Case Report
Presentation and Treatment of a Patient with Three Primary Head and Neck Cancers: A Case Report

Anna Jade Hartzog, Andrew Robichaux, and Lana Jackson

Department of Otolaryngology and Communicative Sciences, University of Mississippi Medical Center, Jackson, MS 39216, USA
Address correspondence to Anna Jade Hartzog, hartzog.anna@gmail.com

Received 30 October 2015; Accepted 16 May 2016

Copyright © 2016 Anna Jade Hartzog et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract
Triple primary head and neck carcinoma is a rare occurrence. In our case, a patient presented with early stage triple primary head and neck squamous cell carcinoma (HNSCC). Early stage HNSCC is usually treated with surgery and/or radiation. However, treatment of triple primary head and neck malignancies is not clearly defined in the literature, and although our patient presented with early stage lesions, our multidisciplinary team recommended concomitant chemoradiotherapy. Our patient subsequently had resolution of disease after completion of therapy but was lost to long-term follow-up.

Keywords field cancerization; head and neck squamous cell carcinoma; synchronous primary malignancy; chemoradiotherapy

1. Introduction
Slaughter et al. first described field cancerization of the head and neck in 1953. This concept refers to widespread epithelial damage and genetic alterations that lead to the subsequent development of multiple locoregional premalignant lesions, malignancies, and recurrence. Accrued tissue damage from the synergistic effects of carcinogens, such as tobacco and alcohol, accounts for field cancerization and synchronous lesions [1,2]. The mainstay of treatment for early stage (I and II) head and neck squamous cell carcinoma (HNSCC) has classically been single modality, whereas advanced stage cancers (III and IV) rely on multimodality treatment. However, the treatment of triple primary malignancies is not clearly defined in the literature. We describe the case of a 55-year-old white male with three synchronous primary malignancies of the left tonsil, right pyriform sinus, and right false vocal cord who was treated with concomitant chemotherapy and RT.

2. Case report
An otherwise healthy 55-year-old white male was referred to our Head and Neck Oncology clinic for evaluation of vocal cord mass. Upon presentation to our department, he reported dysphagia to solids, intermittent odynophagia, neck pain, 40 pack-year tobacco history, and daily alcohol abuse. Routine physical exam was benign. Flexible laryngoscopy revealed lesions on the right false vocal cord and the medial wall of the right pyriform sinus. Bilateral true vocal cords were mobile and symmetric. CT soft tissue neck revealed a mild nodularity and enhancement involving right false vocal cord with no cervical adenopathy (Figure 1); CT chest was benign for malignancy.

Direct laryngoscopy and esophagoscopy were discussed with the patient and consent obtained from the patient. The procedure revealed separate fullness and ulceration of the right false vocal cord. Flexible laryngoscopy revealed lesions on the right false vocal cord and the medial wall of the right pyriform sinus. Bilateral true vocal cords were mobile and symmetric. CT soft tissue neck revealed a mild nodularity and enhancement involving right false vocal cord with no cervical adenopathy (Figure 1); CT chest was benign for malignancy.

Figure 1: Admission CT scan showing coronal (a) and sagittal (b) views of right vocal cord lesion.
Figure 2: PET imaging showing coronal view of left tonsil and right false vocal cord lesions.

Figure 3: PET imaging showing axial view of left tonsil lesion.

Figure 4: PET imaging showing axial view of supraglottic lesion.

PET also revealed low-level uptake in bilateral level IIa nodes that was eventually deemed inconsequential. After review at our multidisciplinary Head and Neck Tumor Conference, his three synchronous primary malignancies were staged as T2N0M0 SCCa of the left tonsil, T1N0 SCCa of the right false cord, and T1N0 of the right pyriform sinus.

Concomitant chemoradiotherapy was recommended, and he consented to treatment. His primary tumors were treated to 7000cGy in 200cGy fractions, while at-risk nodal areas were treated to 5600cGy in 160cGy fractions. RT was completed four months after initial presentation. In addition, the patient received concurrent chemotherapy with Cisplatin 40 mg/m² IV. During treatment, the patient abstained from alcohol but continued to smoke. Cisplatin was discontinued after the 7th treatment secondary to acute kidney injury. A percutaneous endoscopic gastrostomy (PEG) tube was also placed for dysphagia and aspiration.

Flexible laryngoscopy was performed approximately one month after completion of radiation therapy and discontinuation of Cisplatin chemotherapy. His exam was unremarkable except for postradiation changes evident throughout the hypopharynx. Follow-up CT neck was performed approximately two months after completing treatment and showed resolution of vocal cord mass and no adenopathy.

Flexible laryngoscopy was repeated at four months post-treatment due to patient complaints of worsening of dysphonia, and no changes were noted from prior exam. Continued follow-up was recommended, but the patient was subsequently lost to follow-up and has expired. Attempts at contacting the family regarding cause of death were unsuccessful.

3. Discussion

Our patient presented with three synchronous primary HNSCC malignancies, a rare occurrence. The incidence of triple primary head and neck carcinoma is reported
at 0.5% [3]. The treatment of HNSCC varies based on a number of factors, including stage, location of lesions, age, functional status, morbidity, etc., and the treatment of triple primary malignancies is not clearly defined in the literature.

Presentation with early stage HNSCC is fairly common with up to 40% of patients presenting at this stage, and survival can be as high as 90% with treatment. Early stage cancer of this region is commonly treated with surgery, RT, or a combination of the two [4]. Both result in similar survival rates, and the preferred treatment is dependent on a number of factors including the location and size of the lesion as well as the amount of functional impairment caused by the treatment. Of note, a study by Chera et al. suggests that RT offers better functional outcomes compared to surgery in cases of early stage laryngeal cancer [5].

When comparing RT and surgery for early stage HNSCC, multiple studies have been performed that show equal effectiveness regarding five-year survival for early stage tonsillar, pyriform sinus, and false vocal cord malignancies. In the case of tonsillar lesions, Mendehall et al. found that radiation therapy resulted in five-year local control rates of 88% for T1 tumors and 84% for T2 tumors and was equal to surgery in regards to cure rates [6]. Rabbani et al. studied definitive RT for T1 and T2 squamous cell carcinoma of the pyriform sinuses, and like Mendenhall et al., they showed that RT has similar cure rates as surgery. They also found that 85% of patients had five-year local control with an overall survival rate of 35%, and overall local control with a functional larynx was found to be 83% [7]. In cases of supraglottic tumors, Hinerman et al. compared RT for supraglottic malignancies to other conservative therapies including supraglottic laryngectomy and found that RT resulted in five-year local control of 100% in T1 tumors and 86% in T2 tumors [8]. Both the primary tumor and surrounding areas are treated as prophylaxis for micrometastases when definitive RT is given. Interestingly, Rennemo et al. studied the recurrence rate of HNSCC tumors in patients with small localized SCCa of the oral cavity who received RT versus those who did not and found that the time to second primary tumor for those treated with RT was 8.6 years compared to 3.9 years in those without RT [9]. This is likely attributed to treatment of genetically altered areas secondary to the field cancerization effect.

In comparison to early stage HNSCC, locally advanced HNSCC is often treated with a combination of surgery, RT, and/or chemotherapy with chemoradiation being the recommended treatment for cases of unresectable disease [4]. As with early stage malignancies, organ and functional preservation with improved survival is of high importance. Pignon et al. performed a meta-analysis studying the use of chemotherapy in head and neck cancer, and the pooled data revealed that concurrent chemoradiation therapy had a greater survival benefit compared to induction and adjuvant chemotherapy. In addition, either Cisplatin alone or Cisplatin or Carboplatin combined with 5-Fluorouracil (5-FU) was found to be equally beneficial. However, if considering monotherapy, only Cisplatin showed superior benefit compared to other monotherapy agents [10]. Cisplatin therapy, however, is associated with significant toxicities including severe nausea and vomiting, ototoxicity, and nephrotoxicity, as seen in our patient.

4. Conclusion

The treatment protocol for triple primary malignancies of the head and neck is not clearly defined in the literature. We present a rare case of a patient with three early-stage primary HNSCC malignancies treated with concurrent radiation and Cisplatin chemotherapy. Although our patient’s lesions were considered early stage, chemotherapy was also incorporated as suggested by our multidisciplinary team management. As a result, the patient’s primary malignancies resolved, and the patient was cancer free four months posttreatment until lost to follow-up.

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

References