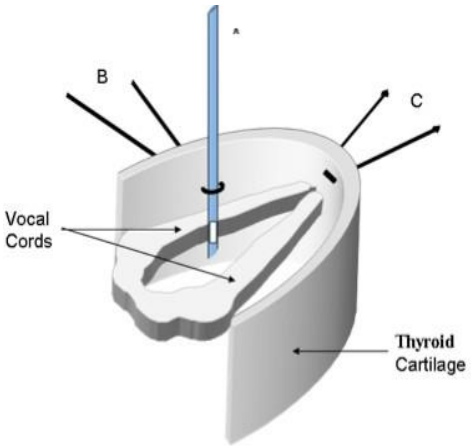
The Yale Larynx Laboratory

A Clinical Review

Supraglottic Carcinoma

Clarence T. Sasaki MD, David Folk MD



Laboratory Note

The purpose of this newsletter is to update our readers with the evidence-based management of certain Head & Neck disease presentations. In this issue we shall focus on a particularly challenging subsite of larynx cancer.

The Yale Larynx Laboratory was founded by John A. Kirchner in 1967. Since 1975 this laboratory has been in continuous operation under the direction of Clarence T. Sasaki, the Charles W. Ohse Professor and has been funded by the National Institutes of Health and by endowments of grateful patients.

Case Presentation

The patient is a 65-year-old smoker who was healthy until developing pain in the ear when swallowing. Shortly thereafter he developed increasing dysphagia to solid food. Two weeks prior to his visit he developed blood-tinged sputum.

Clinical Findings

Physical examination revealed a strong voice quality. There was a right Level III palpable lymph node. His oral cavity appeared mucosally clear. Flexible fiberoptic laryngoscopy confirmed an ulcerating mass arising from the infrahyoid portion of the epiglottis. Both vocal cords appeared mobile and his airway was patent (Fig. 1).

A biopsy from the infrahyoid epiglottis confirmed the presence of T3N1 supraglottic SCC.

Course

The patient underwent a transoral laser supraglottic laryngectomy with clear frozen section margins. He was discharged to home within two days after demonstrating adequate oral intake without aspiration.

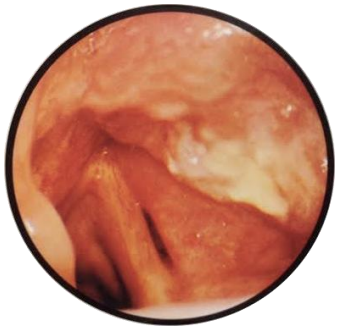


Fig I

The final pathology revealed a 2.7 cm infiltrative SCC traversing the epiglottic cartilage into the pre-epiglottic fat. Extensive neural and peri-neural invasion was noted. He returned two weeks later for bilateral functional neck dissections in which forty benign cervical nodes were recovered on the left and forty-five cervical nodes were recovered on the right. There was no evidence of extra nodal extension in a single positive right Level III node. Approximately six weeks later he had completed 52 gy of adjuvant radiation and has remained well for five years with no evidence of tumor recurrence.

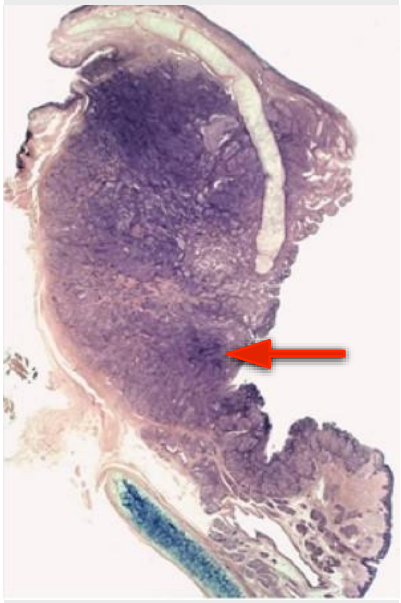


Fig. 2 Whole organ section: Sagittal view. Tumor invades the pre-epiglottic space through cartilaginous foramina resulting in destruction of epiglottic cartilage.

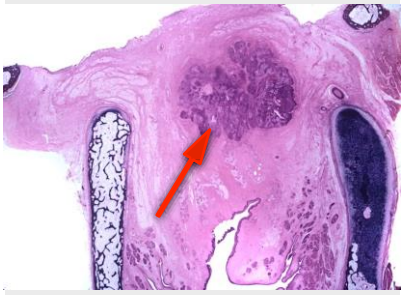


Fig. 3 Coronal view of persistent tumor within pre-epiglottic fat after radiation therapy.

Discussion

This case offers a number of important clinical lessons. Location of disease in the infrahyoid portion of the epiglottis predisposes to a risk of pre-epiglottic fat invasion through a preponderance of existing cartilaginous foramina in this location. (Fig. 2) Once invaded, disease in the pre-epiglottic space is especially resistant to radiation therapy, a fact to remember if radiation therapy were to be selected as a lone primary treatment modality. (Fig. 3)[1] In fact, the American Joint Commission (AJC) upstages pre-epiglottic invasion to a T3 classification for this reason.[2] Resection of this space endoscopically or by open surgery is considered a necessary component of management. In our experience the use of endoscopic laser resection when compared to historical controls using open horizontal partial laryngectomy carries several advantages:

1) No patients undergoing endoscopic resections require tracheotomy.

2) Because the superior laryngeal nerves can be preserved, swallow function resumes promptly in two to three days as opposed to 14-40 days observed in open surgery.[3]

3) When needed post-operative radiation can often be limited to 50 Gy reducing long term sequelae of pharyngeal scarring and resultant late onset dysphagia.

It is important to consult dedicated Head & Neck speech pathologists both pre-operatively and immediately post-operatively to maximize the swallow recovery process as healing occurs. A close working relationship and formal collaboration with colleagues in radiation and medical oncology as well as diagnostic radiology, Department of Dentistry and Nutrition ensures a comprehensive and coherent plan of care.

When carefully applied, laser micro endoscopic resection of early and mid-stage disease carries five year cure rates at least equivalent to that achieved by open surgery or by radiation.[4] Other forms of treatment include chemoradiation determined by advanced stage disease, patient preference and performance status.

References

1. Kirchner JA: What Have Whole Organ Sections Contributed to the Treatment of Laryngeal Cancer? Ann Otol Rhinol Laryngol: 1989; 98:661-667.
2. AJCC Cancer Staging Manual 7th Edition, Springer, 2010.
3. Sasaki CT, Leder SB, Acton L, Maune S: A Comparison of the Glottic Closure Reflex in Traditional "Open" vs. Endoscopic Laser Supraglottic Laryngectomy. Ann. Otol Rhinol Laryngol: 2006; 115:93-96.
4. Ambrosch P, Kron M, Steiner W: CO_2 Laser Microsurgery for Early Supraglottic Carcinoma, Ann Otol Rhinol Laryngol; 1998; 107: 680-688

The Yale Larynx Laboratory

Clarence T. Sasaki, M.D., The Charles W. Ohse Professor

Michael Wadie, M.D.

Boris Paskhover, M.D.

Kenneth Bagwell, M.D.

David Folk, M.D.

Office Location:

Yale Physician's Building

800 Howard Avenue, 4th Floor

New Haven, CT 06519

Phone: 203-785-2593

Fax: 203-785-3970

For all follow-up appointments:

Phone: 203-785-2592

Editors

David Folk, M.D.

Boris Paskhover, M.D.

Kenneth Bagwell, M.D.