



Cytologic Clues to the Diagnosis of Lymphoepithelioma-Like Carcinoma of Parotid Gland with Possible Therapeutic Implications

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Editor,

Lymphoepithelioma-like carcinoma (LELC) is a rare histological variant, comprising less than 1% of all salivary gland neoplasms [1]. The World Health Organization (WHO) has defined it as “a poorly differentiated squamous cell carcinoma or histologically undifferentiated carcinoma accompanied by a prominent reactive lympho-plasmacytic infiltrate, morphologically similar to nasopharyngeal carcinoma.” The importance of distinguishing LELC from other poorly differentiated carcinoma lies in the fact that despite being poorly differentiated, they have a better prognosis and are radiosensitive.

LELC has been described in nasopharynx, larynx, tonsils, salivary glands, lung, thymus, stomach, duodenum, breast, renal pelvis, urinary bladder, uterine cervix, endometrium, ovary, vulva, and vagina with female predominance [2]. LELC has been associated with Epstein Barr Virus (EBV) in tumors derived from foregut and rarely in LELCs arising from other sites [3].

A 65-year-old male presented with swelling in the left preauricular region for 3 months, which was gradually

increasing in size. There was no history of weight loss. On examination, the swelling was 4 × 4 cm in size. On palpation, the swelling was firm, non-tender, and was not mobile. Ultrasonography revealed mass in left parotid region with irregular margins. Fine Needle Aspiration Cytology (FNAC) was performed and yielded cellular smears. Tumor cells had moderate pleomorphism, round to oval nuclei, and coarse chromatin with 2–3 prominent nucleoli. Cytoplasm was scant to moderate with imperceptible borders. In background, abundant lymphocytes, few plasma cells, and scattered areas of coagulative necrosis were seen (Fig. 1a and b).

The possible diagnoses considered were (1) poorly differentiated carcinoma of parotid gland and (2) carcinoma metastatic to intraparotid lymph node (due to lymphoid background in the aspirate). A detailed clinical radiologic and endoscopic examination ruled out metastasis to the parotid/intraparotid lymph node from other site. Hence, the final impression on cytology was a poorly differentiated carcinoma of parotid gland.

The patient underwent left parotidectomy with modified radical lymph node dissection. Parotidectomy specimen measured 12 × 8 × 4.5 cm and the tumor measured 5.5 × 5 × 4.5 cm. The tumor was solid, gray-white with infiltrative margins, and few areas of hemorrhage and necrosis. Histopathological examination showed tumor with infiltrative margins and tumor cells arranged in sheets with dense lymphocytic infiltration and few plasma cells in the intervening thin bands of fibrous stroma. Tumor cells were moderately pleomorphic with moderate amount of eosinophilic cytoplasm with imperceptible cell borders (Fig. 1c and d). All lymph nodes were free of tumor.

On immunohistochemistry, tumor cells were positive for epithelial membrane antigen and vimentin and were negative

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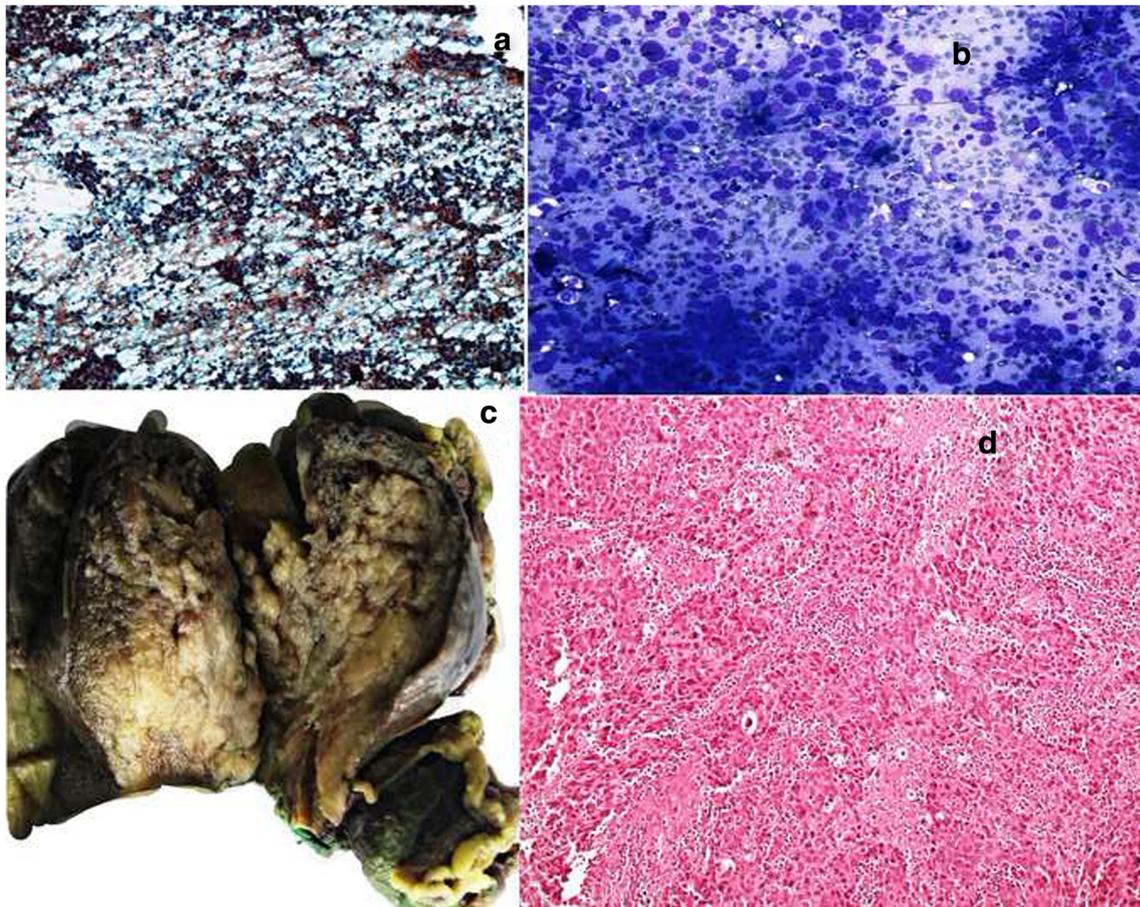


Fig. 1 PAP ($\times 200$, **a**) and MGG ($\times 200$, **b**) show highly cellular smear with undifferentiated cells in syncytium with lymphoid background. Parotidectomy specimen (**c**)—measuring $12 \times 8 \times 4.5$ cm. Cut surface—solid, gray-white tumor with areas of hemorrhage and necrosis.

Hematoxylin and Eosin section ($D \times 100$) shows tumor cells present in sheets with dense infiltrating lymphocytes and few plasma cells in the intervening fibrous stroma

for EBV-LMP1 (Epstein Barr Virus Latent Membrane Protein 1), Leucocyte Common Antigen, and Smooth Muscle Actin (Fig. 2). Final diagnosis of Lymphoepithelioma-like carcinoma of parotid gland was given. A nasopharyngeal examination was performed and it was normal. The patient received external beam irradiation to the neck and the surgical bed. The patient has no evidence of disease 1 year after the diagnosis.

LELC of salivary gland has a unique ethnical and geographical predilection affecting Eskimos and Orientals in Greenland, Southeast Asia, and Japan [3, 4]. In Eskimos, 60% of the parotid gland tumors are malignant, LELC being the most common type [5]. Metastatic lymphoepithelioma-like carcinoma of nasopharynx and primary LELC of parotid gland are indistinguishable both on cytology and histology. Hence, a nasopharyngeal examination should be done in all cases of LELC parotid gland to rule out a metastasis [2].

Salivary gland is a known reservoir of EBV replication. Strong association of EBV with LELC of salivary gland in

endemic areas suggests that EBV plays a role in tumorigenesis [3]. Association of EBV with LELC of parotid gland in non-endemic areas is less common. In a review by Mary Yang, 38% cases of LELC in non-endemic areas were negative for EBV [6].

The treatment options for LELC of salivary gland are surgery followed by radiotherapy, radiotherapy alone, or chemotherapy followed by radiotherapy [7]. To summarize, the presence of dense lymphoid infiltrate in the background of a poorly differentiated carcinoma of parotid should alert the cytologist to rule out lymphoepithelioma-like carcinoma by clinicoradiologic correlation and putting up relevant immunohistochemistry panel on cell block preparation.

Awareness about the cytological features of LELC can help in making an accurate FNA diagnosis of this entity. This in turn would allow the surgeon to assess the different therapeutic options available and offer non-surgical treatments to the patient.

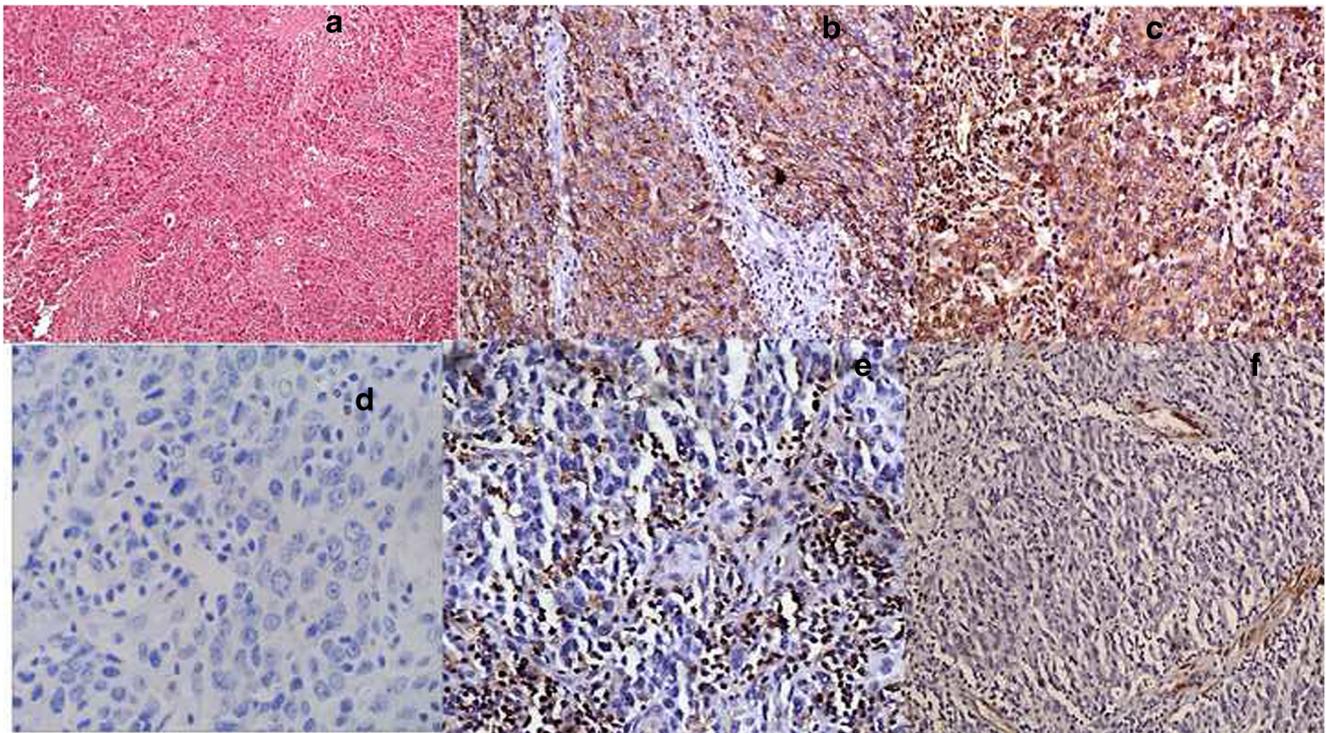


Fig. 2 Hematoxylin and Eosin section (**a**, $\times 100$)—tumor cells are moderately pleomorphic with moderate eosinophilic cytoplasm and imperceptible cellular borders. Nuclei are round to oval with vesicular chromatin and 1–2 prominent nucleoli. Immunohistochemistry—tumor

cells were positive for epithelial membrane antigen (**b**) and vimentin (**c**) and negative for EBV-LMP1 antibody (**d**), leucocyte common antigen (**e**), and smooth muscle actin (**f**)

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Informed Consent Informed consent was taken from the patient for publication of case details and photographs.

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