

## Simultaneous Laryngeal Squamous Cell Carcinoma and Papillary Thyroid Carcinoma

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### Abstract

The association of squamous cell carcinoma of the larynx with thyroid papillary carcinoma is an unusual finding. From 2004 to 2011, approximately 250 patients underwent laryngectomies due to squamous cell carcinoma of the larynx at the Otolaryngology Department of Khalili Hospital, affiliated with Shiraz University of Medical Sciences, Shiraz, Iran. In three patients, synchronous occurrence of squamous cell carcinoma and thyroid papillary carcinoma was found. Histopathologic study of the lymph nodes revealed metastatic papillary thyroid carcinoma in one case.

We report three cases of thyroid papillary carcinoma incidentally found on histological examinations of resected thyroid lobes, as a procedure required for treatment of head and neck squamous cell carcinoma. In comparison, laryngeal squamous cell carcinoma needs more aggressive treatment than well-differentiated thyroid carcinoma.

The prevalence of thyroid papillary carcinoma, as an incidental finding in our study was 0.01%. Therefore, preoperative evaluation of the thyroid gland by ultrasonography and fine needle aspiration biopsy of suspicious lesions is recommended in patients who are candidates for open laryngectomy.

**Keywords:** Squamous cell carcinoma, Thyroid papillary carcinoma, Synchronous

### Introduction

The presence of synchronous malignant tumors in patients with squamous cell carcinoma (SCC) of the pharynx is not a rare event. This is important because it can decrease the overall survival or treatment

failure in patients with SCC.<sup>1</sup> Occult thyroid papillary carcinoma (TPC) is not uncommon and may occur in the population, with an incidence of 1%–10%. Autopsy studies in adults have reported a higher incidence rate of 35%.<sup>1</sup> It must be mentioned that

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most of these lesions never become clinically significant, and have an excellent prognosis.

Thyroid tissue may be found incidentally during the pathological study of neck dissection specimens from patients with squamous head and neck carcinoma. These inclusions may be morphologically compatible with lymph node metastases of a well-differentiated thyroid carcinoma, but in some cases they have the histological aspect of benign thyroid follicles. Some authors believe that all thyroid tissue found in the lateral neck nodes represents lymph node metastases from a primary thyroid carcinoma.<sup>2</sup> However, others have accepted the presence of benign thyroid tissue inclusions in cervical lymph nodes.<sup>3-6</sup> According to Rosai et al., replacement of more than one third of nodal architecture by thyroid tissue, involvement of several lymph nodes and presence of psammoma bodies are more in favor of metastases; the benign microscopic appearance is not important. On the other hand, if few small follicles are located beneath the nodal capsule with no cytoarchitectural features of papillary carcinoma, it is regarded as a benign inclusion.<sup>7</sup> Proper therapeutic management of such patients is also controversial.

The outcome for thyroid cancer is good. It is difficult, however, to locate the primary tumor in gross examination because of its extremely small size. On the other hand, an aggressive neoplasm such as SCC needs more supervision. In a review of the literature, there have been approximately 70 cases of incidental metastatic TPC in cervical lymph nodes dissected surgically during the treatment of head and neck SCCs.<sup>5,8-12</sup> The primary tumor is not always identified in partial or total thyroid dissections. In the majority of cases, the primary SCC arose in the larynx, hypopharynx or oral tongue. In this paper, we report our experience with simultaneous laryngeal SCC and TPC.

### Case reports

From 2004 to 2010, 250 patients were subjected to laryngectomies with radical or functional latero-cervical dissection for treatment

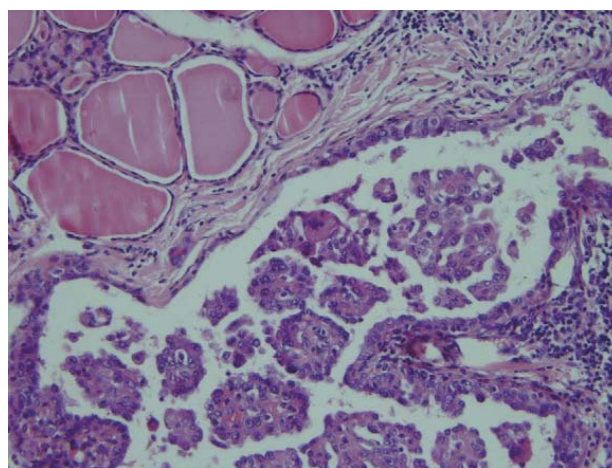
of SCC of the head and neck at the Otolaryngology Department of Khalili Hospital, affiliated with Shiraz University of Medical Sciences, Shiraz, Iran. In three patients, synchronous occurrence of SCC and TPC was found. Histopathologic studies of the lymph nodes revealed the presence of differentiated thyroid carcinoma in one patient. The larynx was the primary site in all patients. The thyroglobulin serum level is a routine practice for follow-up of thyroid cancer. Our patients were tested for thyroglobulin serum levels.

### Case 1

In August 2007, a 62-year-old man was subjected to total laryngectomy, left hemithyroidectomy with latero-cervical dissection for a moderately-differentiated SCC of the larynx, arising from the epiglottis. The resected lymph nodes showed reactive change. The left thyroid lobe presented with one, well-defined 3 cm nodule. Histologically, the thyroid revealed foci of papillary carcinoma (Figure 1). The patient received radio-chemotherapy and, until now, no recurrence was documented.

### Case 2

In January 2009, a 72-year-old man was subjected to total laryngectomy, total thyroidectomy and right latero-cervical dissection for a well-differentiated SCC of the larynx, arising from the right side of the glottis. No lymph node



**Figure 1.** Foci of well-differentiated papillary thyroid carcinoma in the thyroid gland. (H&E 400×)

metastases were detected. The right thyroid lobe presented two circumscribed nodules of 2 cm and 1.5 cm, that histologically revealed foci of papillary carcinoma. Ultrasound examination of the neck and upper thorax were negative. The patient received adjuvant therapy and is in good health after laryngectomy. He was treated with thyroxin and had a normal thyroid function test.

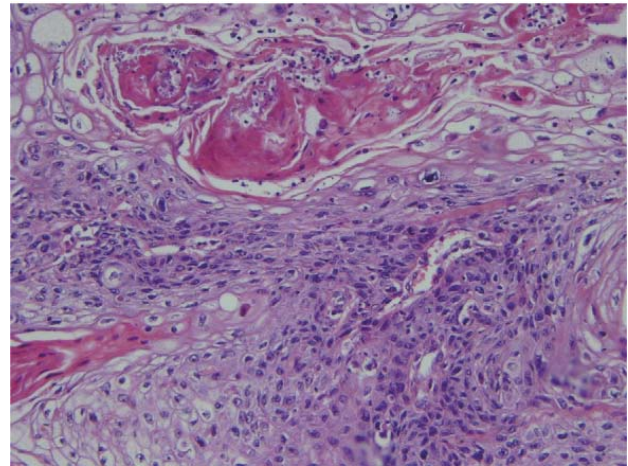
### Case 3

In February 2011, a 65-year-old man was subjected to total laryngectomy, left hemithyroidectomy and functional bi-lateral cervical lymph node dissection for a moderately differentiated SCC of the left pyriform sinus (Figure 2). A metastatic SCC in the supraomohyoid lymph node (level III) was detected. Histologically, the thyroid lobe was infiltrated by moderately differentiated SCC, while the two latero-cervical lymph nodes (level III) also revealed metastases of TPC (Figure 3). Upon examination of the thyroid lobe, the presence of a focus of papillary carcinoma was revealed. CT scan excluded other localizations of thyroid cancer in the neck and mediastinum. There were no abnormal findings in the distant metastatic work ups, including chest X-ray, whole body bone scan and abdominal ultrasonography. The patient underwent I131 radiotherapy treatment because of high serum thyroglobulin levels. He is alive and, until now, remains disease free.

### Discussion

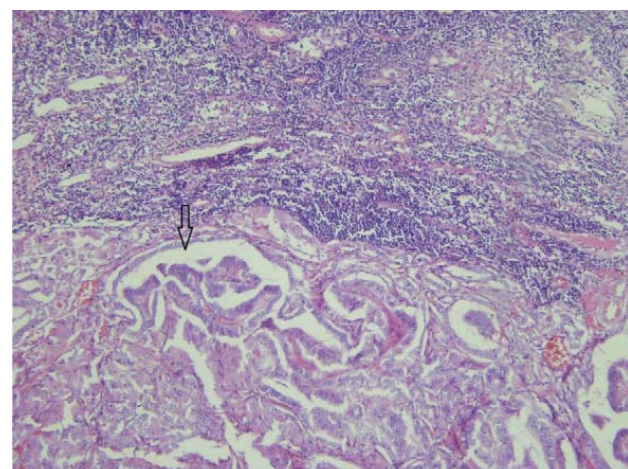
Laryngeal cancer is the most common type of head and neck cancer.<sup>10</sup> The occurrence of occult synchronous thyroid tumors in patients with laryngeal tumors has previously been reported.<sup>10</sup> There are also several reports of incidental metastases of well-differentiated thyroid carcinoma to the lymph nodes of patients with laryngeal SCC.<sup>8-12</sup> In previous studies with aberrant thyroid tissue in the lymph node, it is difficult to differentiate between lymph node metastases of occult thyroid carcinoma and benign thyroid inclusions in the lymph node.<sup>1</sup>

Thyroid neoplasms are often less aggressive than carcinoma of the head and neck, therefore,



**Figure 2.** Moderately differentiated laryngeal SCC. (H&E 400×) it is difficult to set up one type of treatment for these patients. Several treatment strategies have been suggested, but their results are conflicting. Gerard-Marchant et al. have suggested that local treatment of the thyroid and lymph nodes was sufficient, especially for small or clinically occult differentiated TPC.<sup>13</sup> Pitman et al. believed in radical thyroid surgery even if no recurrence of thyroid carcinomas was detected.<sup>10</sup> Farrag et al. believed that patients with laryngeal tumors might have occult synchronous thyroid lesions. They recommended routine preoperative evaluation of the thyroid gland, with ultrasonography for all patients with laryngeal tumors.<sup>11</sup>

In our study, three (0.01%) of 250 patients with laryngeal tumors who underwent laryngectomies had evidence of synchronous thyroid neoplasm. All underwent thyroidectomies



**Figure 3.** Metastatic papillary carcinoma in the lymph node (black arrow). (H&E, 400×)

because of the radical procedure required for the treatment of SCC. None presented with signs of disease related to thyroid carcinoma. For treatment of TPC, postoperative radioiodine scanning with radioablation of metastatic or persistent tumor was performed. Therefore, preoperative evaluation of the thyroid gland and image-guided needle biopsy of any suspicious lesions in patients who are candidates for laryngectomy is recommended.

### Conclusion

According to the prevalence of TPC (0.01%) as an incidental finding in our study and the fact that treatment of occult thyroid carcinoma is itself problematic, preoperative evaluation of the thyroid gland is recommended.

### Conflict of interest

The authors declare that they have no conflicts of interest.

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