Tender Dermal Nodule on the Temple

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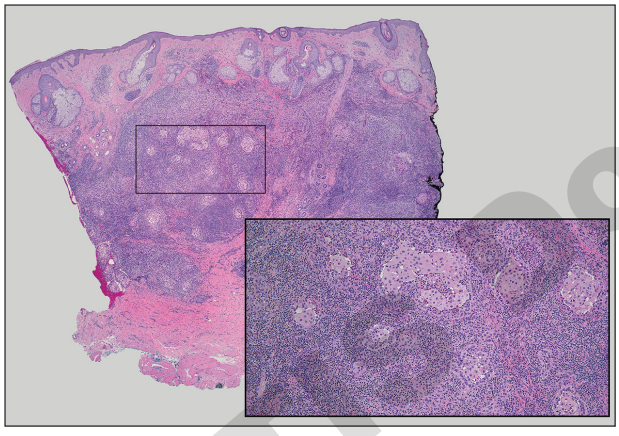

H&E, original magnification ×20; inset: original magnification ×100.

A 77-year-old man presented with a 1.2-cm dermal nodule on the left temple of 1 year's duration. The lesion had become tender and darker in color. An excision was performed and submitted for histologic examination. Additional immunohistochemistry staining for Epstein-Barr virus was negative.

THE BEST **DIAGNOSIS IS:**

a. cutaneous lymphadenoma
b. lymphoepithelioma-like carcinoma
c. metastatic nonkeratinizing nasopharyngeal carcinoma (formerly known as lymphoepithelioma)
d. poorly differentiated squamous cell carcinoma with robust inflammatory infiltrate
e. syringotropic mycosis fungoides

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The authors report no conflict of interest.

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THE **DIAGNOSIS:** Lymphoepithelioma-like Carcinoma

Lymphoepithelioma-like carcinoma (LELC) is a rare, poorly differentiated, primary cutaneous neoplasm that occurs on sun-exposed skin, particularly on the head and neck of elderly individuals. It often manifests as an asymptomatic, slow-growing, flesh-colored or erythematous dermal nodule, though ulceration and tenderness have been reported.[1] Histopathologically, these neoplasms often are poorly circumscribed and can infiltrate surrounding subcutaneous and soft tissue. As a biphasic tumor, LELC is characterized by islands, nests, or trabeculae of epithelioid cells within the mid dermis surrounded by a dense lymphocytic infiltrate with plasma cells (Figure 1).[1] The epithelial component rarely communicates with the overlying epidermis and is composed of atypical polygonal cells with eosinophilic cytoplasm, vesicular nuclei, prominent nucleoli, and frequent mitosis.[2] These epithelial nests can be highlighted by pancytokeratin AE1/AE3 or other epithelial differentiation markers (eg, CAM 5.2, CK5/6, epithelial membrane antigen, high-molecular-weight cytokeratin), while the surrounding lymphocytic infiltrate consists of an admixture of T cells and B cells. Lymphoepithelioma-like carcinomas also can demonstrate sebaceous, eccrine, or follicular differentiations.[3] The epithelial nests of LELC also are positive for p63 and epithelial membrane antigen.[2]

The usual treatment of LELC is wide local excision or Mohs micrographic surgery.[1] Despite the poorly differentiated morphology of the tumor, LELC has a generally good prognosis with low metastatic potential and few reports of local recurrence after incomplete excision.[3] Patients who are not candidates for surgery as well as recalcitrant cases are managed with radiotherapy.[1]

Cutaneous lymphadenoma (CL) is a benign adnexal neoplasm that manifests as a small, solitary, flesh-colored nodule usually in the head and neck region.[4] Histologically, CL consists of well-circumscribed epithelial nests within the dermis that are peripherally outlined by palisading basaloid cells and filled with clear to eosinophilic epithelioid cells (Figure 2).[5] The fibrotic tumor stroma often is infiltrated by numerous intralobular dendritic cells and lymphocytes that occasionally can be arranged in germinal center–like nodules.[4] The lymphoepithelial nature of CL can be challenging to distinguish morphologically from LELC, and immunohistochemistry stains may be required. In CL, both the basaloid and epithelioid cells stain positive for pancytokeratin AE1/AE3, but the peripheral palisaded basaloid cells also stain positive for BerEP4. Additionally, the fibrotic stroma can be highlighted by CD34 and the intralobular dendritic cells by S-100.[4]

Nasopharyngeal carcinoma (NPC), formerly known as lymphoepithelioma, refers to carcinoma arising within the epithelium of the nasopharynx.[6] Endemic to China, NPC manifests as an enlarging nasopharyngeal mass, causing clinical symptoms such as nasal obstruction and epistaxis.[7] Histologically, nonkeratinizing NPC exhibits a biphasic morphology consisting of epithelioid neoplastic cells and background lymphocytic infiltrates (Figure 3). The epithelial component consists of round to oval neoplastic cells with amphophilic to eosinophilic cytoplasm, vesicular nuclei, and prominent nucleoli.[6] Nasopharyngeal carcinoma is associated strongly with the Epstein-Barr virus while LELC is not; thus, Epstein-Barr encoding region in situ hybridization can reliably distinguish these entities. Metastatic NPC is rare but has been reported; therefore, it is highly recommended to perform an otolaryngologic examination in addition to testing for Epstein-Barr virus reactivity as part of a complete evaluation.[8]

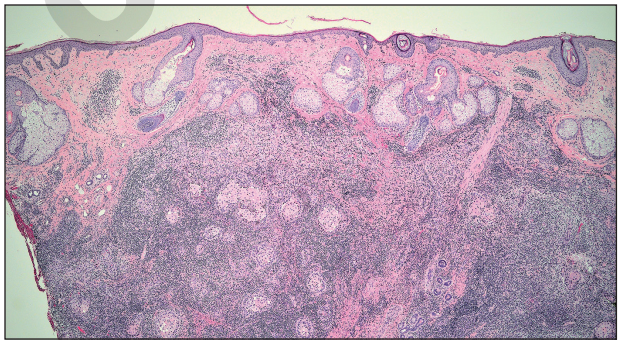

FIGURE 1. Lymphoepithelial-like carcinoma. Dermal nests of epithelioid cells surrounded by a dense lymphocytic infiltrate are observed. The overlying epidermis is uninvolved (H&E, original magnification ×40).

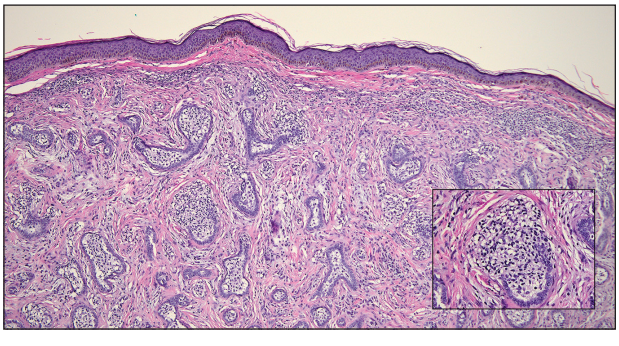

FIGURE 2. Cutaneous lymphadenoma. Nests of clear epithelioid cells with peripheral basaloid cells are present within the dermis. The tumor stroma is fibrotic with lymphocytic infiltration (H&E, original magnification ×100; inset: original magnification ×400).

Cutaneous squamous cell carcinoma (SCC) is a common epidermal malignancy with multiple subtypes and variable morphology. The clinical presentation of SCC is similar to LELC—an enlarging hyperkeratotic papule or nodule on sun-exposed skin that often is ulcerated and tender.[9] Histologically, poorly differentiated nonkeratinizing SCC can form nests and trabeculae of epithelioid cells that are stained by epithelial differentiation markers, resembling the epithelioid nests of LELC. Distinguishing between LELC and poorly differentiated SCC with robust inflammatory infiltrate can be challenging (Figure 4). In fact, some experts support LELC as an SCC variant rather than a separate entity.[9] However, in contrast to LELC, the dermal nests of SCC usually maintain an epidermal connection and often are associated with an overlying area of SCC in situ or well-differentiated SCC.[3]

Mycosis fungoides (MF) is a primary cutaneous T-cell lymphoma. It is the most common type of cutaneous lymphoma, accounting for almost 50% of all reported cases.[10] Classic MF has an indolent course and progresses through several clinical stages. Patches and plaques characterize early stages; lymphadenopathy indicates progression to later stages in which erythroderma may develop with coalescence of patches, plaques, and tumors; and MF present in blood or lymph nodes characterizes the late stage. Each stage of MF is different histologically—from a superficial lichenoid infiltrate with exocytosis of malignant T cells in the patch stage, to more robust epidermotropism and dermal infiltrate in the plaque stage, and finally a dense dermal infiltrate in the late stage.[11] The rare syringotropic variant of MF clinically manifests as solitary or multiple erythematous lesions, often with overlying alopecia. Syringotropic MF uniquely exhibits folliculotropism and syringotropism along with syringometaplasia on histologic evaluation (Figure 5).[12] The syringometaplasia can be difficult to distinguish from the epithelial nests of LELC, particularly with the lymphocytic background. Immunohistochemical panels for T-cell markers can highlight aberrant T cells in syringotropic MF through their usual loss of CD5 and CD7, in comparison to normal T cells in LELC.[11] An elevated CD4:CD8 ratio of 4:1 and molecular analysis for T-cell receptor gene clonal rearrangements also can support the diagnosis of MF.[12]

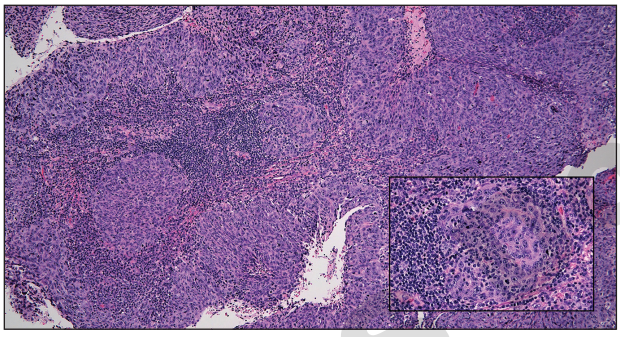

FIGURE 3. Nonkeratinizing nasopharyngeal carcinoma (formerly known as lymphoepithelioma). A dense lymphocytic infiltrate is present in the background of basaloid epithelial nests (H&E, original magnification ×100; inset: original magnification ×400).

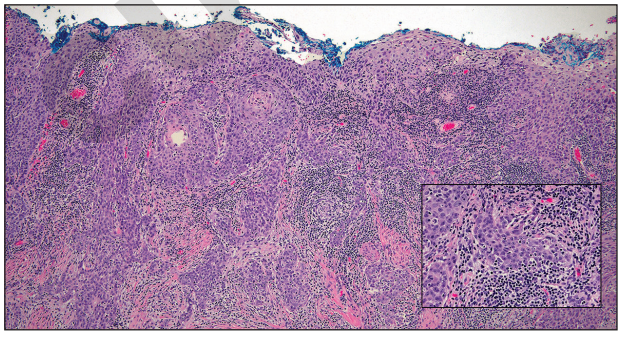

FIGURE 4. Poorly differentiated squamous cell carcinoma. Robust inflammation is present as well as infiltrative nests and trabeculae of neoplastic epithelial cells with surrounding desmoplastic reaction and brisk mixed inflammatory infiltrate. The associated squamous cell carcinoma in situ also is present in the overlying epidermis (H&E, original magnification ×100; inset: original magnification ×400).

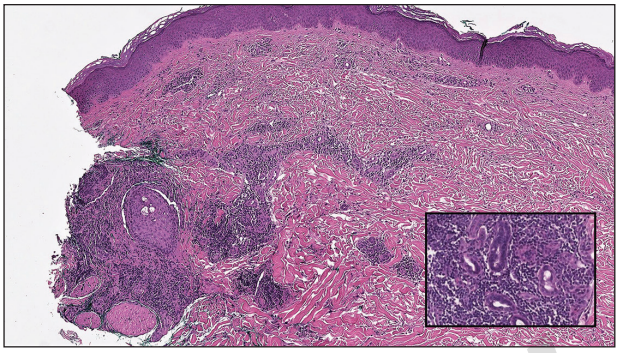

FIGURE 5. Syringotropic mycosis fungoides. A dermal infiltrate of neoplastic T cells exhibiting syringotropism can be observed. The involved eccrine glands shows focal areas of syringometaplasia (H&E, original magnification ×40; inset: original magnification ×400).

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