Case Report

Laryngeal Neuroendocrine Tumor - An Atypical Presentation

Varun Rai[1], Vikas Malhotra[2], Nita Khurana[3], Naresh Kumar[4]

[1]Senior Resident, [2]Professor, Department of ENT, [3]Professor, Department of Pathology, [4]Associate Professor, Department of Medicine, Maulana Azad Medical College and Associated Lok Nayak Hospital, New Delhi.

Correspondence to: Dr. Naresh Kumar, Department of Medicine, Maulana Azad Medical College and Associated Lok Nayak Hospital, New Delhi.

E-mail Id:
drnareshmamc@gmail.com

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Abstract

Neuroendocrine tumors of the larynx are the most common non-epidermoid tumors of the larynx and comprise less than 1% of the laryngeal tumors. Most of the symptoms and presentation mimic any usual laryngeal malignancy making the diagnosis difficult. Here, we report a case of laryngeal neuroendocrine carcinoma that was managed with total laryngectomy.

Keywords: Laryngeal, Neuroendocrine tumor, PAS, Calcitonin.

Introduction

Neuroendocrine tumors (NETs) of the larynx which represent a heterogeneous group of neoplasm are rare but still they are the second-most common neoplastic lesion of the larynx. The first case of neuroendocrine tumor was reported by Goldman et al. in 1969. Almost 500 cases of NETs of larynx have been reported in literature so far.[1] The origin of these tumors is obscure with many theories of origin advocated with the most commonly accepted being that they originate from the precursor cells of neuroendocrine system. This spectrum of condition forms the most common non-epidermoid carcinomas of the larynx.[2] We report a case of laryngeal neuroendocrine carcinoma that was managed with total laryngectomy.

Case Report

A 50-year-old male presented to the emergency department with progressive difficulty in swallowing and change in voice for last three months. He also complained of difficulty in breathing since the last 15 days, which had progressed to a frank stridor for which he was referred to the ENT department where he underwent an emergency tracheostomy. On general physical examination, he was conscious with pulse rate of 84 beats/ min and respiratory rate of 18/min, and chest examination revealed conducted sounds all over the chest. Indirect laryngoscopy showed an ulceroproliferative growth involving the left aryepiglottic fold and piriform sinus and extending to the midline causing edema in the left false vocal cord causing reduced glottis chink.

On investigations, he had hemoglobin of 105 g/L with ESR of 55 /hr. His liver function, kidney function and other biochemical parameters were within normal limits. Contrast-enhanced computer tomography of neck showed soft tissue lesion with smooth outlines in left piriform fossa with involvement of left aryepiglottic fold. The mass showed heterogeneous attenuation with no evidence of calcification or cavitation (Fig. 1). A contrast-enhanced computerized tomographic scan of chest, abdomen and brain was done to know the staging and to rule out metastasis. The tumor was found to be limited to the laryngeal framework with no distant metastasis. The TNM staging of the tumor was deemed to be $T_3N_0M_0$. He underwent a direct laryngoscopic biopsy under general anesthesia which revealed features of neuroendocrine tumor. However, further grading of the tumor could not be done on the biopsy specimen. Total laryngectomy was performed on the patient without any intraoperative complication. The immediate postoperative period was uneventful.

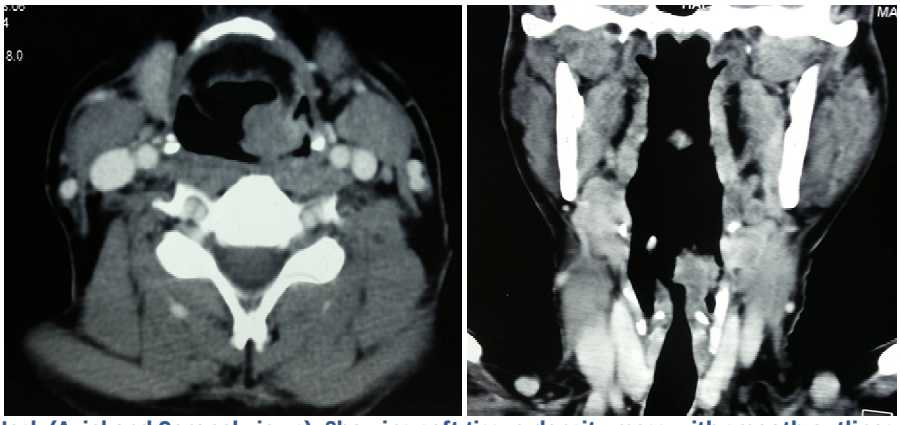

Figure 1.CECT Neck (Axial and Coronal views): Showing soft tissue density mass with smooth outlines in left pyriform fossa with involvement of left aryepiglottic fold. The mass shows heterogeneous attenuation with no evidence of any calcification

Histopathological examination of the specimen obtained on total laryngectomy revealed an ulcero-proliferative lesion involving the left AE fold and piriform sinus measuring 2×2×1.5 cm, which stained intensely with EMA, NSE and chromogranin (Fig. 2) and thus a diagnosis of atypical carcinoid tumor of larynx was made.

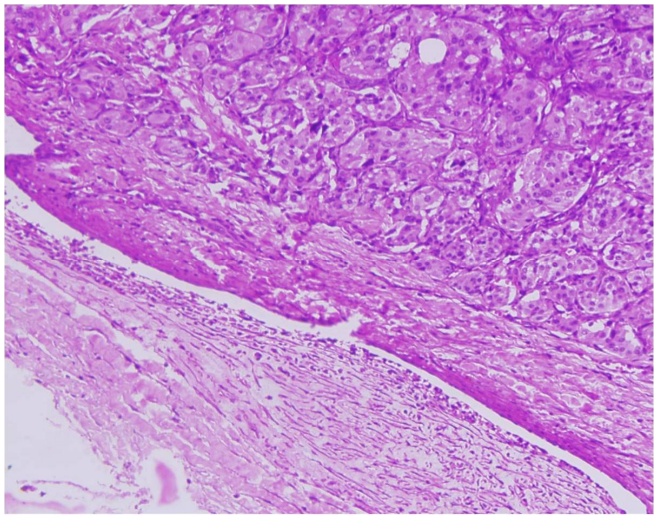

Figure 2.Ulceration of the lining mucosa. Tumor cells showing a prominent nesting pattern with thin fibrovascular septae. Cells are polygonal with eosinophilic granular cytoplasm immunoreactive for synaptophysin and NSE (Haematoxylin & Eosin x40)

The patient was planned for post-operative radiotherapy but unfortunately he expired on 10th post-operative day due to sudden cardiac arrest.

Discussion

Neuroendocrine tumors of the larynx are the most common non-epidermoid tumors of the larynx and comprise less than 1% of the laryngeal tumours.[2] The male to female ratio is 3:1 and the most common risk factor associated with this condition is smoking.[3]

The spectrum of neuroendocrine tumors can be differentiated from one another only histopathologically and they constitute atypical carcinoids, typical carcinoids, small-cell neuroendocrine carcinoma and paragangliomas. The most frequent site involved is the supraglottis. Atypical carcinoid tumor is the most commonly reported variant in literature, with the typical carcinoids being the rarest.[4] Most of the symptoms and presentation mimic a usual laryngeal malignancy and they can be distinguished only upon histopathologic examination. Features suggestive of neuroendocrine tumors are neurosecrotory granules, cells with variable degrees of pleomorphism and organization into nests, cords and trabecule with

submucosal origin of the neoplasm, evidence of mucin (PAS+) and immunohistochemical positivity for neuroendocrine markers such as chromogranin, NSE, synaptophysin and neurofilaments.[5] Positive staining for calcitonin in neuroendocrine carcinoma is usually the norm and negative staining is suggestive of paragangliomas.[6]

In our case, the histopathological features suggested atypical carcinoid tumor; however, negative staining for calcitonin was suggestive of paraganglioma. Other non-specific markers for paragangliomas like urinary levels of catecholamines could also be done to confirm the diagnosis. Urinary levels of catecholamines and some metabolites (vanillylmandelic and homovanillic acid) are often raised in paraganglioma, whereas increased levels of 5-HIAA, NSE and CgA can be diagnostic for carcinoids.[7] The most frequent sites of metastasis are lymph nodes, skin, liver and lung.[8]

The therapeutic approaches to NETs of the larynx vary according to the biological behavior of the various histological types and disease stage. Conservative surgery is the standard treatment for local typical carcinoid and paraganglioma, and locoregional lymph node dissection is not indicated because metastatic lymph node involvement is rare and the long-term prognosis is good.[9] In small-cell neuroendocrine tumors and atypical carcinoids, depending upon the extent of disease, total or subtotal laryngectomy with lymph node dissection is the most appropriate treatment. The overall five-year survival rate is 48%.[10] The role of radiotherapy and or chemotherapy is still doubtful as these tumors are usually resistant.

We would like to highlight this case as laryngeal neuroendocrine tumor form, a relatively rare entity when compared to the commoner epidermal-origin tumors. Our case was also unique in the sense that even though all histopathologic features pointed toward atypical carcinoid tumor, calcitonin negativity indicated it to be paraganglioma.

Conflict of Interest: None

References

1. Goldman NC, Hood CI, Singleton GP. Carcinoid of the larynx. *Arch Otolaryngol* 1969; 90: 64-67.
2. Soga J, Osaka M, Yakuwa Y. Laryngeal endocrinomas (carcinoids and relevant neoplasms): Analysis of 278 reported cases. *J Exp Clin Cancer Res* 2002; 21: 5-13.
3. Kasantikul V, Keelawat S, Maneesri S et al. Moderately differentiated neuroendocrine carcinoma (atypical carcinoid) of the larynx. *J Med Assoc Thai* 1997; 80: 396-401.
4. Ferlito A, Barnes L, Rinaldo A et al. A review of neuroendocrine neoplasms of the larynx: update on diagnosis and treatment. *J Laryngol Otol* 1998; 112: 827-34.
5. Ferlito A, Friedmann I. Review of neuroendocrine carcinomas of the larynx. *Ann Otol Rhinol Laryngol* 1989; 98: 780-90.
6. Wenig BM, Hyams VJ, Heffner DK. Moderately differentiated neuroendocrine carcinoma of the larynx. A clinicopathologic study of 54 cases. *Cancer* 1988; 62: 2658-76.
7. Govaerts PJ, van den Broek P, Corstens FH et al. Clinical oncology: Case presentations from oncology centres-2. Carcinoid of the larynx. *Eur J Cancer* 1992; 28: 1755-58.
8. Procopio G, Ricotta R, Fusi A et al. Neuroendocrine tumours of the larynx: A clinical report and literature review. *Tumori* 2006; 92: 72-75.
9. Ferlito A, Shaha AR, Rinaldo A. Neuroendocrine neoplasms of the larynx: Diagnosis, treatment and prognosis. *ORL J Otorhinolaryngol Relat Spec* 2002; 64: 108-13.
10. Mills SE. Neuroectodermal neoplasms of the head and neck with emphasis on neuroendocrine carcinomas. *Mod Pathol* 2002; 15: 264-78.

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