

## Case report

### **Haemoptysis: A presentation of papillary thyroid carcinoma**

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#### **Abstract**

Papillary thyroid carcinomas can be retrospectively diagnosed in patients, who are having metastatic disease with an occult primary lesion. A sixty-year-old female patient was investigated for haemoptysis and was found to have a tracheal lesion. Biopsy revealed a papillary carcinoma of the thyroid. Patient underwent total thyroidectomy with excision of the tracheal lesion and was followed up by adjuvant external beam radiotherapy (EBRT) and radioactive iodine (RAI) treatment. The detailed history, examination and investigations of neck and upper aerodigestive tract (ADT) are important for correct diagnosis of papillary thyroid microcarcinoma.

**Key words:** papillary thyroid microcarcinoma, haemoptysis, upper aerodigestive tract (ADT)

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## Introduction

Papillary thyroid carcinoma (PTC) is one variety of well differentiated malignant epithelial neoplasm. Approximately 80% of thyroid cancer are PTC. By definition papillary thyroid microcarcinoma are less than 1 cm in diameter. It might be a finding serendipitously detected on thyroid gland imaging incidentally or from thyroid glands which were removed for other pathology (latent carcinoma). Alternatively, can be found retrospectively in patients who are presenting with metastatic disease from an initially unsuspected small primary lesion (cryptic/ occult /covert carcinoma)<sup>1</sup>.

## Case Report

A sixty years old female patient had presented with haemoptysis. Her complaint was progressive worsening of, difficulty in breathing and haemoptysis for around 1 and a half year. She did not have radiation exposure in past. On examination she did not have a palpable goitre or cervical lymphadenopathy. She had mild inspiratory stridor after exertion. She was evaluated for that.

Her High resolution CT of chest revealed soft tissue density in upper trachea almost completely obstructing the lumen. Bronchoscopy revealed lesion arose from right tracheal wall with significant narrowing in tracheal lumen. Biopsy was taken from the tumour after restoring the airway with tracheostomy. Histology revealed, mucosal tumour compatible with a papillary carcinoma of the thyroid. Immunohistochemistry staining also revealed features that are consistent with a papillary carcinoma of the thyroid.

The patient was re-evaluated. Ultrasonography of neck showed normal size and echogenicity of thyroid. but a focus of calcification was noted in right lobe. Contrast enhanced CT neck showed a large exophytic mass in right upper trachea at C5-C6 level with a suspicious infiltration into the right lobe of the thyroid. (Ref Fig 1 and Fig 2) No appreciable cervical lymphadenopathy noted.

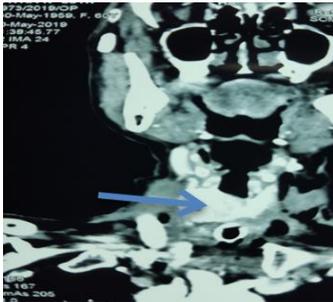


Fig 1: Coronal view

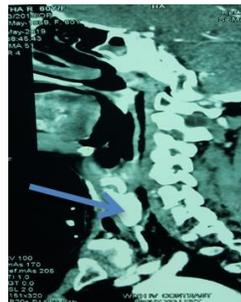


Fig 2: Sagittal View

A Multi-disciplinary team (MDT) decision was made and two treatment options were recommended

1. Total thyroidectomy with excision of tracheal lesion. Followed by adjuvant EBRT and RAI treatment.
2. Total laryngectomy followed by RAI.

The patient preferred the first option. Histology of the surgical specimen revealed classic papillary carcinoma with tracheal infiltration and positive excision margins. Pathological staging was pT4aN0. Patient was referred to Oncologist for EBRT and RAI as planned in the MDT meeting.

## **Discussion**

Promising prognosis and survival are well known in PTC. The incidence of upper ADT invasion by PTC is really low even though, it is adjacent to the thyroid gland. Once the upper ADT is invaded the mortality and morbidity will increase. The upper ADT invasion is classified as the T4a category by International Union Against Cancer<sup>2</sup>.

The prevalence of extrathyroidal extension in well-differentiated thyroid carcinoma differs (incidence reported from 6% to 13%)<sup>3</sup>. Most frequently extrathyroidal invasion arises from the primary tumour. However, it may also arise from metastatic disease (eg: extranodal extension). According to the incidence, the sites of local invasion in descending order are the strap muscles the recurrent laryngeal nerve and trachea. Tracheal invasion happens in one third of cases of locally invasive thyroid cancer<sup>3</sup>. Incidence of endotracheal metastasis from primary thyroid cancer is 0.8%<sup>5</sup>.

Patients with invasion of the ADT can exist with clear cut symptoms that direct the examiner to the site of invasion, for example hoarseness, haemoptysis, stridor or dysphagia<sup>3</sup>. Imaging examinations, which are usually performed in thyroid tumours with tracheal invasion are Ultrasound, CT, and magnetic resonance imaging<sup>2</sup>. But normal thyroid imaging may exist in these patients (25%)<sup>4</sup>. Our patient presented with progressive dyspnoea, haemoptysis and stridor without neck masses. Therefore, she was evaluated for tracheal tumour initially.

The tumours have specific antigenic features according to their primary site. Therefore, immunohistochemistry has a key role to determining the primary site in metastatic tumors<sup>4</sup> alike our patient. Tracheal invasion has been studied more comprehensively and characterically<sup>3</sup>. Our patient had stage IV invasion according to a staging system by Shin and colleagues<sup>3</sup>.

Complete surgical resection with negative margins is the backbone of therapy for locally advanced thyroid cancer. Though, significant morbidity can be accompanied with resection of critical structures in the complex neck bases. Therefore, one must balance the need of gross disease resection and the morbidity due to that resection. The morbidity of the extensive resection that may be necessary for locally invasive thyroid cancer has directed conservative approach using either shaving or peeling the tumour, aimed to preserving function. Such conservative approaches depend on postoperative RAI administration with or without EBRT to manage microscopic disease<sup>3</sup>. These patients may have better local failure-free survival rate (LFFS) with Adjuvant EBRT<sup>6</sup>. Our patient underwent the conservative approach and had positive excision margins. Therefore, adjuvant EBRT and RAI may give better LFFS to her.

## **Conclusion:**

When a patient presents with haemoptysis/hematemesis proper evaluation of the neck and upper ADT is important because it may be the first sign of a thyroid carcinoma. A high degree of suspicion is needed.

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