

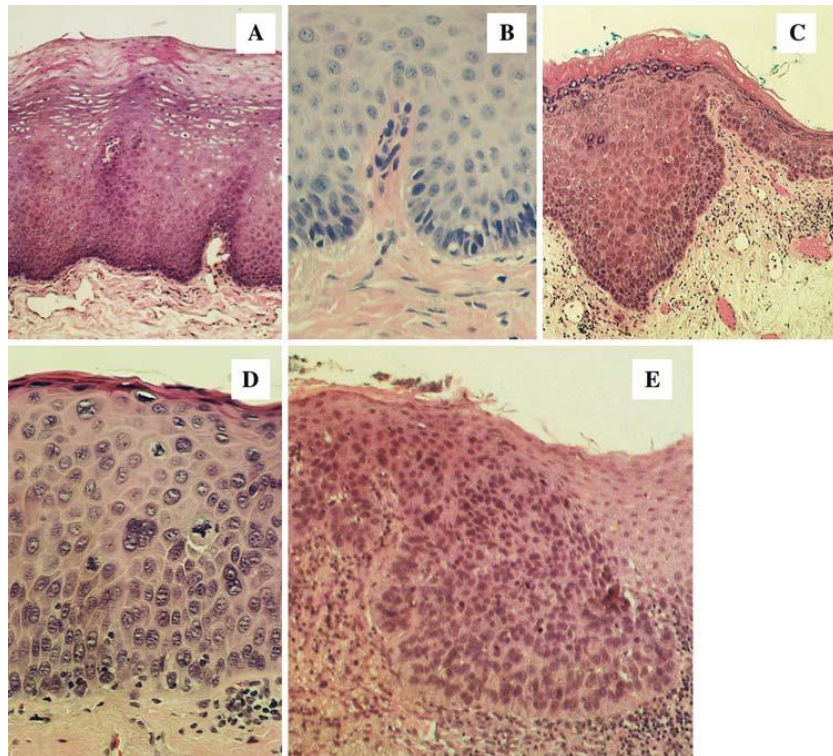


Vocal Fold Leukoplakia and Dysplasia

History, Anatomy and Pathophysiology

The relationship between vocal fold leukoplakia and laryngeal carcinoma was described in the 1880s, however, it wasn't until 1963 that Kleinsasser developed the first systematic classification of precancerous lesions. Currently, most dysplastic vocal fold epithelial lesions are classified using the Ljubljana or the WHO system. Clinically defined lesions of the keratinized squamous epithelium include leukoplakia, erythroplakia, and erythroleukoplakia. Cytologic and architectural changes without evidence of invasion are defined as dysplasia, and are further divided into three categories: mild, moderate, and severe. There is an increase in the risk of carcinomatous transformation, ranging from 11- 32% with increasing severity of dysplasia. However, even leukoplakia without dysplasia carries an increased risk of malignant transformation. More recent studies have evaluated cancer pathway genes and long non-coding RNAs to better understand vocal fold tumorigenesis.

The WHO grading system for oral and laryngeal precancerous lesions. a. Benign hyperplasia (benign keratosis), b. mild dysplasia, c. moderate dysplasia, d. severe dysplasia, e. carcinoma in situ.



- Eversole LR. Dysplasia of the Upper Aerodigestive Tract Squamous Epithelium. *Head and Neck Pathol* (2009) 3:63-68 DOI 10.1007/s12105-009-0103-8



- Bartlett RS, et al. Genetic characterization of vocal fold lesions: leukoplakia and carcinoma. *Laryngoscope* 122:336-342, 2012
- Peng J, et al. Differences in gene expression profile between vocal cord leukoplakia and normal larynx mucosa by gene chip. *Journal of Otolaryngology - Head and Neck Surgery* (2018) 47:13 DOI 10.1186/s40463-018-0260-4
- Kostev K, et al. Association of laryngeal cancer with vocal cord leukoplakia and associated risk factors in 1,184 patients diagnosed in otorhinolaryngology practices in Germany. *Molecular and clinical oncology* 8:689-693, 2018
- Isenberg JS, et al. Institutional and comprehensive review of laryngeal leukoplakia. *Ann Otol Rhinol Laryngol* 2008;117:74-79

Assessment

Common Assessment tools:

- Flexible Laryngoscopy
- Videostroboscopy
- Microlaryngoscopy
 - Young CK, et al. Laryngoscopic characteristics in vocal leukoplakia: inter-rater reliability and correlation with histology grading. *Laryngoscope*, 125:E66, 2015
 - Fang TJ, et al. Classification of vocal fold leukoplakia by clinical scoring. *Head Neck* 38:E1998-E2003, 2016

Less Common Assessment tools:

- Contact endoscopy
 - Arens C, et al. Endoscopic imaging techniques in the diagnosis of laryngeal carcinoma and its precursor lesions. *Laryngorhinootologie* 78:685-691
- Fluorescence staining
 - Malzhan K, et al. Autofluorescence endoscopy in the diagnosis of early laryngeal cancer and its precursor lesions. *Laryngoscope* 112:488-493

Treatment

Common treatments:

- Active Observation
 - Diet changes and acid reflux control
 - Zeitels SM, et al. Management of common voice problems: committee report. *Otolaryngology Head Neck Surgery* 2002;126(4):333-348
 - In office laser
 - Koss SL, et al. Serial In-office laser treatment of vocal fold leukoplakia: disease control and voice outcomes. *Laryngoscope*, 127:1644-1651, 2017
- OR microlaryngoscopy: cold knife vs laser excision/ablation



Less Common treatments:

- Vitamin A derivatives
 - Issing WJ, Struck R, Naumann A. Positive impact of retinyl palmitate in leukoplakia of the larynx. *Eur Arch Otorhinolaryngol.* 1997;254 Suppl 1:S105-9
- Photodynamic therapy
 - Biel MA. Photodynamic therapy and the treatment of neoplastic diseases of the larynx. *Laryngoscope* 104:399-403, 1994
- Radiotherapy

Treatment Algorithm

- Cosway B, Paleri V. Laryngeal dysplasia: an evidence based flowchart to guide management and follow up. *The Journal of Laryngology and Otology* (2015) 129, 598-599 Doi:10.1017/s0022215115000833
 - See also Koss SL, et al. for treatment algorithm
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