



DEPARTMENT OF PATHOLOGY

Case of the Week

ENT Pathology: Spindle Cell Carcinoma of the Larynx

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History

The patient is a 59 year old man who presents with worsening dysphonia since a year ago. Examination reveals a polypoid 2.7 x 2.1 x 1.3 cm mass on the left vocal cord. Past history is significant for smoking history.

Laryngeal biopsy images:

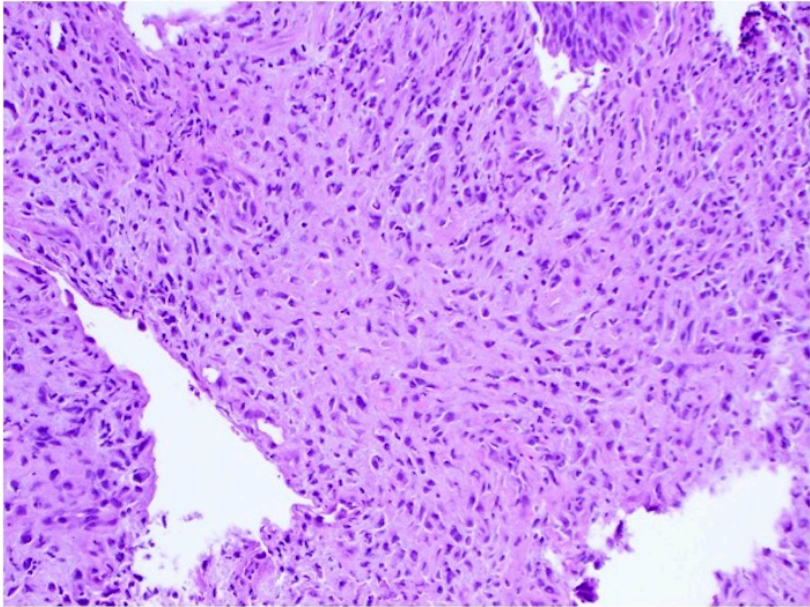


Fig 1.

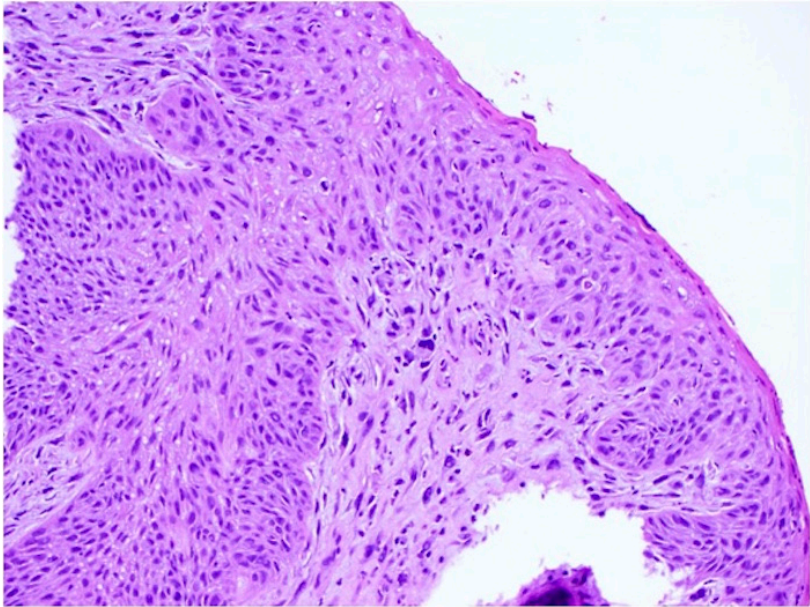


Fig 2.

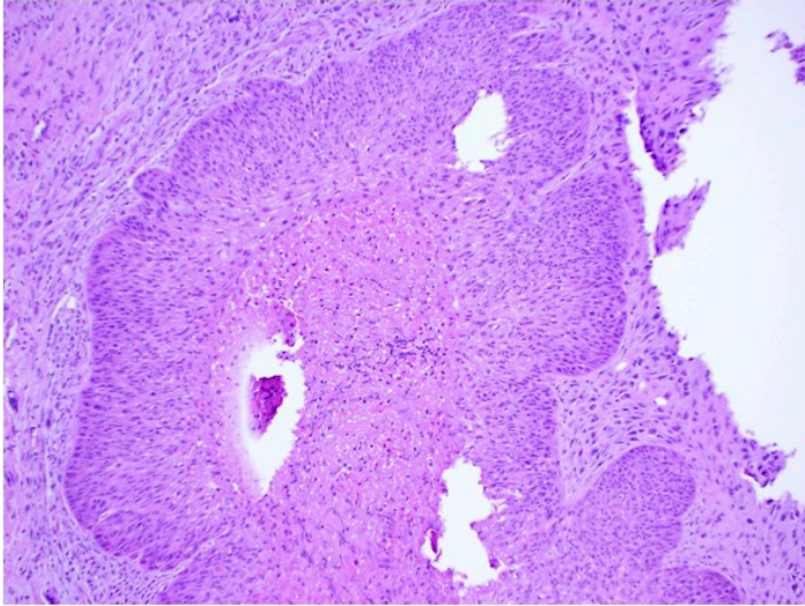


Fig 3.

Figure 1, 2 and 3

Figures 1-3. Spindle (Sarcomatoid) cell carcinoma of the larynx. Fig. 1: H&E stain, 200x magnification: Representative area of spindle cell carcinoma with spindle cell differentiation. Fig. 2: H&E stain, 200x magnification: Representative area of spindle cell carcinoma with both spindle cell and invasive squamous carcinoma components. Fig. 3: H&E stain, 100x magnification: Representative area of spindle cell carcinoma with spindle cell and invasive squamous carcinoma components.

Immunohistochemical stains:

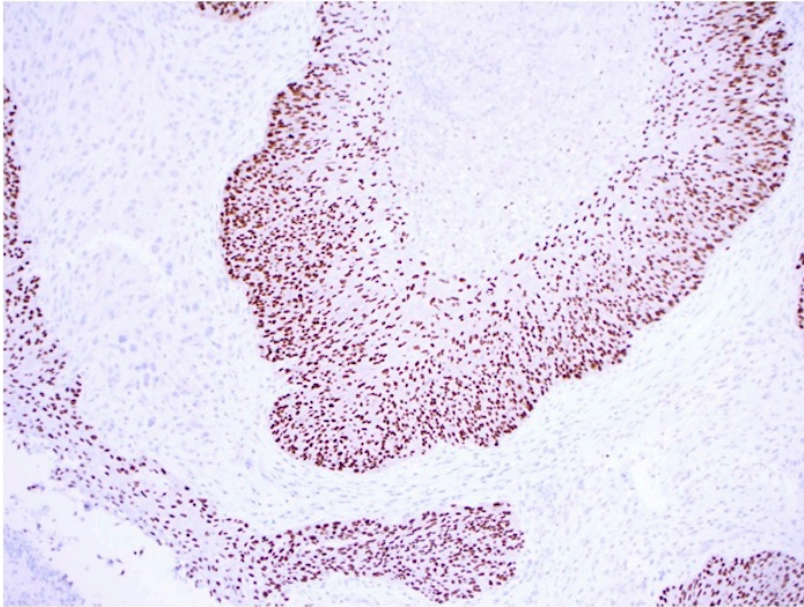


Fig 4.

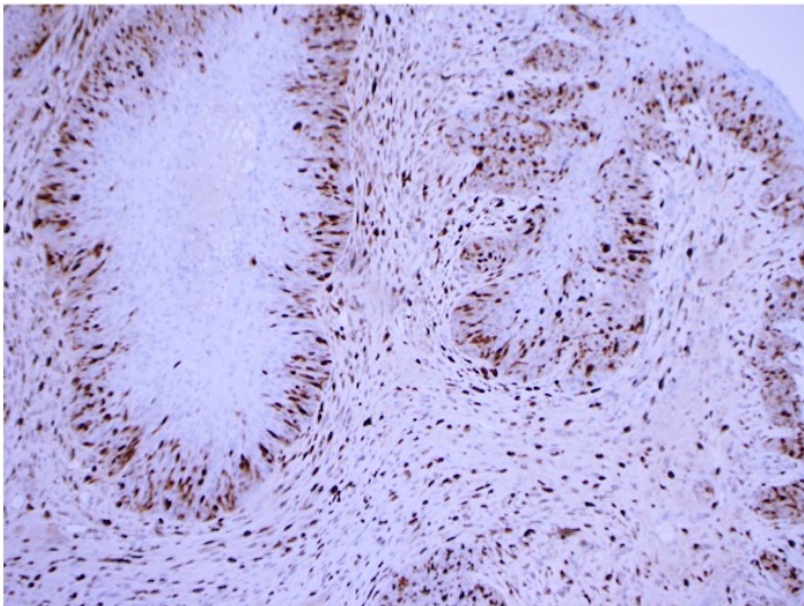


Fig 5.

Figure 4 and 5

Figures 4 and 5. Immunohistochemistry for spindle (sarcomatoid) cell carcinoma of the larynx. Fig. 4: p40 Immunohistochemistry stain, 100x magnification: Representative area of spindle cell carcinoma demonstrating positive p40 expression within squamous components and negative expression within sarcomatoid components. Fig. 5: Ki67 Immunohistochemistry stain, 200x magnification: Representative area of spindle cell carcinoma strong Ki67 (40%) expression for both squamous and sarcomatoid components.

Diagnosis

Spindle Cell Carcinoma of the Larynx

Discussion

Microscopic findings

Spindle cell carcinomas, also known as sarcomatoid carcinomas, are carcinomas that adopt a sarcomatoid or spindled morphology, but are epithelial in origin. They are frequently biphasic, with both a sarcomatoid component as well as in situ or invasive squamous cell carcinoma component¹. The spindle component of the carcinoma is derived from squamous epithelium that has undergone mesenchymal differentiation². The spindle cell component varies in architectural patterns. Fascicular, storiform or myxoid patterns can be seen¹. There can be foci of sarcomatous differentiation, such as chondrosarcoma, rhabdomyosarcoma or osteosarcoma¹.

Immunohistochemistry

The two components of spindle cell carcinoma may show different immunohistochemical staining patterns. The squamous component tend to stain as traditional squamous cell carcinomas of the head and neck, while the spindle cell component may have a varied staining pattern for epithelial markers and cytokeratins³. Two third of spindle cell carcinomas are positive for cytokeratins in the spindle cell component. The spindle cell component is also always positive for vimentin¹. Diagnosis of spindle cell carcinoma for a spindle lesion in the larynx requires either some sort of positive cytokeratin staining and/or the presence of a squamous component in the form of squamous dysplasia, carcinoma in situ or invasive carcinoma.

Epidemiology

The epidemiology of spindle cell carcinoma of the head and neck is similar to that of conventional squamous carcinoma. It is associated with smoking and drinking, in usually occurs in the fifth and sixth decades of life and it is more common among males. The most common site is the larynx followed by the tongue and other components of the oral cavity⁴. However, up to 20% of patients have had previous history of radiation to the originating site, higher than conventional squamous carcinoma¹.

Management

The management for spindle cell carcinoma of the head and neck is very similar to the management of squamous carcinoma, as it is inherently a carcinoma¹. Complete surgical resection seems to have the best prognostic outcome⁵.

References

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2. Zheng Y, Xiao M, Tang J. Clinicopathological and immunohistochemical analysis of spindle cell carcinoma of the larynx or hypopharynx: A report of three cases. *Oncol Lett*. 2014 Aug;8(2):748-752.
3. Gupta R, Singh S, Hedau S, Nigam S, Das BC, Singh I, Mandal AK. Spindle cell carcinoma of head and neck: an immunohistochemical and molecular approach to its pathogenesis. *J Clin Pathol*. 2007 May;60(5):472-5
4. Lewis J. Spindle Cell Lesions—Neoplastic or Non-Neoplastic? Spindle Cell Carcinoma and Other Atypical Spindle Cell Lesions of the Head and Neck. *Head Neck Pathol*. 2008 Jun; 2(2): 103–110.
5. Thompson LD, Wieneke JA, Miettinen M, Heffner DK. Spindle cell (sarcomatoid) carcinomas of the larynx: a clinicopathologic study of 187 cases. *Am J Surg Pathol*. 2002 Feb;26(2):153-70.