



## Association of Laryngeal Squamous Cell Carcinoma and Papillary Thyroid Carcinoma: A Case Series of Four Patients



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### Abstract

The synchronous occurrence of laryngeal squamous cell carcinoma (LSCC) and papillary thyroid carcinoma (PTC) is rare and is most often discovered incidentally on histopathological examination of surgical specimens. We report a series of four cases illustrating this uncommon association, focusing on clinical presentation, histological findings, therapeutic management, and outcomes. Prognosis mainly depends on the laryngeal squamous cell carcinoma, while papillary thyroid carcinoma generally exhibits favorable behavior. In the absence of standardized management guidelines, a multidisciplinary and individualized therapeutic approach is essential.

**Keywords:** Laryngeal Squamous Cell Carcinoma; Papillary Thyroid Carcinoma; Synchronous Cancers; Thyroidectomy; Radiotherapy

### Introduction

Laryngeal squamous cell carcinoma (LSCC) is one of the most frequent malignancies of the upper aerodigestive tract and is strongly associated with tobacco exposure [1]. In contrast, papillary thyroid carcinoma (PTC) is the most common endocrine malignancy and usually carries an excellent prognosis [2].

The incidental or synchronous discovery of thyroid carcinoma during surgery for head and neck squamous cell carcinoma remains exceptional [3]. This association raises diagnostic, therapeutic, and prognostic challenges, particularly in the absence of well-established management guidelines [4].

We report four cases of LSCC associated with PTC and review their clinical, pathological, therapeutic, and prognostic characteristics.

### Case Reports

#### Case 1

A 62-year-old male chronic smoker was treated for laryngeal carcinoma involving the right vocal cord with extension to the anterior commissure and subglottic region. He underwent total laryngectomy with bilateral functional jugulo-carotid neck dissection, associated with right isthmolobectomy and right recurrent lymph node dissection.

Histopathological examination revealed a moderately differentiated LSCC associated with an incidental papillary thyroid carcinoma classified as pT1bN0Mx, without poor prognostic features. A completion total thyroidectomy was performed. The patient subsequently received external beam radiotherapy and brachytherapy, with favorable outcome.

#### Case 2

A 61-year-old chronic smoker presented with dysphonia for six months, complicated by cervical pain and dyspnea. Cervical CT scan revealed an infected glotto-subglottic tumor infiltrating the left thyroid lobe.

The patient underwent total laryngectomy associated with total thyroidectomy and bilateral central and lateral neck dissection. Histology showed a well-differentiated LSCC associated with papillary thyroid carcinoma with nodal metastases (pT1bN1aMx), classified as intermediate

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**Table 1:** Clinical, histological and therapeutic characteristics of the patients.

Parameters	Case 1	Case 2	Case 3	Case 4
Age (years)	62	61	68	65
Sex	Male	Male	Male	Male
Smoking status	Yes	Yes	Yes	Yes
Type of laryngeal cancer	Moderately differentiated LSCC	Well-differentiated LSCC	LSCC	Moderately differentiated LSCC
Subglottic extension	Yes	Yes	Yes	Yes
Type of thyroid cancer	Papillary thyroid carcinoma	Papillary thyroid carcinoma	Papillary thyroid carcinoma	Papillary thyroid carcinoma
PTC stage	pT1bN0	pT1bN1a	pT1	pT1
Mode of PTC discovery	Incidental	Incidental	Incidental	Incidental
Surgical treatment	Total laryngectomy + total thyroidectomy	Total laryngectomy + total thyroidectomy	Total laryngectomy + secondary total thyroidectomy	Total laryngectomy + total thyroidectomy
Radiotherapy	Yes	Yes	Yes	Yes
Outcome	Favorable	Stable	Favorable	Remission

**Abbreviations:** LT: Total laryngectomy; TT: Total thyroidectomy; LSCC: Laryngeal squamous cell carcinoma; PTC: Papillary thyroid carcinoma.

**Table 2:** Therapeutic management and outcomes.

Case	Laryngeal surgery	Thyroid surgery	Neck dissection	Radiotherapy	Thyroid-specific treatment	Outcome
1	Total laryngectomy	Completion total thyroidectomy	Bilateral	Yes	TSH suppression	Favorable
2	Total laryngectomy	Total thyroidectomy	Central + lateral	Yes	Considered	Stable disease
3	Total laryngectomy	Completion total thyroidectomy	No	Yes	TSH suppression	Favorable
4	Total laryngectomy	Total thyroidectomy	Bilateral	Yes	TSH suppression	Complete remission

risk of recurrence. External beam radiotherapy was administered. Pulmonary micronodular lesions were detected during staging.

### Case 3

A 68-year-old smoker underwent total laryngectomy for LSCC with subglottic extension. Ipsilateral hemithyroidectomy was performed. Histological examination revealed the association of LSCC and papillary thyroid carcinoma. Completion thyroidectomy was subsequently performed, with the contralateral lobe showing benign hyperplasia. Adjuvant radiotherapy was delivered.

### Case 4

A 65-year-old chronic smoker presented with progressive dysphonia. Endoscopic examination and biopsy confirmed LSCC. Imaging showed no distant metastasis. The patient underwent total laryngectomy with bilateral functional neck dissection and total thyroidectomy due to subglottic extension.

Histology confirmed moderately differentiated LSCC associated with papillary thyroid carcinoma classified as pT1NxMx, low-risk. External beam radiotherapy was administered for LSCC, along with TSH-suppressive therapy. The patient is currently in complete remission.

## Results

See Table 1 and 2.

## Discussion

The association of LSCC and PTC is rare, with most cases discovered incidentally during histological examination [5, 6]. Several hypotheses have been proposed, including shared carcinogenic exposure, field cancerization, or coincidental occurrence, although no causal relationship has been clearly established [7].

Prognosis is primarily determined by the behavior of the laryngeal

carcinoma, which is often aggressive and requires multimodal treatment [8]. In contrast, papillary thyroid carcinoma is generally indolent, especially when small and lacking adverse pathological features [9].

In the absence of standardized management guidelines, treatment should be individualized and discussed within a multidisciplinary team [10].

## Conclusion

Synchronous papillary thyroid carcinoma in patients undergoing surgery for laryngeal squamous cell carcinoma is rare and usually incidental. Prognosis mainly depends on the laryngeal carcinoma. Careful pathological examination of thyroid tissue and individualized multidisciplinary management are essential to optimize outcomes.

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