

Laryngeal spindle cell squamous cell carcinoma.

by Lester D. R. Thompson, MD

Figure 1. This gross specimen appears as a polypoid mass with surface ulceration. The stalk leads into an area of central collagen deposition, which is frequently seen as a degenerative phenomenon in SCSCC.

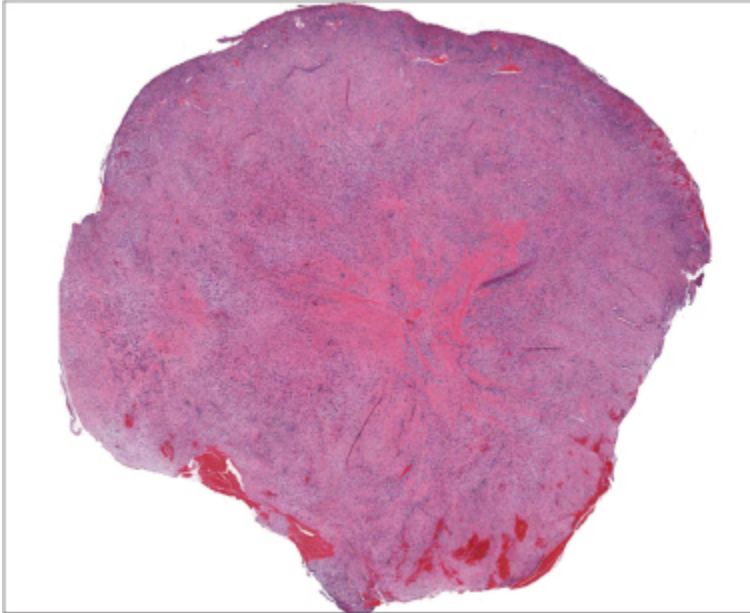
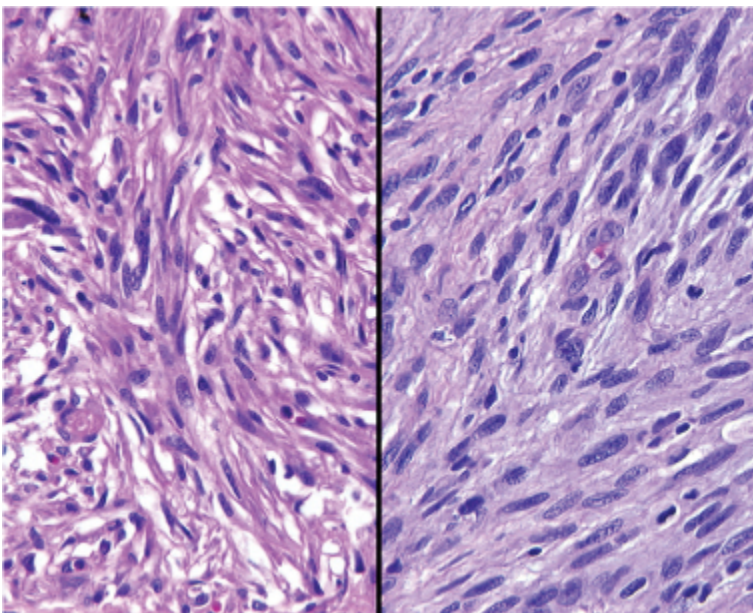


Figure 2. SCSCCs exhibit a variety of patterns, but usually there is a storiform architecture (left) or short interlacing fascicles (right). The cells are spindled with elongated nuclei, and there is a high nucleus-to-cytoplasm ratio.



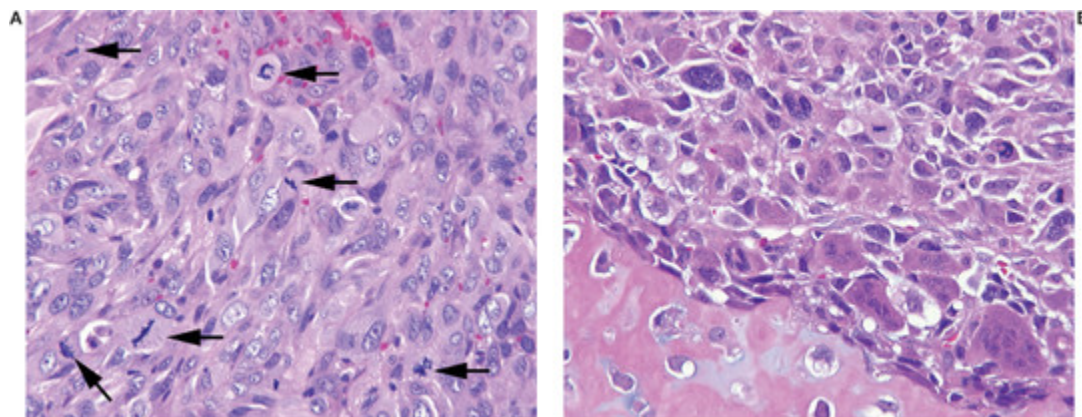
Spindle cell squamous cell carcinoma (SCSCC) is a squamous cell carcinoma (SCC) with a biphasic appearance, yielding a spindle cell transformation. Many names have been used in the past, but the terminology used here highlights the spindled and squamous cell appearance. As with all cases of upper aerodigestive tract SCC, there is a strong association with smoking and alcohol abuse. Furthermore, radiation exposure is occasionally reported in patients with SCSCC. This SCC variant accounts for approximately 2 to 3% of all laryngeal tumors. Men are affected much more frequently than women (12:1 ratio), and the incidence peaks in the seventh decade of life.

A tumor typically presents as a polypoid mass, usually involving the glottis (70% of cases); the next most common sites are the supraglottis and subglottis. Common concurrent findings include changes in voice (including hoarseness), airway obstruction, dyspnea, dysphagia, and cough. Endoscopic evaluation usually reveals a polypoid mass attached by a thin pedicle or stalk that has partially occluded the larynx and created a ball-valve effect.

Nearly all of these tumors (>98%) are polypoid, pedunculated, and exophytic (figure 1). The epithelium is nearly always ulcerated, showing fibrinoid necrosis at the surface. However, at the areas of folds, including the stalk of the polyp, areas of atypical epithelium are frequently present. While some of these tumors can be sizable, they are usually smaller than 2 cm, which is partly attributable to the size of the laryngeal diameter.

It is not uncommon to see areas of classic SCC, either at the surface or deep within the lesion. However, these areas are frequently limited in extent. There is an imperceptible blending between the squamous and spindle cells. The spindled cells are arranged in a number of different patterns, including storiform, solid, and fascicular architecture (figure 2). The cellularity ranges from low to intermediate, with the hypocellular lesions more challenging to diagnose. Mitotic figures, including atypical forms, are usually easily identified (figure 3, A).

Figure 3. A: This view shows a pleomorphic cell population in a haphazard distribution. Numerous mitotic figures (arrows) are noted, including atypical forms. B: The lower portion of the field contains cartilaginous differentiation within this spindle cell carcinoma. Note the remarkable pleomorphism of the cells within the neoplasm.



There is mild to moderate nuclear pleomorphism, although isolated atypical cells are common. A desmoplastic stromal fibrosis is seen in about 50% of cases. Because of the remarkable transformation of the epithelium into the "sarcomatoid" spindled pattern, it is not uncommon to see cartilage and bone or one of their malignant counterparts, osteosarcoma and chondrosarcoma (figure 3, B). These malignant mesenchymal transformations are distinct and

separate from the laryngeal cartilage. Immunohistochemical studies-including those with keratin, epithelial membrane antigen, CK5/6, and p63-are usually performed to confirm the epithelial nature of the spindled tumor, but these markers are absent in as many as 30% of cases.

Polypectomy is curative in many cases because the tumor is superficial and lacking in well-developed invasion. Wide local excision may be curative. Postoperative limited-field radiation is often administered to these patients as it would be to similarly grade- and stage-matched SCC patients. Overall disease-free survival is 80% at 5 years. The prognosis is worse for patients with high-stage disease, nonglottic tumors, large tumors (>3 cm), fixed vocal folds, a history of radiotherapy, histologic presence of necrosis, and epithelium-positive immunoreactivity.

Suggested reading

1. Lewis JE, Olsen KD, Sebo TJ. Spindle cell carcinoma of the larynx: Review of 26 cases including DNA content and immunohistochemistry. *Hum Pathol* 1997; 28 (6): 664-73.
2. Olsen KD, Lewis JE, Suman VJ. Spindle cell carcinoma of the larynx and hypopharynx. *Otolaryngol Head Neck Surg* 1997; 116 (1): 47-52.
3. 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; 26 (2): 153-70.
4. Toda S, Yonemitsu N, Miyabara S, et al. Polypoid squamous cell carcinoma of the larynx. An immunohistochemical study for ras p21 and cytokeratin. *Pathol Res Pract* 1989; 185 (6): 860-6..

From the Department of Pathology, Woodland Hills Medical Center, Southern California Permanente Medical Group, Woodland Hills, Calif.

Ear Nose Throat J. 2011 May; 90(5):214-216.