Adenocarcinomas and salivary gland neoplasms of the larynx

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Introduction

Minor salivary gland tumors of the larynx are rare; only a few large series have been reported from a single institution. Therefore, details of their clinical and pathological behavior come only through composite analysis of small series. Less than 1% of the epithelial malignancies of the larynx are of salivary gland origin.

Subepithelial and intraepithelial glands

The sites of origin of the salivary gland neoplasms of the larynx follow the anatomical distribution of the larynx subepithelial glands and the intraepithelial mucous glands. Approximately two-thirds of the adenoid cystic carcinomas are in the subglottis. The other carcinomas, in contrast, are rarely subglottic, with supraglottic and transglottic involvement being nearly equal. The lower part of the glottic region shows the greatest differences in density of submucosal glands: 13 glands/cm² on the vocal cords to 128 glands/cm² on the false vocal cords and medial wall of Morgagni’s sinus. The greatest concentration of glands is in the saccule (139 glands/cm²). There is a very low density of glands in the extrinsic laryngeal regions. A typical intraepithelial gland is made up of 15-30 mucous-secreting cells with a structure like that of goblet cells. They extend from the epithelial surface down toward the basement membrane, on which they may rest, but do not penetrate. Irregularly distributed in the larynx, intraepithelial glands are most numerous in the supra-glottis and least numerous in the subglottis.

Salivary gland neoplasms

With the exception of adenoid cystic carcinomas, salivary-type carcinomas are rare in the larynx. Even pleomorphic adenosomas are almost curiosities in this organ.

Benign neoplasms

Benign laryngeal neoplasms are extremely unusual with exception of oncocytic lesions.

Oncocytic lesions (metaplasia, hyperplasia, oncocytoma)

Oncocytic lesions of the larynx occur most often in patients aged 50-80 years. A slight predominance of male patients exists. These lesions are most often located in the false Vocal cord or laryngeal ventricle areas. The microscopic findings in most cases suggest oncocytic metaplasia and cystic hyperplasia rather than neoplasia. Well-defined, columnar, oncocytic epithelium arises from seromucous ducts or acini and subsequently expands into cystic structures. Papillary growths into the cystic spaces are common. The process seems to be multifocal in the large majority of cases, and this contributes to the impression that this is a metaplastic process.

Pleomorphic adenoma

Certainly, the diagnosis of pleomorphic adenoma in this anatomic location should be entertained cautiously, and distinction from the many tumors that occur more frequently (e.g., adenoid cystic carcinomas, mucoepidermoid carcinoma and low-grade chondrosarcoma) should be foremost in the mind of the pathologist.

Other benign tumors

Myoepitheliomas have been rarely reported in the larynx. The morphology and clinical course have been identical to their counterpart in the major salivary glands.

Malignant neoplasms

Adenoid cystic carcinomas

Adenoid cystic carcinomas of the larynx comprise only about 0.25% of laryngeal carcinomas. The age range of occurrence is fairly wide, but they are found most often in the fourth to the sixth decades of life. The sex incidence is approximately equal. These laryngeal tumors most often occur in the subglottic area, but a substantial proportion are found supraglottically. Tumors of glottic origin are even less common. The histological features are the same as those seen with adenoid cystic carcinomas found at other sites. Total laryngectomy has generally been employed for treatment. Not unexpectedly, a high incidence (>50%) of local treatment failure does occur; thus postoperative radiotherapy may be beneficial. Because the reported incidence of lymph node metastasis is higher than that for adenoid cystic carcinomas elsewhere, some have recommended elective neck dissection.

Mucopidermoid carcinoma

The presenting signs and symptoms of laryngeal mucopidermoid carcinomas mimic those of squamous cell carcinoma of the larynx. Hoarseness is common and some patients have hemoptysis, foreign body sensation, dysphagia, or a neck mass. Reported lesions have varied in size from about 0.5-5.0 cm. Nothing in their gross appearance distinguishes them from squamous cell carcinomas. Microscopically, low-grade mucopidermoid carcinomas of the larynx resemble the same type of tumor found in other sites, and recognition is usually not too difficult. High-grade mucopidermoid carcinomas may resemble poorly differentiated squamous cell carcinomas. The behavior of these laryngeal tumors has been referred to as unpredictable. This may partly result from analyses that contain different numbers of high-grade adenosquamous carcinomas, which are often difficult to separate from mucopidermoid carcinomas. Although histological grading influences treatment, the most important factor in therapy is the clinical stage. Total laryngectomy has been the most frequently employed treatment, but appropriately small or limited lesions have been treated with vertical hemilaryngectomy or supraglottic laryngectomy. In the presence of clinically enlarged neck lymph nodes, neck dissection should generally be performed. On the basis of our own experience and that of the Armed Forces Institute of Pathology, it is safe to presume that except for low-grade mucopidermoid carcinomas, other supposed grades of that carcinoma in the larynx are much more likely to be adenosquamous carcinomas.

Adenosquamous carcinoma

This highly malignant neoplasm may arise from overlying surface mucous or from the ducts of minor salivary glands. Microscopically, adenocarcinomatous and squamous carcinomatous components should be present in a single neoplasm with intercellular bridges or keratin demonstrable in the squamous component. Approximately 40 cases have been reported in the larynx. However, the diagnostic criteria are not universally accepted, and some authors do not distinguish between adenosquamous and high-grade mucopidermoid carcinoma. Furthermore, whether primary adenosquamous carcinoma of the minor salivary glands exists is controversial, most authors consider this carcinoma of surface origin.

References

- Pinataro L, Brambille D, Scotti A. Carcinoma adenoidocistico delta laringe e dell'ipofaringe. Relazione su di un caso clinico e revisione della letteratura. Otorinolaringologia. 1993; 41: 141-144.

Gene alterations in precancerous and cancerous lesions of the larynx

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Stratified squamous epithelium is composed of several layers with distinct biological functions. Cells in the basal layer, which make contact with basal membrane, are stem cells with the ability to proliferate and provide new elements for the upper layers. However, the main proliferative activity is detected by Ki67 expression in cells located immediately above them. Going upwards, the prickle cell layer is the most populated, as well as the most morphologically characteristic. These cells are still metabolically active, their main function being the production of keratin. Cells that enter the prickle cell layer express p21WAF1 instead of Ki67, but this expression is transitory because it is seen only in the lower layers (1).

Appropriate mechanisms regulating cell growth and differentiation maintain the normal turnover that controls epithelial thickness, perhaps through cyclin-dependent kinase inhibitors (OKIs), such as p21WAF1. It is widely accepted that malignant transformation of squamous epithelium progresses through a number of steps, some of which can be morphologically recognized, such as the so-called...