

Neuroendocrine small cell carcinoma of the larynx

N Jonas, J Fagan, H Wu, D Taylor

Citation

N Jonas, J Fagan, H Wu, D Taylor. *Neuroendocrine small cell carcinoma of the larynx*. The Internet Journal of Otorhinolaryngology. 2007 Volume 8 Number 1.

Abstract

Objective: We report a rare case of extrapulmonary neuroendocrine small cell carcinoma of the larynx.

Method: Case report and a review of the world literature concerning neuroendocrine small cell carcinoma of the larynx.

Results: This article describes a 52-year old man who presented to our department with a four-month history of hoarseness. Indirect laryngoscopy revealed a submucosal firm mass involving the right true and false vocal cords extending to the right aryepiglottic fold. The right vocal cord was immobile. A biopsy revealed a small cell carcinoma of the larynx. The pathological features and a review of the literature will be discussed.

Conclusion: Extrapulmonary head and neck neuroendocrine small cell carcinoma is a relatively rare disease. Accurate histopathological diagnosis is often difficult, but essential to ensure correct treatment. Because of the rarity of these tumours in the larynx, no large studies are available to accurately guide management.

INTRODUCTION

Extrapulmonary neuroendocrine small cell carcinoma is a relatively rare disease, with the larynx the most frequently affected organ in the head and neck. They can occur in any region of the larynx with the supraglottis the most commonly reported site. Small cell carcinomas are highly aggressive and should be considered as a disseminated disease at the time of initial presentation. [6] Nearly half the patients will have cervical metastasis at the time of presentation. A full metastatic workup is therefore important. [7] Because of the rarity of these tumours in the larynx, no large studies are available to accurately guide management. In contrast to squamous carcinoma of the larynx, single modality therapy is not advised for neuroendocrine small cell carcinoma. Radiotherapy or surgery should be combined with systemic chemotherapy as primary treatment. Surgery is most effective in the early stages of the disease when there is no evidence of metastatic disease. [7] Reported survival rates for patients with small cell carcinoma are 16% 2-year and 5% 5- year survival. [1] This paper will discuss a case of neuroendocrine small cell carcinoma of the larynx and review the world literature.

CASE STUDY

A 52-year-old man presented to our department with a four-month history of hoarseness. He did not report any loss of weight or coughing and swallowing was normal. Apart from

a fifteen pack-year smoking history he had no relevant medical history.

His nasal cavity, oral cavity and ears were normal, and there were no palpable cervical lymph nodes. Indirect laryngoscopy revealed a submucosal firm mass involving the right true and false vocal cords extending to the right aryepiglottic fold. The right vocal cord was immobile. Chest X-ray was normal.

Diagnostic rigid laryngoscopy and biopsy revealed infiltrates of fragile small round hyperchromatic malignant cells with the prominent smear artefact typical of this tumour (medium and high power, Figs A, B) [1]. These cells were also seen intravascularly.

Figure 1

Figure 1a

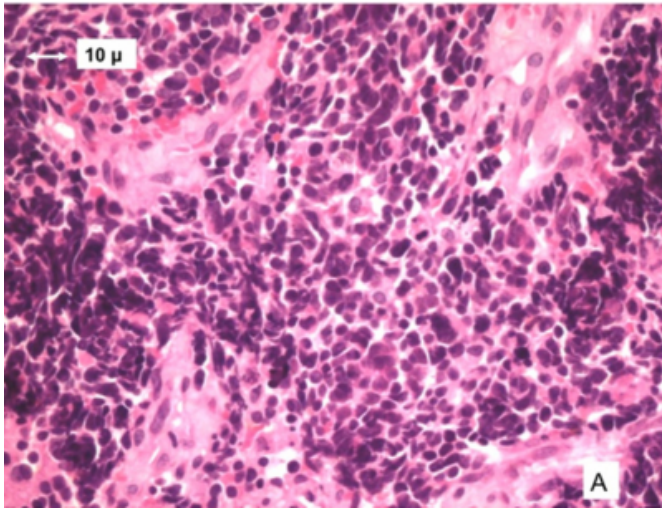
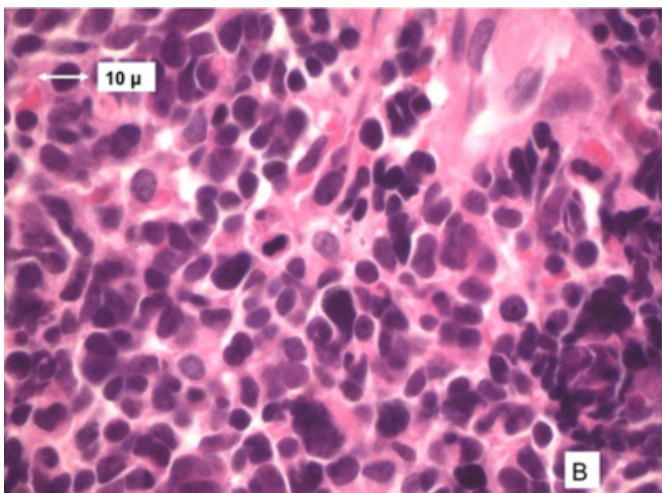


Figure 2

Figure 1b



There was accompanying focal necrosis. In keeping with this diagnosis, the cells stained positively for cytokeratin antigens (AE1/AE3, Fig C, in which the normal overlying squamous epithelium is seen acting as a positive control) and for neural cell adhesion molecule antigens (CD56, Fig D).

Figure 3

Figure 1c

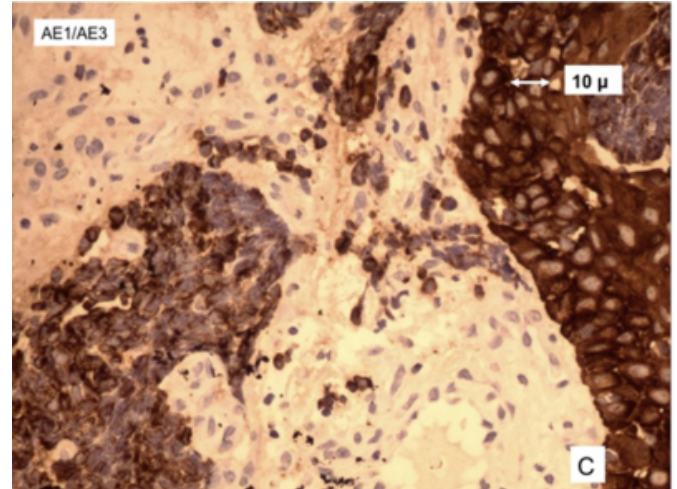
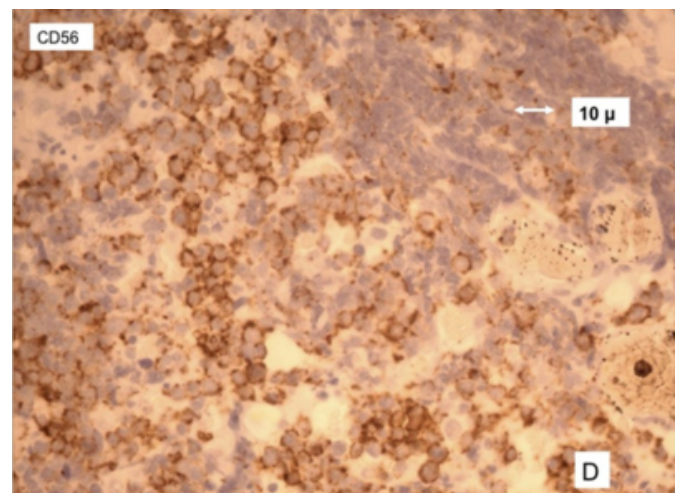


Figure 4

Figure 1d



A diagnosis of neuroendocrine small cell carcinoma of the larynx was made. Full metastatic work up did not reveal any metastases.

DISCUSSION

Extrapulmonary neuroendocrine small cell carcinoma is a relatively rare disease, comprising 2.5% to 4% of all small cell carcinomas. [2] These tumours occur in multiple sites throughout the head and neck with the larynx most frequently affected, followed by the salivary glands and the sinonasal region. [3] These tumours account for less than 1% of laryngeal neoplasms [4]. They can occur in any region of the larynx with the supraglottic region the most commonly reported site. [2]

Neuroendocrine tumours constitute a morphologically

heterogeneous group and include poorly differentiated carcinoma (also called small-cell undifferentiated carcinoma), oat-cell carcinoma and anaplastic small-cell carcinoma [5]. Accurate histopathological diagnosis is often very difficult, but correct diagnosis is of utmost importance to ensure correct treatment.

Small cell carcinomas are highly aggressive and should be considered as a disseminated disease at the time of initial presentation. [6] A full metastatic workup is therefore important. [7] As with pulmonary small cell carcinoma, prognosis is poor and nearly half the patients have cervical metastasis at the time of presentation. The most common site of metastatic spread is to regional cervical lymph nodes, followed by liver, lung and bone. [5] Two thirds of patients die of widespread metastatic disease.

Because of the rarity of these tumours in the larynx, no large studies are available to accurately guide management. In contrast to squamous carcinoma of the larynx, single modality therapy is not advised for neuroendocrine small cell carcinoma. Radiotherapy or surgery should be combined with systemic chemotherapy as primary treatment. Commonly used chemotherapeutic agents include cisplatin, carboplatin, etoposide, cyclophosphamide, doxorubicin, vincristine and methotrexate. [6] An encouraging result was reported in a patient with an advanced laryngeal small cell carcinoma treated with Irinotecan hydrochloride (CPT-11). This agent has been associated with excellent efficacy in treatment of extensive small cell lung cancer. [8] Surgery is most effective in the early stages of the disease when there is no evidence of metastatic disease. [7]

Reported survival rates for patients with small cell carcinoma are 16% 2-year and 5% 5- year survival. [1] The median survival for patients with primary small cell

carcinoma of the larynx, hypopharynx, and trachea is between 7 and 11 months. [9,10]

CORRESPONDENCE TO

Dr Nico Jonas Division of Otolaryngology University of Cape Town Medical School H-53 Old Main Building, Groote Schuur Hospital Observatory, Cape Town 7925 South Africa Tel: +27 21 4066420 Fax: +27 21 4488865 Email: nicojonas@gmail.com

References

1. Gnepp DR. Small cell neuroendocrine carcinoma of the larynx. A critical review of the literature. *ORL J Otorhinolaryngol Relat Spec* 1991; 53: 210-219
2. Kim HJ, Hwang EG. Small cell carcinoma of the larynx: imaging findings. *Auris Nasus Larynx* 1997; 24: 423-427
3. Renner G. Small cell carcinoma of the head and neck: a review. *Semin Oncol* 2007; 34: 3-14
4. Gillenwater A, Lewin J, Roberts D, El-Naggar A. Moderately differentiated neuroendocrine carcinoma (atypical carcinoid) of the larynx: a clinically aggressive tumor. *Laryngoscope* 2005; 115: 1191-1195.
5. Ferlito A, Rinaldo A. Small cell neuroendocrine carcinoma of the larynx: a preventable and frustrating disease with a highly aggressive lethal behavior. *ORL J Otorhinolaryngol Relat Spec* 2003; 65: 131-133
6. Barbeaux A, Duck L, Weynand B, Desuter G, Hamoir M, Gregoire V et al. Primary combined squamous and small cell carcinoma of the larynx: Report of two cases and discussion of treatment modalities. *Eur Arch Oto-Rhin-Laryngol* 2006; 263: 786-790
7. Arroyo SV, Rosel P, Palacios E. Poorly differentiated neuroendocrine tumor of the larynx: challenging and highly aggressive. *Ear Nose Throat J* 2006; 85: 706, 708
8. Sone M, Uchida I, Tominaga M, Sugiura S, Nagasaka T, Nakashima T. Small cell carcinoma of the larynx treated with irinotecan and cisplatin. *Auris Nasus Larynx* 2006; 33: 223-225
9. Gaba A, Mbaoma R, Breining D, Smith RV, Beitler JJ, Haigentz M. Unusual sites of malignancies: CASE 1. Small-cell carcinoma of the hypopharynx. *J Clin Oncol* 2005; 23: 2094-2096
10. Bauch RF, Wolf GT, Beals TF, Krause CJ, Forastiere A. Small cell carcinoma of the larynx: results of therapy. *Laryngoscope* 1986; 96: 1283-1290

Author Information

N.E. Jonas, MBChB, FRCS(Glas), FCORL(SA), MMed

Consultant, Division of Otolaryngology, University of Cape Town

J. J. Fagan, MBChB, MMed, FCS (SA)

Professor and Chairman, Division of Otolaryngology, University of Cape Town

H-T Wu, MBChB

Registrar, Division of Anatomical Pathology, National Health Laboratory Service, Groote Schuur Hospital, University of Cape Town

D.A. Taylor, MBChB, MMed, PhD

Consultant, Division of Anatomical Pathology, ational Health Laboratory Service, Groote Schuur Hospital, University of Cape Town