Laryngology Clinic: Solitary Tracheal Papilloma

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Case Description

A 60-year-old male was transferred to University of Illinois Health Services for further evaluation and management of stridor and dyspnea. He had been followed by his primary care provider and pulmonologist, but deteriorated clinically. He smoked 5 cigars annually and denied any illicit drug use, alcohol use, or occupational exposure to inhaled carcinogens. He had no history of asthma, allergies, or respiratory disorders, but he had been treated for gastroesophageal reflux disease and hypertension.

Physical examination was notable for fixed, expiratory, non-positional stridor, and mild respiratory distress. Computerized tomography with contrast of the neck showed a contrast-enhancing, midline 2.7 × 2.1 × 3.5 cm endotracheal soft tissue mass causing greater than 90% obstruction of the tracheal lumen. It did not span to adjacent structures. No associated lymphadenopathy was noted.

Surgical management began with an urgent tracheotomy and pan-endoscopy. The tracheotomy was performed low to bypass the mass. Biopsy specimens were collected after rigid bronchoscopy confirmed an irregularly shaped, papillomatous mass emanating from the posterior tracheal wall, and extending from the first tracheal ring superiorly to the third tracheal ring inferiorly (see Figure 1). These characteristics and the location of the mass raised suspicions for an aggressive lesion. So, we opted not to attempt complete removal during the initial case.

Figure 1. Intraoperative photograph of the tumor during the first debulking, May 2016.

Biopsies were read as squamous papillomas with high-grade squamous dysplasia, but negative for invasive carcinoma. A subtype screen was reported as low risk, 6, and 11. One specimen did reveal squamous cell carcinoma in situ. We returned to the operating room for a complete resection of the mass. Pathology reports remained negative for invasive carcinoma (see Figure 2). In the absence of a pathology specimen

Figure 2. High power view of the sample from this figure that reveals marked cytologic atypia suggestive of high-grade squamous intraepithelial dysplasia.

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confirming invasive squamous cell carcinoma, the patient was
decannulated.

Three months later, we removed recurrent papillomas
obstructing 75% of the lumen. Two months after that the
patient complained of soft tissue swelling near his tracheotomy
scar. In-office excisional biopsy of the neck mass confirmed an
intradermal papilloma with a high-grade squamous intraepithe-

tial lesion. Suspicion for transformation remained high. We
referred the patient to the head and neck surgical oncology
service where he underwent additional biopsies which were all
negative for malignancy.

The patient returned with a mass in the anterior neck that
was “coming through the skin” (Figure 3). Wide surgical exci-
sion was performed, and the final pathology report ultimately
confirmed the long-held suspicion for invasive squamous cell
carcinoma with only HPV type 6 identified.

Often the diagnosis of tracheal tumors is delayed because of
their slow-growing nature and nonspecific symptoms. Gaissert
et al demonstrated that the mean duration of symptoms prior to
diagnosis is 12.2 months.1 Delay of diagnosis can be greater
than 20 months from initial onset of symptoms.2 Clinicians
often treat presumed asthma, COPD, and pneumonia first. If
the tumor has invaded surrounding structures, symptoms
such as dysphagia and hoarseness also may be noted.2 This
patient’s tracheal mass was determined to be squamous papil-
loma. However, his disease recurred quickly and progressed to
SCCA in only a few months.

Recurrent respiratory papillomatosis (RRP) is commonly
attributed to persistent infection of the respiratory mucosal
epithelium by low-risk strains HPV 6 or 11. HPV-11 positive
RRP tends to present with a more aggressive clinical course,
but progression is often slow.3,4 HPV 11 RRP is also more
commonly associated with extralaryngeal spread of the disease
as compared with HPV 6 RRP.3,4 Still, the overall risk of RRP
malignant transformation is only 3% to 7%.4

We report this exceptional case to raise awareness on the
signs and symptoms associated with isolated tracheal masses as
well as the unique intradermal involvement and progression to
invasive squamous cell carcinoma. It is common to have a
patient present with nonspecific signs and symptoms associated
with isolated tracheal masses. The RRP should be included in
the differential diagnosis. For isolated tracheal RRP progressing
to cancer with dermal involvement, literature is scarce
regarding optimal medical and surgical management. We rec-
ommend remaining vigilant and highly suspicious of a malign-
nancy for rapidly recurring, locally extensive lesions. This is
important even if pathology specimens do not confirm serious
disease and even if the HPV isolated from the specimen is
considered low risk.

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Figure 3. Preoperative view of dermal lesion/invasive squamous cell
carcinoma.