular adnexal lesion.

At initial evaluation, differential diagnoses included infiltrative basal cell carcinoma, keratinizing squamous cell carcinoma, proliferating trichilemmal tumor, basosquamous carcinoma and malignant trichoepithelioma. No definite lymphovascular or perineural invasion was identified.

Immunohistochemical evaluation demonstrated diffuse positivity for BerEP4 and CK5/6. Diffuse nuclear and cytoplasmic positivity for PHLDA1 supported follicular germinative differentiation.[7] Bcl-2 staining was predominantly peripheral within tumor nests, while stromal CD10 positivity was identified surrounding the neoplastic islands. Ki-67 labeling index was markedly elevated, reaching approximately 35–40% in proliferative hotspots.[10] EMA and CEA were negative, arguing against pure ductal or conventional squamous differentiation.

The combined histomorphological and immunohistochemical features favored the diagnosis of malignant trichoepithelioma with squamoid differentiation.

DISCUSSION

Malignant trichoepithelioma is a rare follicular adnexal tumor currently classified within the spectrum of trichoblastic carcinoma.[1,2] These tumors demonstrate variable morphologic differentiation ranging from basaloid follicular germinative proliferation to matrical and squamoid differentiation.[5,6]

Initially the lesion raised suspicion for squamous cell carcinoma or proliferating trichilemmal tumor because of the extensive keratinization, posing a diagnostic dilemma in limited biopsy sections. However, focal basaloid palisading, follicular differentiation and immunohistochemical findings favored malignant trichoepithelioma.

PHLDA1 positivity proved particularly useful because conventional basal cell carcinoma is generally negative for this marker.[7] BerEP4 positivity, peripheral Bcl-2 staining and stromal CD10 expression further supported follicular differentiation. Elevated Ki-67 proliferation index reflected increased proliferative activity and malignant transformation.[10]

The principal differential diagnoses include basal cell carcinoma, squamous cell carcinoma, proliferating trichilemmal tumor, basosquamous carcinoma, and trichoblastic carcinoma. Careful clinicopathological correlation together with immunohistochemistry is often necessary for accurate classification. Complete surgical excision with tumor-free margins remains the treatment of choice.[14] Long-term follow-up is advisable because local recurrence has been documented in the literature.[15]

CONCLUSION

Malignant trichoepithelioma is a rare follicular adnexal malignancy with significant morphologic overlap with basal cell carcinoma and keratinizing squamous neoplasms. Recognition of basaloid follicular differentiation together with squamoid and keratinizing components is important for accurate diagnosis.

A limitation in our case was the morphologic overlap with keratinizing squamous neoplasms, making histopathological interpretation challenging. Because only a limited number of similar cases have been reported, standardized diagnostic criteria remain incompletely defined. Recognition of this entity may help avoid misdiagnosis in tumors showing mixed basaloid and squamoid differentiation.

Representative Histopathology Figures

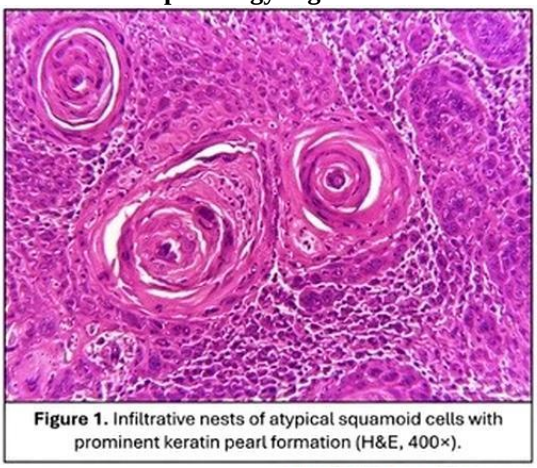

Figure 1. Infiltrative nests of atypical squamoid cells with prominent keratin pearl formation (H&E, 400×).

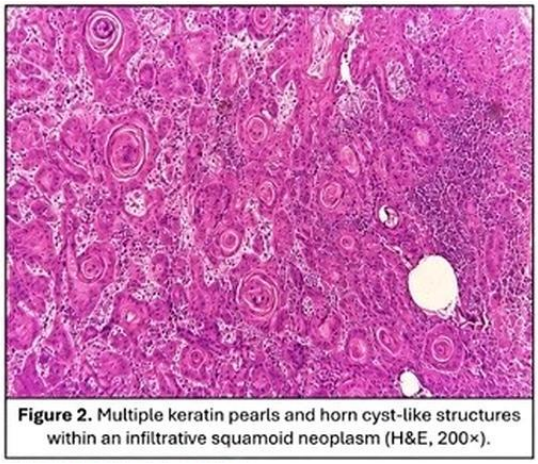

Figure 2. Multiple keratin pearls and horn cyst-like structures within an infiltrative squamoid neoplasm (H&E, 200×).

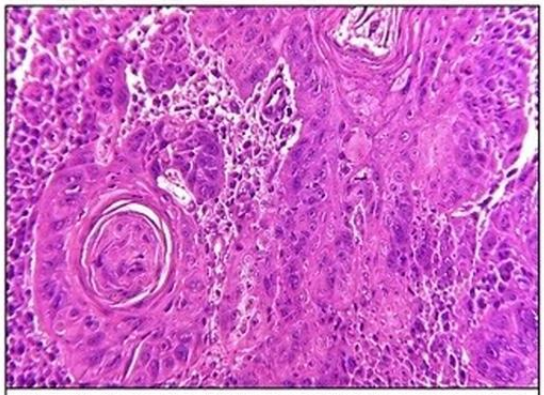

Figure 3. Atypical basaloid to squamoid cells showing nuclear pleomorphism, individual cell keratinization and mitotic figures (H&E, 400×).

Figure 1–3 Representative photomicrographs demonstrating infiltrative basaloid-to-squamoid epithelial nests with prominent keratin pearl formation, horn cyst-like structures, stromal desmoplasia and cytologic atypia (H&E, ×200–400).

REFERENCES

1. Headington JT. Tumors of the hair follicle. A review. Am J Pathol, 1976; 85(2): 479–514.
2. Misago N, Narisawa Y. Trichoblastic carcinoma: a clinicopathologic study. Am J Dermatopathol, 2002; 24(4): 287–293.
3. Schulz T, Hartschuh W. Morphologic and immunohistochemical aspects of follicular differentiation in basal cell carcinoma. J Cutan Pathol, 1998; 25(6): 299–304.
4. Weedon D. Weedon's Skin Pathology. 4th ed. London: Churchill Livingstone; 2015.
5. Ackerman AB, de Viragh PA, Chongchitnant N. Neoplasms with Follicular Differentiation. Philadelphia: Lea & Febiger; 1993.
6. Takai T, et al. Malignant transformation of trichoepithelioma: report of a case and review of literature. J Dermatol, 2000; 27(3): 203–208.
7. Sellheyer K, Krahl D. PHLDA1 as a follicular stem cell marker in follicular neoplasms. J Cutan Pathol, 2011; 38(1): 9–14.
8. Crowson AN. Basal cell carcinoma: biology and morphology. Mod Pathol, 2006; 19(S2): S127–S147.
9. Sellheyer K, Nelson P, Krahl D. Differential diagnosis using BerEP4 and PHLDA1. J Cutan Pathol, 2013; 40(9): 863–869.
10. Kaddu S, Soyer HP, Hödl S, Kerl H. Proliferative activity in trichoblastic tumors assessed by Ki-67. Histopathology, 1997; 30(6): 543–550.
11. Sau P, Graham JH, Helwig EB. Follicular tumors with matrical differentiation. Cancer, 1992; 70(9): 2281–2288.
12. Brownstein MH, Shapiro L. Hair follicle tumors and differentiation patterns. Arch Dermatol, 1973; 108(6): 841–843.
13. Kazakov DV, Michal M, Kacerovska D. Cutaneous adnexal tumors with follicular differentiation. Am J Dermatopathol, 2012; 34(6): 635–650.
14. Tolkachjov SN, Hocker TL, Camilleri MJ, Baum CL. Mohs micrographic surgery in rare adnexal tumors. Dermatol Surg, 2017; 43(8): 1045–1053.
15. Snow SN, Larson PO, Lucarelli MJ, et al. Trichoblastic carcinoma with metastatic potential. Dermatol Surg, 2001; 27(8): 749–752.