JSCR Journal of Surgical Case Reports

Journal of Surgical Case Reports, 2014;12, 1–3

doi: 10.1093/jscr/rju133
Case Report

CASE REPORT

Primary squamous cell carcinoma of the thyroid gland

Konstantinos Sapalidis[1,*], Iraklis Anastasiadis[1], Nicolas Panteli[1], Titika-Marina Strati[1], Lazaros Liavas[1], Christos Poulios[2], and Ioannis Kanellos[1]

[1]3rd Department of Surgery, AHEPA University Hospital, Aristotle University of Thessaloniki, Thessaloniki, Greece, and [2]Department of Pathology, Faculty of Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece

*Correspondence address. 3rd Department of Surgery, AHEPA University Hospital, Thessaloniki, Greece. Tel: +30-2310-994644; E-mail: sapalidis@med.auth.gr

Abstract

Primary squamous cell carcinoma (SCC) of the thyroid gland is a very rare entity representing <1% of all primary carcinomas of the thyroid gland with a very poor prognosis. We report a rare case of a 65-year-old woman with SCC of the thyroid gland, emphasizing the postoperative complications and poor prognosis of these patients. Surgical excision of primary SCC of the thyroid gland when possible is the optimal therapy. Chemo- and radiotherapy rarely have place in its treatment as this malignancy has a poor response to chemotherapy and in many cases is radio-resistant. Median survival of these patients is around 6 months.

INTRODUCTION

Primary squamous cell carcinoma (SCC) of the thyroid gland is a very rare entity representing <1% of all primary carcinomas of the thyroid gland [1, 2]. Only a few cases are reported in the international literature and it is described as a very aggressive tumor with a poor prognosis. Overall survival usually does not exceed 6 months after the time of diagnosis. The aim of this study is to report the case of a SCC of the thyroid gland in a 65-year-old woman, emphasizing the postoperative complications and poor prognosis of these patients.

CASE REPORT

A 65-year-old female patient with a 20-year history of thyroid goiter was admitted to our clinic due to progressive neck enlargement for the past 2 months. Her previous medical history revealed only hypertension. Her weight was stable and she was a smoker for 26 years (19–45 years old). On physical examination, her vital signs were stable. A fixed hard neck mass was palpable in the left thyroid lobe. There was no palpable cervical lymphadenopathy, and examination of chest, heart, nervous system and abdomen was normal. Thyroid ultrasound was performed revealing a mass of the left lobe measuring $4.5 \times 5.2 \times 5.9$ cm with retrosternal extension. The ultrasound also showed the presence of enlarged lymph nodes in the left neck. Fine needle aspiration (FNA) cytology was performed which showed no definite signs of malignancy. The patient was scheduled for operation and underwent total thyroidectomy. The recurrent nerves were identified and preserved in both sides. The excision of the thyroid gland (Fig. 1) was accompanied by six enlarged lymph nodes that seemed to be suspicious during the surgical procedure. No infiltration of adjacent organs (esophagus, trachea and carotid) was noted intraoperatively. The patient's hospitalization was uneventful and was discharged on the second postoperative day.

Histological examination showed the presence of moderately differentiated SCC which infiltrated mainly the left and focally the right lobe of the thyroid gland (Fig. 2). Large areas of fibrosis with hyalinization, calcification, bone formation and foci of necrosis were observed. Possibly due to the formerly mentioned lesions, the cytological aspiration was negative for malignancy.

Received: September 16, 2014. **Revised:** November 2, 2014. **Accepted:** November 5, 2014

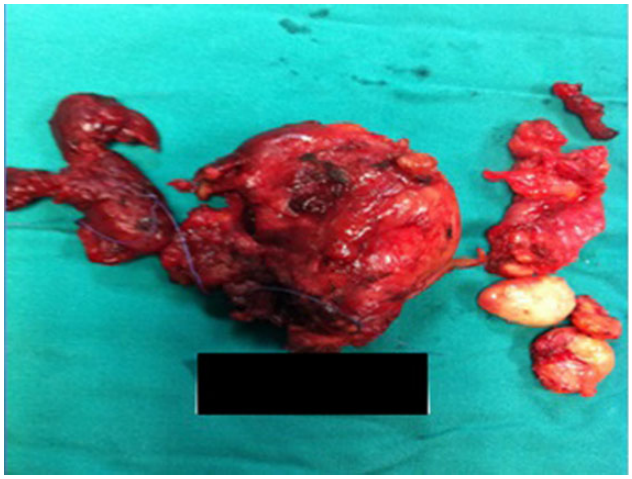

Figure 1: Surgical specimen: thyroid gland with an enlarged left lobe (retrosternal extension).

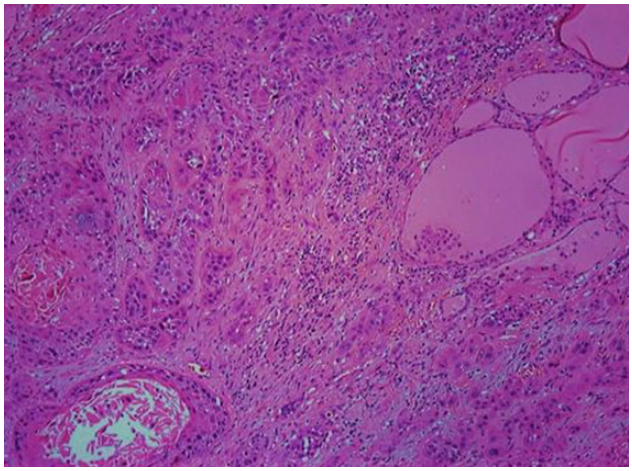

Figure 2: H/E ×100 section from the left lobe of the thyroid gland showing infiltrative SCC.

Out of the six resected lymph nodes, three showed metastasis of the SCC. Neoplastic cells were also observed in the perilymphnodal lipoid tissue. Sections from other sites of the thyroid showed goiter-like lesions with no signs of Hashimoto's thyroiditis or any other neoplasm. On the basis of the above results, the patient was referred for further treatment to an oncology clinic.

A month after surgery the patient was again admitted with painful enlargement in the left neck. Ear–nose and throat field examination was performed showing left vocal cord paresis. Esophagogastroduodenoscopy was performed, due to the presence of enlarged lymph nodes in the left supraclavicular fossa, with no significant findings. CT of the neck and thorax revealed a 6.2-cm-diameter mass infiltrating the trachea and the surrounding soft tissue (Fig. 3), as well as the presence of lymph nodes in the mediastinum and metastatic foci in the right lung (Fig. 4). MRI of the head and neck showed the presence of stenosis in the subglottic part of the larynx, the upper part of the trachea and extensive lymphadenopathy in the left neck, with enlargement of isthmus and left lobe areas. Finally, one and a half month after surgery, tracheostomy was performed due to airway compromise.

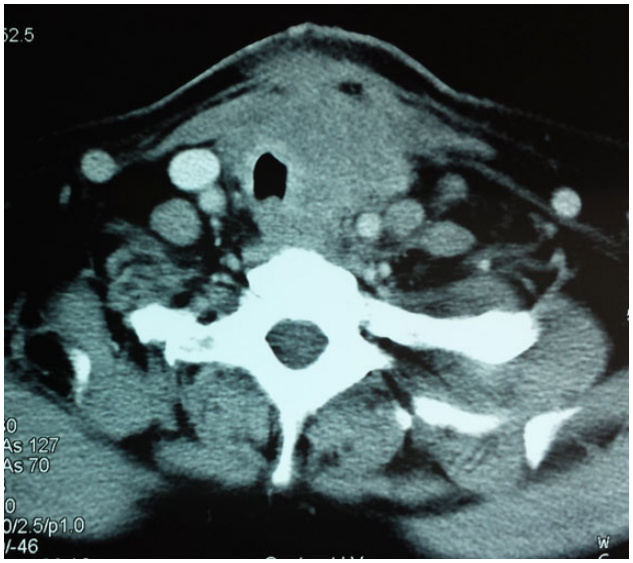

Figure 3: A CT scan showing a 6.2-cm mass pressuring and infiltrating the trachea and surrounding soft tissue.

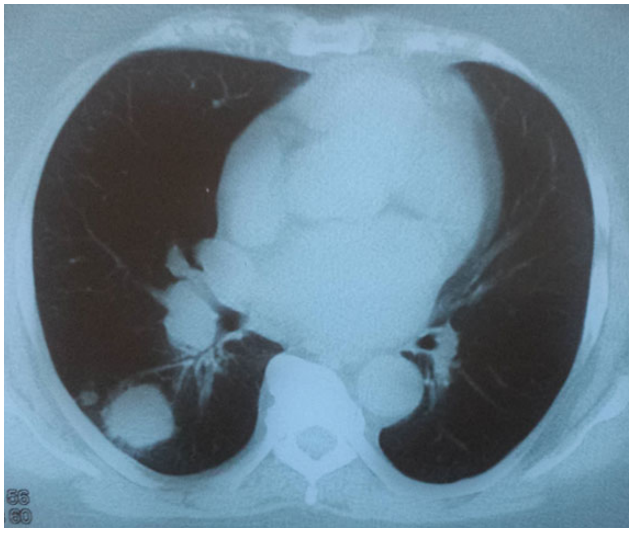

Figure 4: A CT scan showing metastasis to the right lung.

Patient was submitted to adjuvant chemotherapy as well as radiation therapy. She underwent two cycles of chemotherapy with cisplatin 70 mg/kg once a week with concomitant radiotherapy, which was abruptly terminated because of toxicity. Patient died 5 months after the surgery due to airway compromise (direct infiltration of tumor to trachea causing airway obstruction).

DISCUSSION

A primary SCC of the thyroid is rare, representing <1% of all primary thyroid carcinomas [1, 2]. Due to its rarity, only few case reports are reported in the international literature [3]. It is considered to be highly aggressive with a poor prognosis [4]. SCC affects usually older patients between the fifth and sixth decade and is usually associated with a history of goiter. In the majority of cases, the patients present at the time of diagnosis with a rapidly enlarged neck mass, followed by symptoms of

infiltration and compression of adjacent neck structures (dyspnea and hoarseness). Infiltration of cervical lymph nodes may or may not be present.

Carcinoma showing thymus-like elements (CASTLE) disease of the thyroid gland, anaplastic thyroid carcinoma and metastasis from adjacent organs should be considered in the differential diagnosis. SCC is of unknown etiology, as the thyroid gland normally lacks squamous epithelium. Several theories have been suggested regarding its etiology. However, three theories have been postulated. First, the embryonic nest theory suggests that the squamous cells are derived from the remnants of thyroglossal duct or the epithelium of the thymus [5]. Secondly, the metaplasia theory suggests that these cells present as a result of environmental stimuli (inflammation and Hashimoto's thyroiditis) [6]. Thirdly, the de-differentiation theory suggests that existing papillary, follicular, medullary and anaplastic thyroid carcinoma de-differentiate into SCC [7].

Surgical excision of primary thyroid SCC with adjuvant radiotherapy and chemotherapy is the optimal treatment. However, many studies suggest that it is relatively radio-resistant and has poor response to chemotherapy [4, 8], leaving complete surgical excision the only chance of prolonging survival of these patients [9]. Patients with primary thyroid SCC have a very poor prognosis and the main cause of death is respiratory interference by direct invasion or compression of the trachea [10].

Cho *et al*., recently, performed a systematic review and individual participant data meta-analysis regarding primary SCC of the thyroid gland. According to this meta-analysis (89 patients), the mean age of diagnosis was 63 years (range, 24–90), a female preponderance (M : F = 1:2) was noted and the commonest complaint was the anterior neck mass. It was noted that predictability of diagnosis with fine needle aspiration cytology was accurate in less than one-third of the patients and more than half of cases had been diagnosed as papillary thyroid carcinoma or were non-diagnostic (as in our case). Complete surgical resection (Ro) of the tumor was the only significant prognostic factor in multivariable analysis, and the benefit of adjuvant treatment was not proved. Moreover, the prognosis of these patients was very poor (only 20% in 3 year survival rate) [11].

SCC of the thyroid gland is a very rare and aggressive entity with poor prognosis. Complete surgical resection (Ro) of the tumor is the only significant prognostic factor, whereas efficacy of adjuvant treatment (chemo- and radiotherapy) remains controversial in the international literature. A fatal outcome is usually a result of its complications, due to loco-regional spread of the disease to adjacent organs and structures.

CONFLICT OF INTEREST STATEMENT

None declared.

REFERENCES

1. Korovin GS, Kuriloff DB, Cho HT, Sobol SM. Squamous cell carcinoma of the thyroid: a diagnostic dilemma. *Ann Otol Rhinol Laryngol* 1989;**98**:59–65.
2. Lam KY, Lo CY, Liu MC. Primary squamous cell carcinoma of the thyroid gland: an entity with aggressive clinical behaviour and distinctive cytokeratin expression profiles. *Histopathology* 2001;**39**:279–86.
3. Tunio MA, Al Asiri M, Fagih M, Akasha R. Primary squamous cell carcinoma of thyroid: a case report and review of literature. *Head Neck Oncol* 2012;**4**:8.
4. Syed MI, Stewart M, Syed S, Dahill S, Adams C, McLellan DR, et al. Squamous cell carcinoma of the thyroid gland: primary or secondary disease? *J Laryngol Otol* 2011;**125**:3–9.
5. Goldberg HM, Harrey P. Squamous cell cysts of the thyroid with special reference to the etiology of squamous epithelium in the human thyroid. *Br J Surg* 1956;**43**:565–9.
6. Chaudhary RK, Barnes EL, Myers EN. Squamous cell carcinoma arising in Hashimoto's thyroiditis. *Head Neck* 1994; **16**:582–5.
7. Kebapci N, Efe B, Kabukcuoglu S, Akalin A, Kebapci M. Diffuse sclerosing variant of papillary thyroid carcinoma with papillary squamous cell carcinoma. *J Endocr Invest* 2002;**25**:730–4.
8. Sarda AK, Bal S, Arunabh, Singh MK, Kapur MM. Squamous cell carcinoma of the thyroid. *J Surg Oncol* 1988;**39**:175–8.
9. Cook AM, Vini L, Harmer C. Squamous cell carcinoma of the thyroid: Outcome of treatment in 16 patients. *Eur J Surg Oncol* 1999;**25**:606–9.
10. Simpson WJ, Carruthers TH. Squamous cell carcinoma of thyroid gland. *Am J Surg* 1988;**156**:44–6.
11. Cho JK, Woo SH, Park J, Kim MJ, Jeong HS. Primary squamous cell carcinomas in the thyroid gland: an individual participant data meta-analysis. *Cancer Med* 2014.