



Lymphoepithelial carcinoma of the parotid gland: a rare neck lump

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DECLARATIONS

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None declared

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A Fluoro-Deoxy-Glucose, Positron Emission Tomography fused with computed tomography scan is recommended for detecting undiagnosed primary and/or metastatic carcinoma.

Case report

A 27-year-old southern Chinese woman presented with a 2-year history of painless left-sided parotid mass with no other symptoms, past medical or family history.

Initial fine-needle-aspiration cytology demonstrated lymphoid tissue infiltrated by atypical cells with Epstein-Barr virus encoded RNA (EBER) positivity. This raised the possibility of lymphoma, so a superficial parotidectomy for histological diagnosis was performed.

Histopathological analysis demonstrated lympho-fibroadipose tissue infiltrated by tumour typical for lymphoepithelial carcinoma. The neoplastic cells expressed pancytokeratin AE1/AE3 and were EBER positive (Figure 1). There was no identifiable surrounding normal tissue suggesting whether this arose within the gland or an intraparotid lymph node.

Given her ethnicity, undifferentiated carcinoma of the nasopharyngeal type (UCNT) with nodal metastases was suspected. An examination-under-anaesthesia with nasopharyngeal biopsy to elicit the primary site was performed but no malignancy was evidenced.

A MRI scan had shown a multifocal left intraparotid mass. A fluoro-deoxy-glucose, positron emission tomography fused with computed tomography (FDG, PET-CT) scan from the skull base to the upper thighs depicted this mass with small-volume regional nodes (Figure 2).

Altogether, there were no features suggesting a mucosal primary. Primary lymphoepithelial carcinoma of the parotid or metastatic UCNT of unknown primary origin was the differential diagnosis.

Discussion

Nasopharyngeal carcinoma (NPC) usually presents as an unknown primary following metastasis to cervical nodes in 40–70% of patients.^{1,2} Local pressure effects of the tumour may result in otitis media- from Eustachian tube obstruction, epistaxis or rarely cranial nerve palsies. Lymphoepithelial carcinoma, a rare variant of UCNT (one of three subtypes of NPC) accounts for less than 0.5% of all salivary gland malignancies.¹

Lymphoepithelial carcinoma has typical histopathological features (see figure 1) and confirmatory EBER expression by chromogenic *in situ* hybridisation is demonstrated in this case.

Usually the primary tumour arises in the nasopharynx, especially in southern China where incidence is reported as up to 80 times higher than in the Western World.² Seventy five percent of those affected reportedly originate from south east China.¹ The association between certain human leucocyte antigen (HLA) types,³ the southern Chinese diet^{2,3} and evidence of infection with Epstein Barr virus (EBV)^{2,3,4} in the pathogenesis of UCNT is well documented. There have also been reports describing rare cases involving the lungs, thymus, larynx, trachea, soft palate and skin.¹

Metastases from nasopharyngeal carcinoma are occasionally seen in the parotid gland, especially with a tumour extending into the eustachian tube, with access to the intraparotid lymphatics.

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the penultimate draft

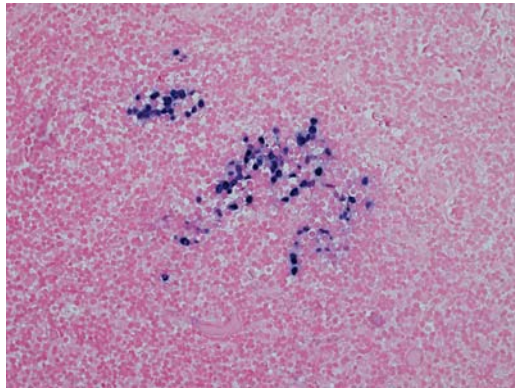
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Reviewer

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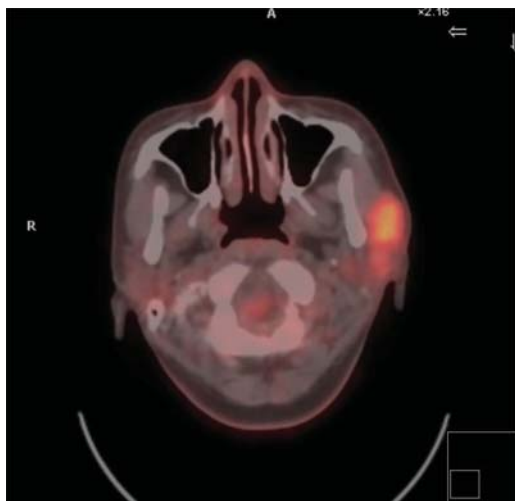
Figure 1
Chromogenic *in situ* hybridization (CISH) for Epstein-Barr virus encoded RNA (EBER) shows positivity, indicated by dark blue nuclear staining in target cells ($\times 200$)



In this case, assessments failed to demonstrate a mucosal primary tumour. The multifocal intraparotid deposits (Figure 2) also heightened the suspicion that these were metastases.

Primary lymphoepithelial carcinoma of the parotid was considered, consistent with the radiological findings of tumour confined to the parotid gland. The patient's ethnicity, multifocal disease

Figure 2
Axial 18-FDG-PET-CT scan only demonstrating intraparotid multifocal hot spots



and its extreme rarity,⁵ suggested that this was unlikely.

FDG, PET-CT has been widely recommended as sensitive at detecting both primary malignancy and metastatic spread previously undiagnosed by other modalities.^{4,6,7} It has been linked to a number of false-positive results.⁸ Whilst it has a very low false-negative rate, it does not exclude small mucosal primaries.

An intraparotid nodal metastasis from a lymphoepithelial carcinoma of unidentified mucosal primary site was felt to be the most likely diagnosis. Nasopharyngeal UCNT nodal metastasis occurs most commonly to the retropharyngeal node (of Rouvière) first, and then to level II and level V.² There are three possible mechanisms to explain primary UCNT spread to the parotid,⁹ raising the possibility of an unidentified eustachian tube mucosa primary UCNT.

Radiotherapy has been the mainstay of treatment of nasopharyngeal carcinoma due to its radiosensitivity. It is therefore important to distinguish between primary parotid UCNT tumour and secondary parotid UCNT. Should the parotid be irradiated alone or should candidate mucosal surfaces also be targeted? If a nasopharyngeal carcinoma with metastasis to the salivary gland is treated as a primitive tumour of the parotid, the correct radiotherapy to the primary site will not be administered.¹

She is currently receiving systemic chemotherapy with targeted adjuvant radiotherapy, as this is associated with high levels of local tumour control. Other therapy modalities include superficial parotidectomy with either neck dissection or the preferred adjuvant radiotherapy alone. Due to the rarity of this condition, the evidence supporting therapy is limited.¹ One report estimated 2-, 5- and 10 year survival at 91%, 66% and 29% respectively for lymphoepithelial carcinoma of the salivary glands.¹⁰ Further research is needed to determine the effect of different treatment modalities on survival.

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