Extensive laryngeal infiltration from a neglected papillary thyroid carcinoma: A case report

Fanourios Georgiades, George Vasiliou, Efthimios Kyrodimos, Giannis Thrasyvoulou

Abstract

Papillary carcinoma of the thyroid is the commonest type of thyroid cancer. Laryngeal infiltration from papillary thyroid carcinoma is extremely rare, with only a few cases of partial invasion described in the literature. We present a very unusual case of complete infiltration of both thyroid and cricoid cartilages from a neglected papillary thyroid carcinoma in a 59-year-old male. This sequel resulted from refusal of the patient to undergo treatment when initially diagnosed. An invasion to such an extent has not been described in the literature before, and in this case warranted a total laryngectomy followed by radioactive iodine. Prompt management of papillary carcinomas is crucial for avoiding such complications. Future guidelines should include management options for the patients who deny treatment initially.

Key words: Papillary thyroid carcinoma; Laryngeal infiltration; Cricoid cartilage; Management; Complications

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Case report

Extensive laryngeal infiltration from a neglected papillary thyroid carcinoma: A case report

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Core tip: Aerodigestive tract invasion from a differentiated thyroid cancer is a very rare complication. This is the first case in the literature describing an infiltration to the thyroid and cricoid cartilages to such an extent, requiring a total laryngectomy followed by radioactive iodine treatment. Future guidelines should include management options for patients who refuse treatment
INTRODUCTION

To date laryngeal infiltration and specifically infiltration of the cricoid cartilage from papillary thyroid carcinoma is extremely rare[1]. Here we present an unusual case with complete infiltration of both thyroid and cricoid cartilages from a neglected papillary thyroid carcinoma. A few cases have been described in the literature[2-4], but never before to such extent.

CASE REPORT

A 59-year-old man presented to our outpatient clinic with a midline neck mass, stridor, dyspnoea, hoarseness and dysphagia. These symptoms developed gradually within the past year, with dyspnoea being his main concern. Fine needle aspiration of a thyroid nodule a year before revealed papillary carcinoma; however, due to serious health issues concerning his son and subsequent development of depression, he refused treatment at that time.

His past medical history included diabetes mellitus, hypertension, hypercholesterolaemia, depression, stage 3 chronic kidney disease and two acute myocardial infarctions, in 1992 and in 2010. In 1994, he had undergone coronary artery bypass graft surgery. He had a 40 pack-years smoking history and was consuming about 35 alcohol units per week for several years.

On examination he was tachypnoeic, with a breathy biphonic stridor and low oxygen saturations. The palpable midline neck mass was a non-tender, immobile, hard mass with irregular borders, extending below the anterior borders of the sternocleidomastoid muscle, without displacement of the trachea. Cervical lymph nodes were palpable bilaterally at levels II-IV and at level VI, with none in the posterior triangle. Flexible laryngoscopy demonstrated right vocal cord fixation and diffuse laryngeal oedema.

A neck computed tomography scan revealed a 5.5 cm × 2.5 cm irregular soft tissue mass at the level of the thyroid cartilage. Bilateral thyroid and cricoid cartilage infiltration was evident, more on the left thyroid cartilage lamina than the right (Figure 1). The mass had infiltrated the lumen of the larynx, decreasing the diameter of the airway to approximately 0.5 cm, with associated lymph nodes detectable bilaterally.

The patient underwent emergency tracheostomy, to secure the airway. Biopsies taken from the neck mass itself, a lymph node at level VI on the left side and from the first tracheal cartilage, confirmed the mass to be thyroid papillary carcinoma with metastatic lymph nodes at level VI. The multidisciplinary team meeting decided to proceed with a total laryngectomy, a total thyroideectomy and a selective bilateral neck dissection of levels II-IV and VI. The oncologists suggested an ablative dose of radioactive iodine post-operatively.

A wide-field total laryngectomy approach was followed. The infiltration was readily visible intraoperatively (Figure 2A). A tracheo-oesophageal puncture was made with primary placement of a voice prosthesis. Histology, from the completely excised mass and larynx (Figure 2B), further established the well-differentiated papillary thyroid carcinoma that was infiltrating thyroid and cricoid cartilages of the larynx, the true and false vocal cords bilaterally with level II lymph nodes metastases on the left side and an area with dermal metastasis. The surgical limits and lymph nodes, at levels III and IV on the left side, levels II-IV on the right side and centrally, were clear of metastases.

At 13 mo post-op, the patient had completed his radioactive iodine treatment course, without any signs of relapse. He had weekly sessions with the speech and language therapists and was using his speech valve to communicate.

DISCUSSION

To date, laryngeal infiltration and specifically infiltration during the initial stages of the disease.
The patient ended up with a permanent tracheostomy, as by respecting this particular patient’s autonomy, the situation raises many medico-legal and ethical issues, rendering him unable to take care of his family. This was especially from his father. Our patient was reluctant to pursue any sort of treatment, as that would have compromised both his quality of life and life expectancy. Does the liability remain with the patient or with the medical team?

A multidisciplinary approach is needed for the management of such advanced cases, as recommended by current guidelines. However, the lack of management options from the guidelines, created an uncertainty into the actual management of this patient; due to the difficult social circumstances, as described above. Therefore, we recommend an imperative role of primary care physicians (e.g., general practitioners), community nursing services and/or healthcare visitors assisting in the management of such patients in the community; with prompt referral to secondary care services, prior to development of haemodynamic abnormalities, as seen in this case. Moreover, this case has allowed us to observe the natural progression of a well-differentiated papillary carcinoma, from a nodule to a large mass invading the aerodigestive tract in just 12 mo.

The above case highlights the importance of early active management of thyroid carcinomas, as extensive laryngeal infiltration could be one of the possible outcomes. An infiltration to such an extent warrants the management of such patients in the community; due to the difficulty of recruiting of such advanced cases, as recommended by current guidelines. However, the lack of management options from the guidelines, created an uncertainty into the actual management of this patient; due to the difficult social circumstances, as described above. Therefore, we recommend an imperative role of primary care physicians (e.g., general practitioners), community nursing services and/or healthcare visitors assisting in the management of such patients in the community; with prompt referral to secondary care services, prior to development of haemodynamic abnormalities, as seen in this case. Moreover, this case has allowed us to observe the natural progression of a well-differentiated papillary carcinoma, from a nodule to a large mass invading the aerodigestive tract in just 12 mo.

The above case highlights the importance of early active management of thyroid carcinomas, as extensive laryngeal infiltration could be one of the possible outcomes. An infiltration to such an extent warrants a total laryngectomy followed by radioactive iodine treatment for any residual malignant cells. However, further follow-up is required to assess the efficacy of such management plan.

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The authors would like to thank the patient for agreeing to share this information about his condition.

COMMENTS

Case characteristics
A patient presented with a midline neck mass, stridor, dyspnoea, hoarseness and dysphagia.

Clinical diagnosis
Upper airway obstruction from a large midline neck mass with associated lymphadenopathy.

Differential diagnosis
Any type of thyroid malignancy, lymphoma, benign thyroid disease, sarcomas, infections.

Figure 2 Intra-operative image showing the extent of the thyroid mass with absence of the thyroid cartilage (white arrow) (A) and posterior view of the excised larynx held by the clamps from the epiglottis (†) showed complete absence of the thyroid cartilage on the left (black arrow) some remnants of the thyroid cartilage on the right (‡) and posterior infiltration of the cricoid cartilage (arrow heads) (B).
Laboratory diagnosis
Initial blood tests revealed a hypochromic, normocytic anaemia, elevated glucose and serum cholesterol levels.

Imaging diagnosis
Computed tomography scan of the neck revealed a large mass infiltrating both the thyroid and cricoid cartilages.

Pathological diagnosis
Histology revealed a papillary thyroid carcinoma invading the thyroid and cricoid cartilage.

Treatment
Total laryngectomy followed by radioactive iodine treatment.

Related reports
Patient had a thyroid nodule 1 year prior to his presentation to us, which was investigate by fine-needle aspiration (FNA) to reveal a papillary thyroid carcinoma. Patient was reluctant to undergo any treatment due to specific social circumstances and refused follow-up. A year later he presented with advanced disease and symptoms warranting treatment.

Term explanation
FNA refers to fine needle aspiration. Laryngectomy involves removing the whole of the larynx and part of the proximal trachea, leaving an opening of the trachea superior to the sternal notch.

Experience and lessons
Patients who refuse treatment in the initial stages of the disease should be followed up in the community and referred to secondary care in a timely manner.

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