CLINICAL VIGNETTE

A Case of Metastatic Salivary Gland Carcinoma in Patient with NSCLC

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An 85-year-old gentleman with known metastatic right lung adenocarcinoma requiring lobectomy the year prior, presented with a new left sided facial droop, rhinorrhea, and burning sensation in his left eye. The patient had a significant smoking history but had quit 40 years ago. He also had a history of alcohol use and extensive vascular disease including chronic aortic dissection and prior strokes. He was evaluated by Neurology and Ophthalmology for his new left sided findings. An MRI of the brain and internal auditory canals four months after onset of symptoms was normal and he was diagnosed with Bell's palsy.

Over the next seven months, his left-sided facial and eyelid droop worsened and began to interfere with his vision. He was referred for a possible ptosis surgery, however, the preoperative MRI revealed a T1 hypointense enhancing mass within the left parotid gland concerning for a primary salivary gland neoplasm. The entire left parotid gland demonstrated increased T2 signal and hazy enhancement concerning for infiltrative tumor. A prominent enhancing 0.9 cm posterior left cervical lymph node was concerning for nodal metastasis.

Subsequent CT with Positron Emission Tomography (PET/CT) showed a moderate to intense metabolically active nodule deep in the left parotid gland compatible with neoplasm. Moderate active lymph nodes in the left lateral neck and in the posterior triangle region were suspicious for lymph node metastasis. Innumerable bilateral lung nodules consistent with neoplastic lesions were also noted.

A left lymph node biopsy showed parotid adenocarcinoma which was AR and HER2 positive. The patient was diagnosed with a primary salivary duct adenocarcinoma with metastasis to the lung.

He completed radiation therapy to the left parotid and neck region followed by Herceptin.

Surveillance PET/CT scan six months after his initial PET/CT showed interval resolution of a previously noted left parotid mass with no discrete soft tissue abnormality.

Background

Salivary gland tumors are not common and consist of about 6-8% of head and neck tumors.

The parotid gland is the most common site of all salivary gland tumors, consisting of about 80-85% of the cases.[1,2] About three quarters of parotid gland tumors are benign which leaves about 25% of them malignant.[3]

Compared to parotid gland tumors, about 40-45% of submandibular gland tumors, 70-90% of sublingual gland tumors and 5-75% of minor salivary gland tumors are malignant.

About half of all salivary tumors are pleomorphic adenomas, which are the most common benign salivary gland tumor. Mucoepidermoid carcinoma and adenoid cystic carcinoma consist about 50% of all malignant salivary gland tumors.[4-6]

Risk Factors

Several risk factors are associated with salivary gland tumors. Radiation exposure seems to correlate with both malignant and benign salivary gland tumors, based on data from Atomic bomb survivors in Japan.[7] Patients who received long-term radiation therapy for malignancy such as Hodgkin lymphoma are also at increased risk.[8,9] Smoking is another risk factor which is more associated with Warthin tumor.[10,11] Viral infections such as Epstein Barr Virus (EBV), Human immunodeficiency virus (HIV) and high-risk serotypes of Human Papilloma Virus (HPV) have also been associated with increased risk for salivary gland tumors as well.[12-15]

Other environmental and industrial exposures include: rubber manufacturing, hairdressing, and working with nickel compounds.[16,17]

Clinical Presentation

Clinical presentation largely depends on the site of origin and associated involvement of nearby structures.

Major salivary gland tumors usually have a painless presentation. Malignant tumors present more frequently with signs or symptoms of facial nerve involvement or paralysis compared to the benign ones.[18] Tumors with high malignancy potential have more likelihood of lymph node spread with intra-parotid lymph nodes being the initial site.[4] Lungs, bone and liver are the most frequent sites of distant metastases.[14] Metastases can be discovered even 10 to 20 years after treatment of more malignant lesions such as adenoid cystic carcinoma.[5]

Differential Diagnosis

The differential diagnosis of enlarged salivary glands include: salivary cysts, cysts of the first brachial cleft, salivary gland stones, Sjogren syndrome, metastases from other sites, lympho-epithelial cysts, chronic sclerosing sialadenitis and lymph-adenopathy from infection, inflammation, or malignancy. Less common causes of facial nerve paralysis include sarcoid infiltration of the parotid gland and intra-parotid facial nerve schwannoma.[15]

Presence of other neurological abnormalities or failure of improvement of the symptoms within a predicted time can distinguish Bell's palsy from malignant parotid tumors.[19]

Assessment

Physical exam should concentrate on mass size and focus on any underlying mobility or fixation of the mass to underlying structures. Evaluation of any areas of tenderness, limitations in jaw movements and any associated lymphadenopathy particularly in the cervical nodes should be documented. Evaluation should also include an assessment for any possible primary source of malignancy.[20]

Imaging

Both CT scan and MRI imaging are used to differentiate benign from malignant lesions as well as identify the degree of extension into surrounding tissues and the possible site of nodal/systemic metastases.[21,22] Boney lesions, including those in the temporal or mandibular bone, are best identified by CT. Soft tissue infiltration, peri-neural invasion and intracranial extension can be evaluated in more detail by MRI.[23] Regional lymph nodes and distant metastases can be accurately evaluated by PET imaging with flurodeoxyglucose (FDG).[24-26]

Ultrasound may be a timelier and more cost-effective initial mode of imaging and can be utilized in fine needle aspiration (FNA) and core needle biopsy procedures.[27-30] Of note, since Warthin tumor has a tendency for multifocality, both parotid glands should be imaged.[31]

Diagnosis

Salivary tumors will ultimately require a tissue diagnosis to differentiate between benign versus malignant tumors or lymphoma. Subsequent treatment plan will depend on the biopsy results.[2] Both ultrasound- guided fine needle aspiration and core needle biopsy are considered safe and simple in the evaluation of these tumors.[32,33]

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