

Case Report

Primary squamous carcinoma of the Thyroid

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Accepted 14 January 2000

Primary squamous carcinoma of the thyroid gland is a rare condition accounting for less than 1% of all thyroid malignancies.^{1,2} Although most frequently seen in the fifth and sixth decades, the tumour may arise in patients across a wide age distribution.³ Squamous carcinoma of thyroid is associated with a poor prognosis, most patients dying within one year of diagnosis.^{1,3} Overall, metastatic squamous carcinoma involving the thyroid is more common than the development of a primary tumour. It is therefore mandatory, when squamous carcinoma is identified within the thyroid, to exclude the possibility of a primary tumour elsewhere before concluding that the neoplasm is arising *de novo* within the gland.

CASE REPORT A 48-year-old male presented to an ENT Clinic because of pain in the left ear, a sore throat, a lump on the left side of his neck and hoarseness. On examination he had a "breathy" voice and was unable to produce a normal explosive cough. Palpation of the neck revealed a hard lymph node in the left upper cervical chain and a left sided goitre.

Indirect laryngoscopy confirmed a paralysed left vocal cord and computed tomography demonstrated a mass in the left lobe of thyroid, with displacement of the trachea and oesophagus to the right. In addition, multiple enlarged lymph nodes in the region of the left carotid sheath were identified. Isotope scintigraphy of the thyroid showed a non-functioning nodule almost completely replacing the left lobe of the gland. Fine needle aspiration for cytology revealed poorly differentiated carcinoma.

The patient was admitted for surgical exploration of the neck. At operation the right thyroid lobe was grossly normal. Multiple enlarged lymph nodes were easily palpable on the left side of the neck and the left thyroid lobe was replaced by a hard tumour mass. Wedge biopsy was performed and frozen section examination was reported as showing "carcinoma, probably anaplastic". Total

thyroidectomy was carried out, although it was recognised that there was residual tumour present along the left lateral border of both the trachea and oesophagus. The left lateral neck was now opened and a formal modified radical neck dissection carried out with removal of all tissue from a level above the clavicle up to the angle and lower border of the mandible. Multiple metastatic nodes were removed. The lymph nodes in the midneck were densely adherent to the internal jugular vein and the vein was therefore transixed and resected in continuity. Following the procedure, all gross tumour in the left lateral neck had been removed. Post-operatively the patient progressed satisfactorily and without major complication.



Fig a. Photomicrograph showing normal thyroid tissue (arrow) and invading poorly differentiated squamous carcinoma.

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Definitive histopathology revealed poorly differentiated tumour, composed of collections of large pleomorphic cells (Figure). There was evidence of both lymphovascular invasion and perineural spread. The tumour cells were largely negative on immunostaining for thyroglobulin and the neuroendocrine markers calcitonin and chromogranin A. Foci of keratinisation were identified and the overall features suggested a diagnosis of primary squamous cell carcinoma of thyroid with nodal metastases.

Barium meal and CT scanning of the chest revealed no evidence of a primary tumour within the oesophagus or lung fields, and comprehensive ENT assessment was negative. The patient was commenced on thyroxine 100 ug daily, and following consultation with the oncologists, commenced a course of radical radiotherapy to the left side of his neck.

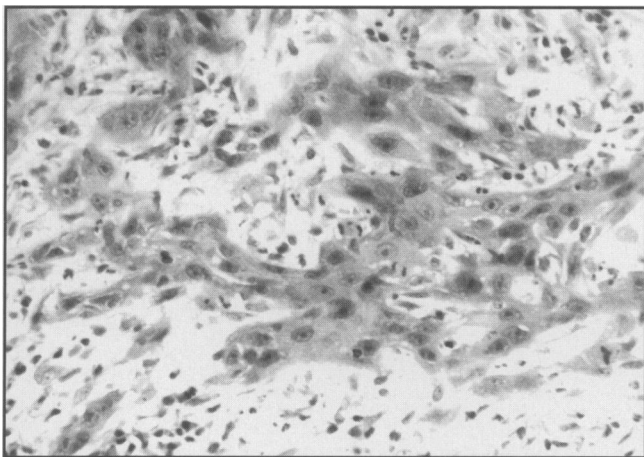


Fig b. High power view of poorly differentiated squamous carcinoma.

At three month review a hard mobile mass was detected in the patient's left axilla and he was therefore readmitted and axillary clearance carried out. The histology report revealed poorly differentiated carcinoma within multiple lymph nodes. Repeat CT scan of the chest and upper abdomen now demonstrated wide-spread metastatic deposits throughout both lung fields and a solitary liver metastasis. In light of these findings a course of cisplatin was advised and administered.

Unfortunately, the patient developed dysphagia, and a stricture at the level of the previous thyroid surgery was confirmed radiologically. His general condition and his swallowing deteriorated further and palliative gastrostomy was carried out. The

patient died eight months after his initial operation.

DISCUSSION

Primary squamous cell carcinoma of the thyroid is a rare but aggressive tumour which must be distinguished from papillary and follicular carcinoma, each of which is associated with good prognosis. Squamous metaplasia may occasionally be seen within papillary cancers.⁴ Histologically, squamous carcinoma of thyroid may be 'pure' or demonstrate both squamous and glandular elements.^{2,4} When squamous carcinoma is diagnosed, the possibility of the tumour arising from an adjacent structure such as the oesophagus, or representing a metastasis from a primary growth elsewhere, must be considered.

Speculation regarding the origin of squamous carcinoma of the thyroid includes the suggestions that the neoplasm arises from thyroglossal duct remnants, develops following squamous metaplastic change within thyroiditis or occurs as a consequence of transitional changes in differentiated or anaplastic thyroid cancer.^{2,4,5} In our patient, histological examination of the specimen revealed a poorly differentiated tumour with collections of large pleomorphic cells and foci of keratinisation – features of squamous cell carcinoma (Figure). These findings were present in both the left lobe of thyroid and the resected lymph nodes.

Frequently, patients with squamous cell carcinoma present with advanced local disease, which may include invasion of muscle, trachea, great vessels and other organs thus rendering excision difficult or impossible. Distant metastases, especially to the lungs, are often present at diagnosis or appear shortly thereafter. Patients with well differentiated tumours fare no better than those with poorly differentiated lesions and few individuals survive one year.³ Shimaoka and Tsukada reported a better prognosis for patients with adenosquamous cancers when compared to patients with 'pure' squamous cell tumours, particularly if the squamous component was only a minor part of a predominantly papillary or follicular adenocarcinoma.⁴

The few patients with long term survival reported in the literature have undergone radical surgery alone or in combination with radiotherapy.³ To date chemotherapy has not been shown to be of benefit in this condition. Simpson & Caruthers

noted no benefit in two patients treated with adriamycin nor in another treated with 5-fluorouracil and mitomycin,³ while Shimaoka & Tsukada failed to achieve a response in three patients treated with nitrogen mustard, vincristine and AB-132, respectively.⁴

Cisplatin has been shown to have benefited patients suffering from other squamous cell cancers of the head and neck⁶ but, to date, no information is available on its use in squamous carcinoma of thyroid. On the basis of current knowledge and the limited reported experience in dealing with this unusual tumour, we advise a radical surgical approach for the patient in whom primary squamous carcinoma of thyroid is diagnosed. Total thyroidectomy and resection of all gross tumour should be attempted and if advanced local disease is present, then maximum possible debulking should be performed. Metastatic lymph nodes in the lateral neck should be dealt with by formal neck dissection, sparing the internal jugular vein and sternomastoid muscle if possible. In the absence of systemic metastases, conventional wisdom would suggest that adjunctive external irradiation to the neck and superior mediastinum is appropriate but the usefulness of supplementary chemotherapy in these unfortunate patients is, to date, unsubstantiated.

REFERENCES

1. Korovin G, Kuriloff D, Cho H, Sobol S. Squamous cell carcinoma of the thyroid – a diagnostic dilemma. *Ann Otol Rhinol Laryngol* 1989; **98**: 59-65.
2. Harada T, Shimaoka K, Katagiri M, Shimizu M, Hosoda Y, Ito K. Rarity of squamous cell carcinoma of the thyroid: autopsy review. *World J Surg* 1994; **18**: 542-6.
3. Simpson J, Carruthers J. Squamous cell carcinoma of the thyroid gland. *Am J Surg* 1998; **156**: 44-6.
4. Shimoaka K, Tsukada Y. Squamous cell carcinomas and adenosquamous carcinomas originating from the thyroid gland. *Cancer* 1980; **46**: 1833-42.
5. Harcourt-Webster J. Squamous epithelium in the human thyroid gland. *J Clin Pathol* 1996; **19**: 384-8.
6. Planting A S, de Mulder P H, de Graeff A, Verweij J. Phase II study of weekly high-dose cisplatin for six cycles in patients with locally advanced squamous cell carcinoma of the head and neck. *Eur J Cancer* 1997; **33**: 61-5.