Salivary Duct Carcinoma of Parotid Gland: A Rare Malignancy

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Abstract
Salivary duct carcinoma is an aggressive tumor with a worse prognosis. A 58-year-old patient diagnosed as salivary duct carcinoma of right parotid gland. He had total right parotidectomy and right neck lymph node dissection. There was no locoregional recurrence after postoperative radiotherapy for 12 months. He had severe back pain. Bone scan revealed multiple bone metastases. Despite therapy, the clinical outcome for salivary duct carcinoma is unsatisfactory.

Case Presentation
A 58-year-old man with no significant past medical history presented right side parotid mass. Tumor-related symptoms included progressive facial paralysis. Physical examination of patient showed a mass of the right parotid gland which was hard, non-movable and painless on palpation. Computed Tomography (CT) and MRI examination of neck showed 5 cm sized heterogeneously enhancing mass in right parotid gland and multiple enlarged lymphadenopathy with heterogeneous enhancement in right neck level II to V (Figure 1). Computed Tomography (CT) of Chest and Positron Emission Tomography (PET-CT) using 2-deoxy-2-[fluorine-18]-fluoro-D-glucose showed no distant metastasis. The needle biopsy proven histology of parotid gland was salivary duct carcinoma. A total right parotidectomy and right neck lymph node dissection was performed. On gross examination, parotid mass was 4.8 cm sized, ill-defined and firm. Microscopic examination showed salivary duct carcinoma extended to dermis of skin. Lymph nodes were infiltrated by the same malignant tumor in right level II, III, IV, V. All resection margins were free from tumor. He was scheduled for postoperative radiotherapy, consisting of parotid bed and right neck lymph node area with a total dose of 60 Gy in 30 fractions. The radiation therapy was delivered with 6-MV photons using Intensity-Modulated Radiotherapy (IMRT) Technique. There were no recurrences with 12 months of follow-up. At the time of 12 months after completion of treatment, he had severe back pain. A bone scan revealed multiple bone metastases (Figure 2). However, there was no recurrence of parotid and regional lymph nodes.

Figure 1: Neck CT at diagnosis.
Salivary duct carcinoma is an aggressive and rare disease with poor prognosis. Advanced stage at presentation was common. Despite multimodality therapy, the clinical outcome for salivary duct carcinoma is unsatisfactory. The rates of local and distant recurrence are high.

References

Discussion
Malignant tumors of the salivary glands account for approximately 3% of all head-and-neck cancers [4]. The parotid gland is most commonly involved site. Salivary duct carcinoma accounts for 1% to 6% of all parotid’s tumors [5]. Salivary duct carcinoma frequently involves the facial nerve and has a propensity to metastasize through the temporal bone via perineural spread [6]. Patients are usually elderly men with a mean age ranging between 55 to 61 years. It presents as a rapidly growing mass, which develops aggressively with possibilities of early distant metastases, local recurrence and high mortality. Facial paralysis is observed in 40% to 60% of cases. Lymphadenopathy is noted in 35% of cases [7]. Optimal management of salivary duct carcinoma is not well defined because of the limited data. However, many authors recommend total parotidectomy even in T1 tumors in parotid gland tumors. If facial paralysis is present, a radical parotidectomy is appropriate [8]. Postoperative radiation therapy is indicated in case of extra parotid extension, pathological resection margins, cervical lymph node metastasis and neurologic invasion. Chemotherapy is generally reserved for metastatic forms of the disease [9]. Kuroda et al. [10] reported the feasibility of both anti-androgen therapy and chemotherapy for a patient with advanced salivary duct carcinoma. Salivary duct carcinoma is an aggressive tumor with a worse prognosis. This is due to its metastatic potential. Nearly 50% of the patients die within 4 to 5 years. In the large study reviewed 50 patients of salivary duct carcinoma with a mean follow-up of 96 months. Most patients were male with mean age at diagnosis was 62.5 years, the primary site was the parotid gland, and two-thirds of the patients were initially with advanced disease. Most patients (56%) had cervical lymph node metastasis at diagnosis. Local recurrence was seen in 48% of patients only 17 months after treatment [11]. Johnston et al. [12] reported on 54 cases over 11 years, with a median follow-up of 5.7 years and a 5-year OS of 43%. Univariate analysis showed significantly decreased OS with N2b/c stage, ECS, and lymphovascular invasion, and multivariable analysis confirmed poor OS with N2b or N2c stage and demonstrated a trend for ECS. Johnston et al. [12] also reported a large comprehensive review of the major series with their study. Negative prognostic indicators associated with worse survival included PNI, vascular invasion, ECS, higher N stage, and facial nerve involvement [13,14].