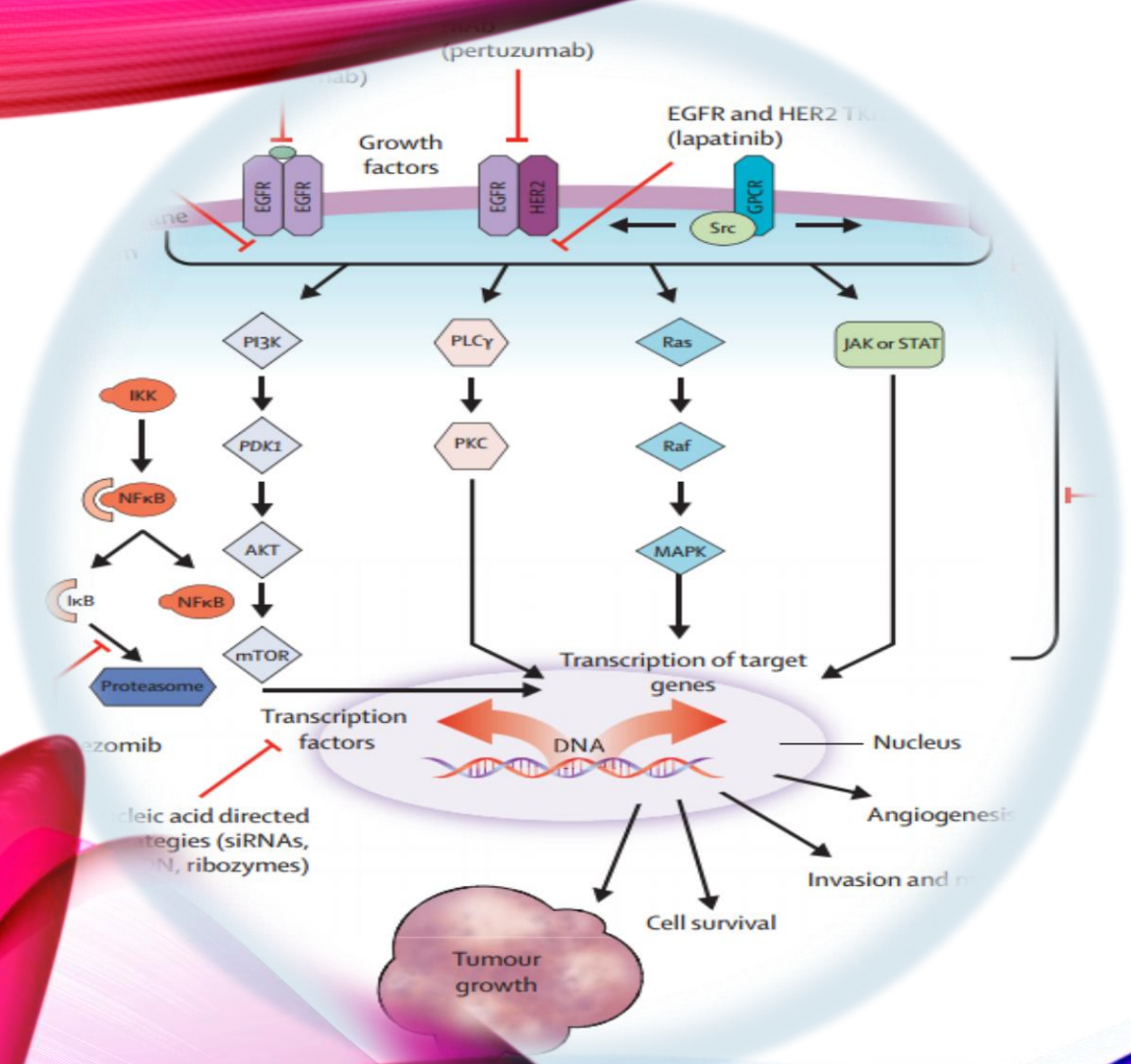


LARYNGEAL DYSPLASIA

Tomas Fernandez M; 3rd year ENT resident, Son Espases University Hospital

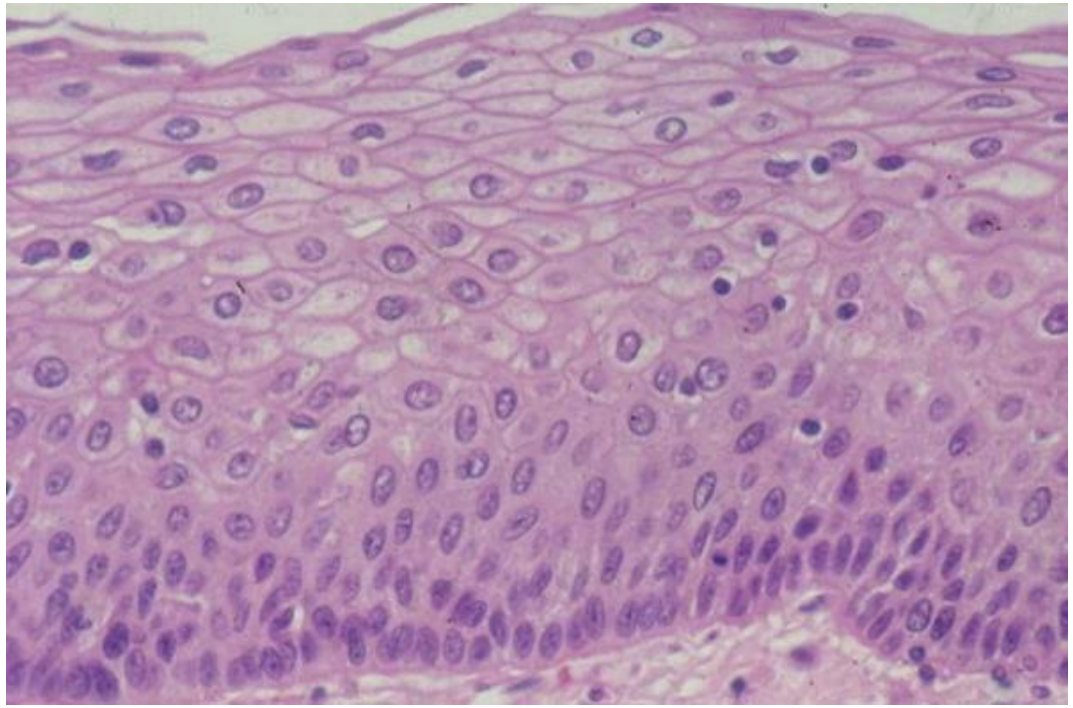
INTRODUCTION

- ✓ Laryngeal cancer constitutes 1-2% of all malignancies diagnosed worldwide
- ✓ Survival is related to stage of the disease…
  - ✓ It is essential to concentrate on the initial steps in tumor development
    - ✓ Early detection
    - ✓ Implementation of suitable therapy
- ✓ Review points on laryngeal dysplasia
  - ✓ Current terminology and classification systems
  - ✓ Current and alternative management strategies

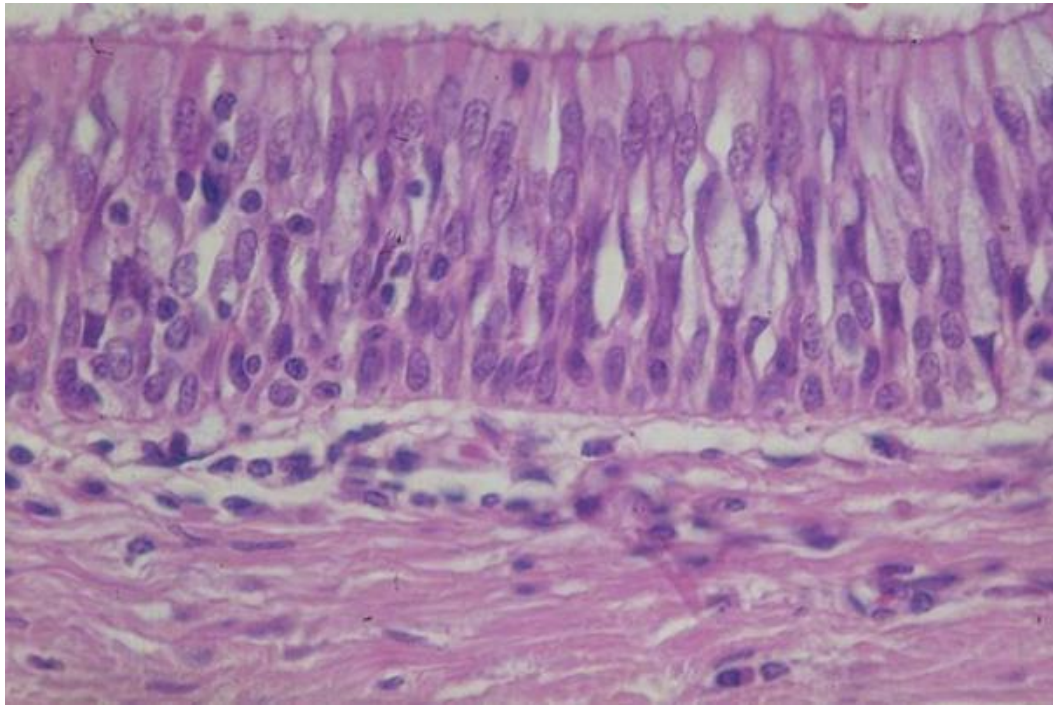
NORMAL HISTOLOGY

Nonkeratinized stratified squamous epithelium	Pseudostratified ciliated columnar epithelium + globet cells	Seromucinous glands
Anterior epiglottic surface	Ventricular folds	Posterior epiglottic surface
Upper half of the posterior epiglottic surface	Ventricle	False cords
Superior margin of A-E folds	Saccule	Ventricle
Vocal cords	Subglottic region	Saccule
		Subglottis

NORMAL HISTOLOGY



Nonkeratinized epithelium of the vocal cord



Pseudostratified ciliated columnar epithelium

CLINICAL REVIEW David W. Eisele, MD, *Section Editor*

SQUAMOUS EPITHELIAL CHANGES OF THE LARYNX: DIAGNOSIS AND THERAPY

Alfio Ferlito, MD, DLO, DPath, FRCSEd *ad hominem*, FRCS (Eng, Glasg, Ir) *ad eundem*, FDSRCS *ad eundem*, FHKCORL, FRCPath, FASCP, IFCAP,[1] Kenneth O. Devaney, MD, JD, FCAP,[2] Julia A. Woolgar, FRCPath, PhD,[3] Pieter J. Slootweg, MD, DMD, PhD,[4] Vinidh Paleri, MS, FRCS (ORL-HNS),[5] Robert P. Takes, MD, PhD,[6] Primož Strojan, MD, PhD,[7] Patrick J. Bradley, MB, BCh, BAO, DCH, MBA, FRCS (Ed, Eng, Ir), FHKCORL, FRCSLT (*Hon*), FRACS (*Hon*),[8] Alessandra Rinaldo, MD, FRCSEd *ad hominem*, FRCS (Eng, Ir) *ad eundem*, FRCSGlasg[1]

CLINICAL TERMINOLOGY

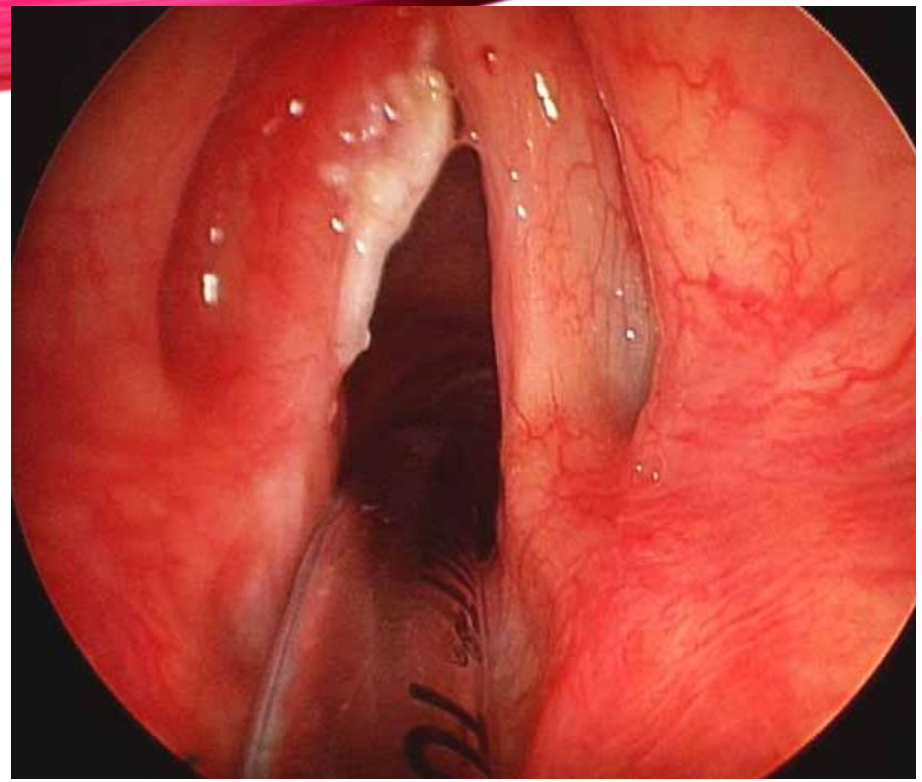
Leukoplakia

- ✓ CLINICAL TERM: any white lesion on a mucous membrane
- ✓ NO HISTOLOGICAL IMPLICATIONS
- ✓ NO SYNONYMOUS WITH "CANCER"/"MALIGNANCY"

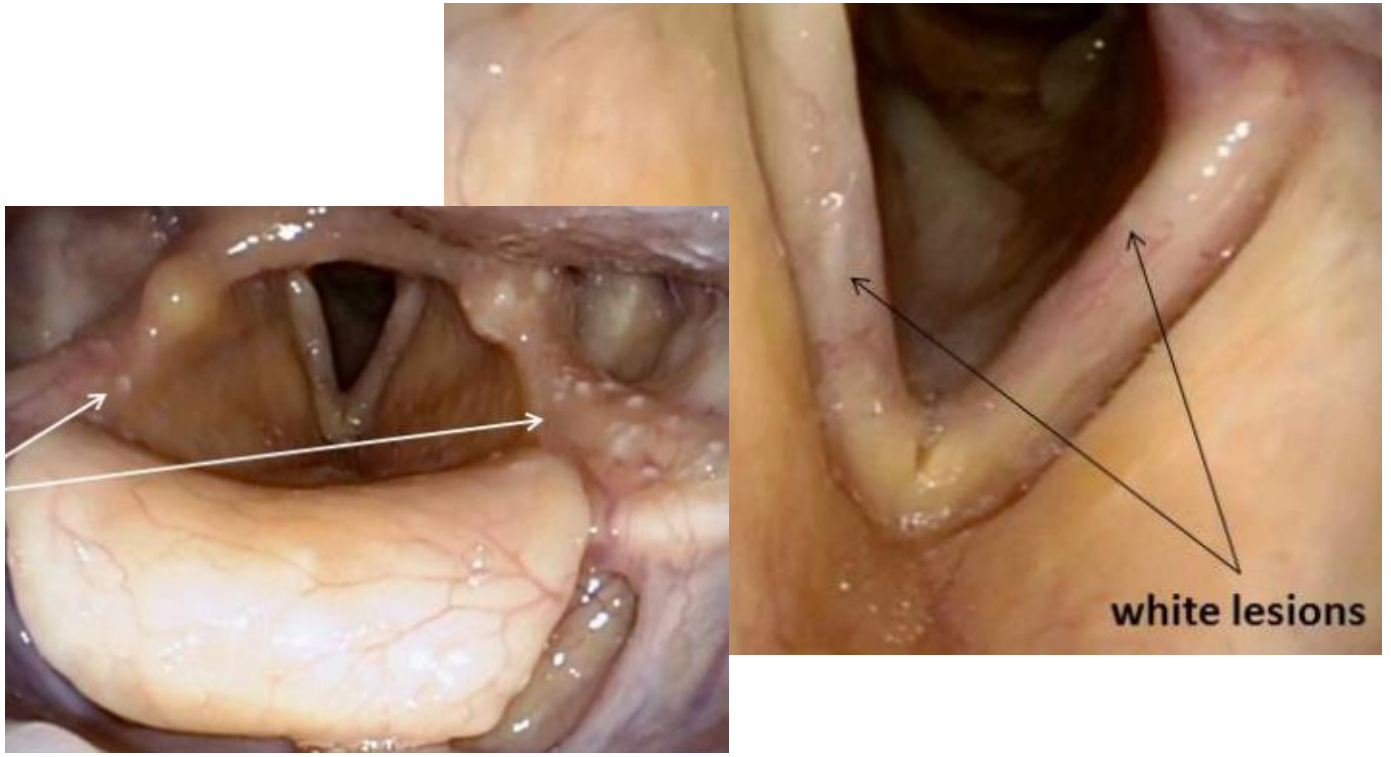
Erythroplakia

- ✓ CLINICAL TERM: any reddish plaque on the mucosal surface
- ✓ Epithelial atypia and invasive carcinoma presence is not uncommon

Erythroleukoplakia



Laryngeal leukoplakia caused by parakeratosis



Laryngeal leukoplakia caused by candidiasis

https://medicine.uiowa.edu/iowaprotocols

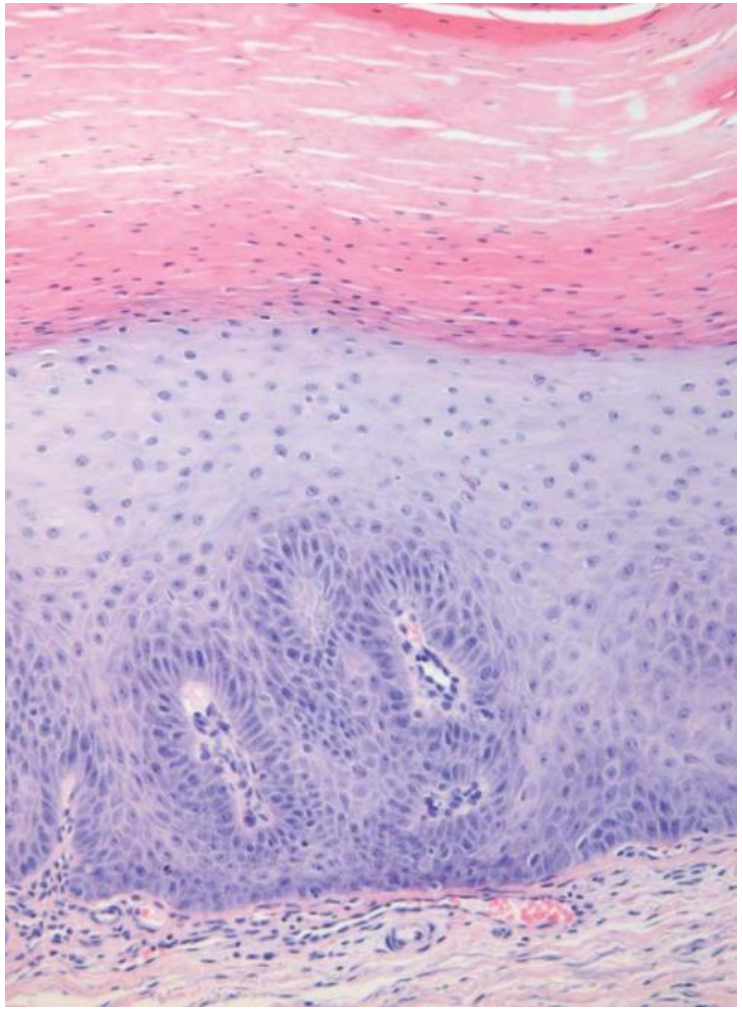
HISTOPATHOLOGICAL TERMINOLOGY

SQUAMOUS METAPLASIA

- ✓ Replacement of normal respiratory epithelium by stratified squamous epithelium
- ✓ Can follow persistent trauma or chronic irritation
- ✓ No evidence it predisposes to malignancy

SQUAMOUS CELL HYPERPLASIA

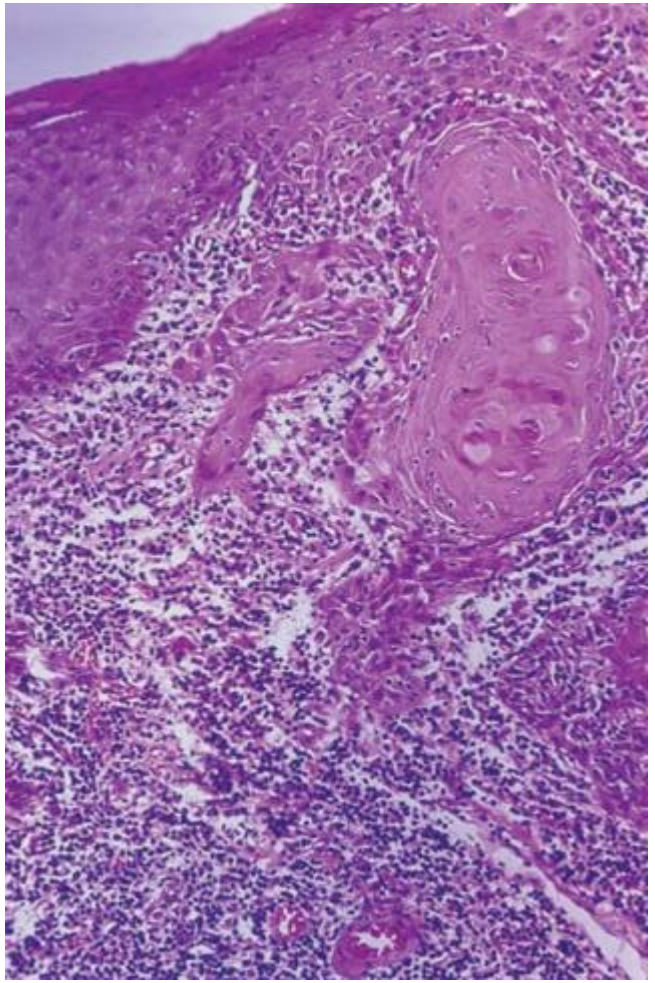
- ✓ BENIGN AND REVERSIBLE CHANGE
- ✓ Epithelium becomes thicker without cellular atypia



HISTOPATHOLOGICAL TERMINOLOGY

PSEUDOEPITHELIOMATOUS HYPERPLASIA

- ✓ Exuberant reactive or reparative overgrowth of squamous epithelium with extension of bulbous rete processes into the lamina propia
- ✓ May simulate well-differentiated SCC --- no evidence it is a potentially malignant lesion
  - ✓ Absence of epithelial cellular atypia
  - ✓ Inflammatory infiltrate



HISTOPATHOLOGICAL TERMINOLOGY

KERATOSIS/ORTHOKERATOSIS/PARAKERATOSIS

- ✓ Abnormal change resulting from the production of keratin on the surface of the epithelium
- ✓ Orthokeratosis --- prominent granular layer, without nuclei
- ✓ Parakeratosis --- prominent granular layer, with nuclei
- ✓ CELULLAR ATYPIA IS ABSENT + CORRECT MATURATION SEQUENCE OF THE CELULLAR LAYERS
- ✓ NOT REGARDED AS A PRECANCEROUS LESION

HISTOPATHOLOGICAL TERMINOLOGY

LARYNGEAL INTRAEPITHELIAL NEOPLASIA, DYSPLASIA AND ATYPIA

- ✓ Describe the presence of atypical cytologic features in the laryngeal squamous epithelium
  - ✓ **Atypia** --- individual cellular changes
  - ✓ **Dysplasia** --- altered (atypical) epithelium and disordered epithelial maturation

- ✓ Some authors believe the term "dysplasia" should be replaced by "intraepithelial neoplasia"
  - ✓ 3 classification grading systems

CLINICAL REVIEW David W. Eisele, MD, *Section Editor*

SQUAMOUS EPITHELIAL CHANGES OF THE LARYNX: DIAGNOSIS AND THERAPY

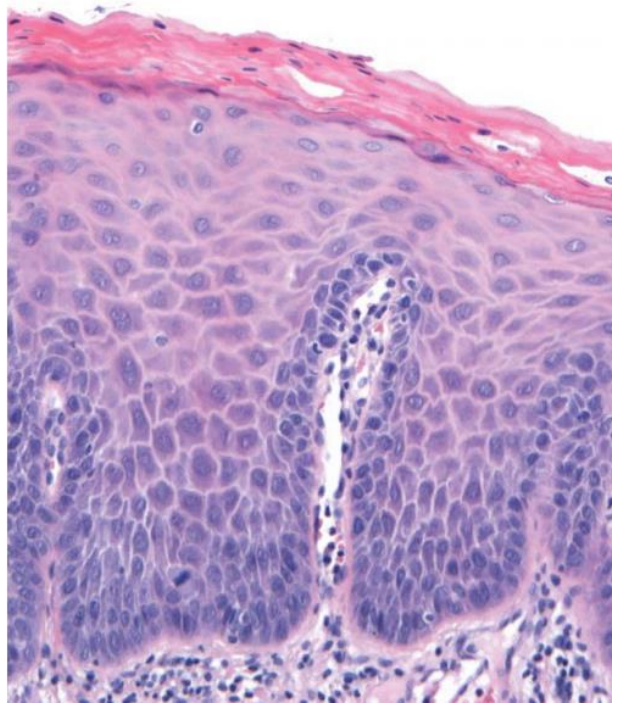
Alfio Ferlito, MD, DLO, DPath, FRCSEd *ad hominem*, FRCS (Eng, Glasg, Ir) *ad eundem*, FDSRCS *ad eundem*, FHKCORL, FRCPath, FASCP, IFCAP,[1] Kenneth O. Devaney, MD, JD, FCAP,[2] Julia A. Woolgar, FRCPath, PhD,[3] Pieter J. Slootweg, MD, DMD, PhD,[4] Vinidh Paleri, MS, FRCS (ORL-HNS),[5] Robert P. Takes, MD, PhD,[6] Primož Strojan, MD, PhD,[7] Patrick J. Bradley, MB, BCh, BAO, DCH, MBA, FRCS (Ed, Eng, Ir), FHKCORL, FRCSLT (*Hon*), FRACS (*Hon*),[8] Alessandra Rinaldo, MD, FRCSEd *ad hominem*, FRCS (Eng, Ir) *ad eundem*, FRCSGlasg[1]

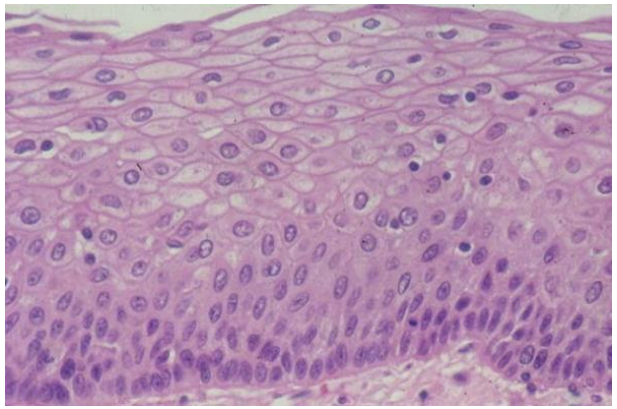
HISTOPATHOLOGICAL TERMINOLOGY

Friedman & Ferlito have used the term LARYNGEAL INTRAEPITHELIAL NEOPLASIA (LIN)

LIN I (mild/minimal dysplasia)

- ✓ Stratification is preserved and cellular layers in the more superficial 2/3 show cytoplasmic differentiation.
- ✓ Cellular and architectural atypia occur in the lower third + "nuclear crowding" + cellular and nuclear pleomorphism + increased nuclear/cytoplasmic ratio





CLINICAL REVIEW David W. Eisele, MD, *Section Editor*

SQUAMOUS EPITHELIAL CHANGES OF THE LARYNX: DIAGNOSIS AND THERAPY

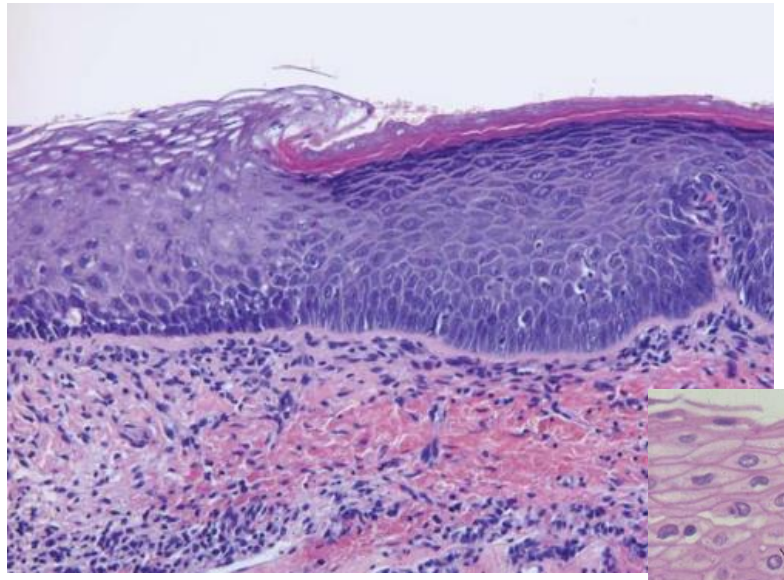
Alfio Ferlito, MD, DLO, DPath, FRCSEd *ad hominem*, FRCS (Eng, Glasg, Ir) *ad eundem*, FDSRCS *ad eundem*, FHKCORL, FRCPath, FASCP, IFCAP,[1] Kenneth O. Devaney, MD, JD, FCAP,[2] Julia A. Woolgar, FRCPath, PhD,[3] Pieter J. Slootweg, MD, DMD, PhD,[4] Vinidh Paleri, MS, FRCS (ORL-HNS),[5] Robert P. Takes, MD, PhD,[6] Primož Strojan, MD, PhD,[7] Patrick J. Bradley, MB, BCh, BAO, DCH, MBA, FRCS (Ed, Eng, Ir), FHKCORL, FRCSLT (*Hon*), FRACS (*Hon*),[8] Alessandra Rinaldo, MD, FRCSEd *ad hominem*, FRCS (Eng, Ir) *ad eundem*, FRCSGlasg[1]

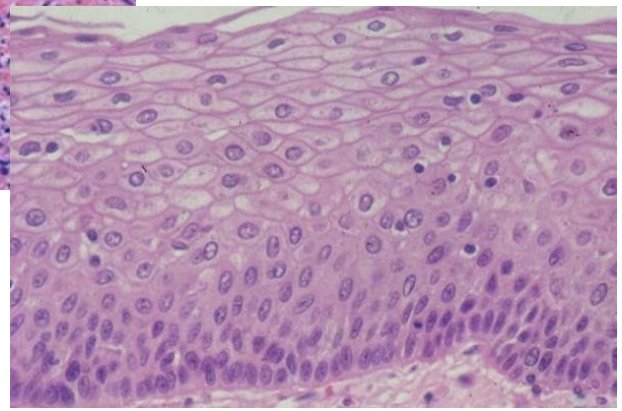
HISTOPATHOLOGICAL TERMINOLOGY

Friedman & Ferlito have used the term LARYNGEAL INTRAEPITHELIAL NEOPLASIA (LIN)

LIN II (moderate dysplasia)

- ✓ Histologic changes similar to LIN I, but abnormalities extend to 2/3 of the thickness of the epithelium
- ✓ Differentiation and stratification still seen in superficial 1/3
- ✓ Mitotic features are more numerous
- ✓ Common to find 2 different grades of dysplasia within single high-power visual field





CLINICAL REVIEW David W. Eisele, MD, *Section Editor*

SQUAMOUS EPITHELIAL CHANGES OF THE LARYNX: DIAGNOSIS AND THERAPY

Alfio Ferlito, MD, DLO, DPath, FRCSEd *ad hominem*, FRCS (Eng, Glasg, Ir) *ad eundem*, FDSRCS *ad eundem*, FHKCORL, FRCPath, FASCP, IFCAP,[1] Kenneth O. Devaney, MD, JD, FCAP,[2] Julia A. Woolgar, FRCPath, PhD,[3] Pieter J. Slootweg, MD, DMD, PhD,[4] Vinidh Paleri, MS, FRCS (ORL-HNS),[5] Robert P. Takes, MD, PhD,[6] Primož Strojan, MD, PhD,[7] Patrick J. Bradley, MB, BCh, BAO, DCH, MBA, FRCS (Ed, Eng, Ir), FHKCORL, FRCSLT (*Hon*), FRACS (*Hon*),[8] Alessandra Rinaldo, MD, FRCSEd *ad hominem*, FRCS (Eng, Ir) *ad eundem*, FRCSGlasg[1]

HISTOPATHOLOGICAL TERMINOLOGY

Friedman & Ferlito have used the term LARYNGEAL INTRAEPITHELIAL NEOPLASIA (LIN)

LIN III (severe dysplasia and carcinoma in situ)

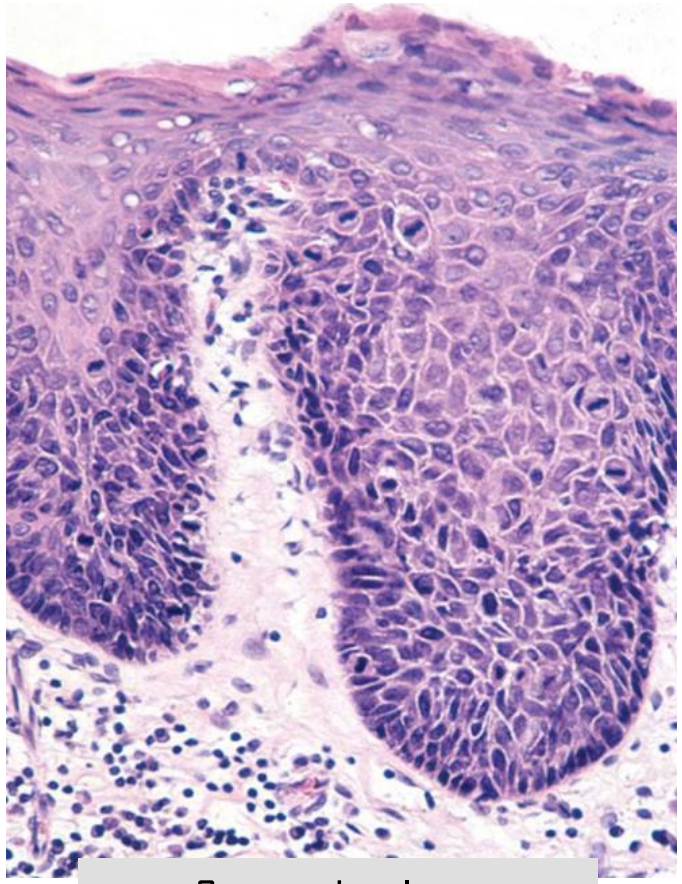
- ✓ Non-stratified, undifferentiated cells occupy from >2/3 up to the full thickness of the epithelium
- ✓ Nuclear pleomorphism --- bizarre large nuclei
- ✓ Mitotic figures >>> %
- ✓ No keratinization in majority of cases
- ✓ LESION IS ALWAYS CONTAINED BY THE BASAL LAMINA!

CLINICAL REVIEW David W. Eisele, MD, *Section Editor*

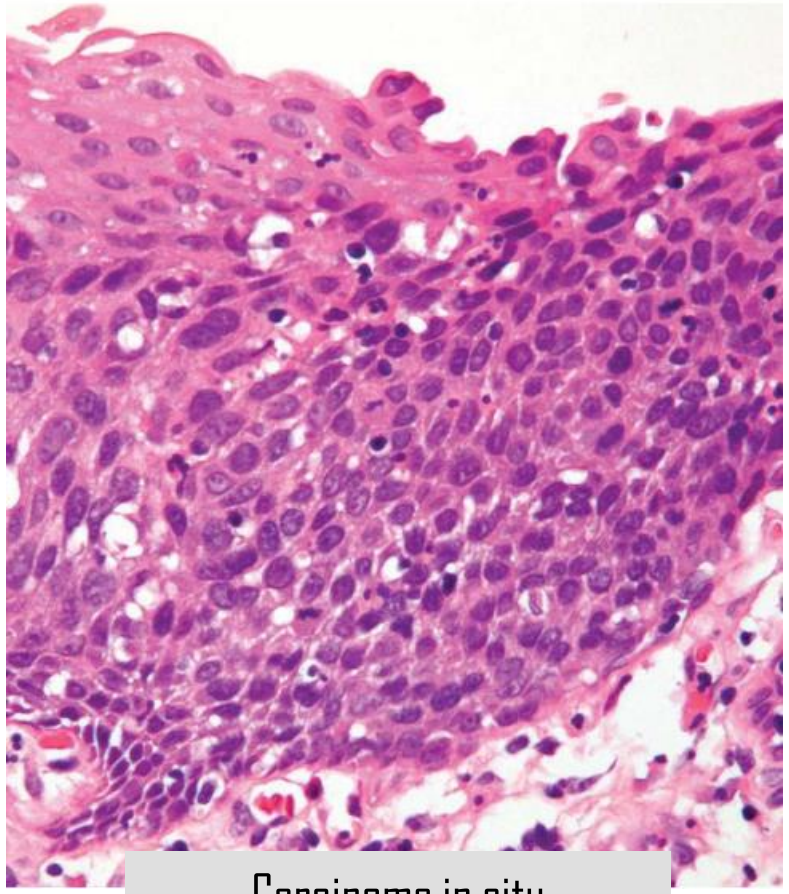
SQUAMOUS EPITHELIAL CHANGES OF THE LARYNX: DIAGNOSIS AND THERAPY

Alfio Ferlito, MD, DLO, DPath, FRCSEd *ad hominem*, FRCS (Eng, Glasg, Ir) *ad eundem*, FDSRCS *ad eundem*, FHKCORL, FRCPath, FASCP, IFCAP,[1] Kenneth O. Devaney, MD, JD, FCAP,[2] Julia A. Woolgar, FRCPath, PhD,[3] Pieter J. Slootweg, MD, DMD, PhD,[4] Vinidh Paleri, MS, FRCS (ORL-HNS),[5] Robert P. Takes, MD, PhD,[6] Primož Strojan, MD, PhD,[7] Patrick J. Bradley, MB, BCh, BAO, DCH, MBA, FRCS (Ed, Eng, Ir), FHKCORL, FRCSLT (*Hon*), FRACS (*Hon*),[8] Alessandra Rinaldo, MD, FRCSEd *ad hominem*, FRCS (Eng, Ir) *ad eundem*, FRCSGlasg[1]

HISTOPATHOLOGICAL TERMINOLOGY



Severe dysplasia



Carcinoma in situ

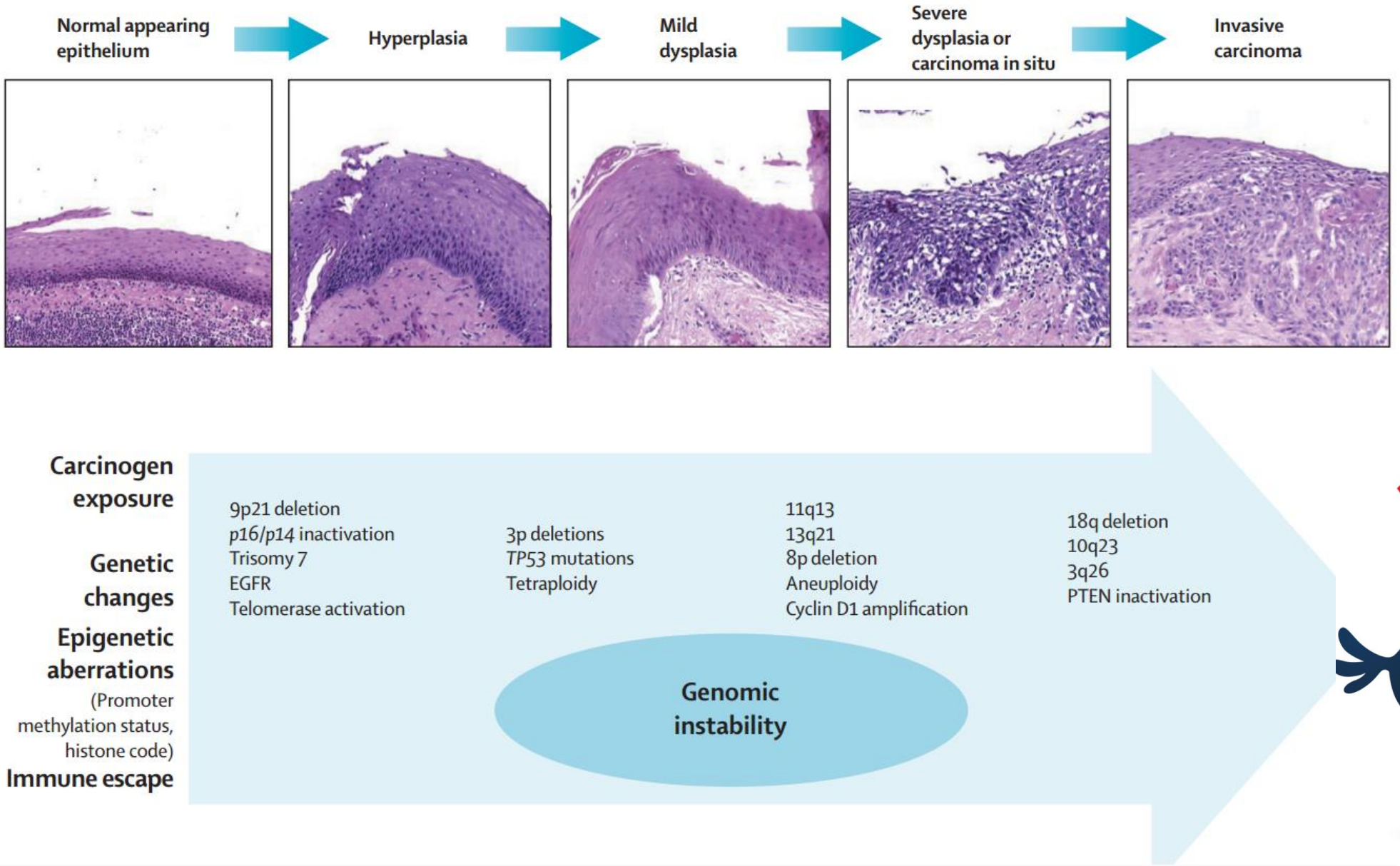
Laryngeale intraepitheliale Neoplasien
(Carcinoma in situ des Kehlkopfs)

Laryngeal Intraepithelial Neoplasia
(Carcinoma in situ of the Larynx)

1963

H. E. Eckel, W. Raunik, H. Rogatsch

	Kleinsasser-Klassifikation	WHO-Klassifikation	Ljubljana-Klassifikation	
Benigne	Grad I: Plattenepithel-hyperplasie	Simple squamous cell hyperplasia	Simple hyperplasia	
Präkanzeröse Läsion mit mäßigem Risiko der Karzinomentwicklung	Grad II: mäßige oder mittelgradige Dysplasie	Mild dysplasia	Abnormal hyperplasia (Basal/parabasal cell hyperplasia)	LIN 1
		Moderate dysplasia	Atypical hyperplasia	LIN 2
Präkanzeröse Läsion mit hohem Risiko der Karzinomentwicklung	Grad III: schwere Dysplasie	Severe dysplasia	Atypical hyperplasia	LIN 3
		Carcinoma in situ	Carcinoma in situ	



Head and neck cancer; Athanassios Argiris, Michalis V Karamouzis, David Raben, Robert L Ferris; Lancet 2008; 371: 1695–709

DEVELOPMENT OF INVASIVE CANCER

- ✓ Widely varying differences with respect to the probability of malignant progression in mild, moderate and severe dysplasia

- ✓ Meta-analysis of 940 cases, Weller et al demonstrated
  - ✓ **Overall malignant transformation rate of 14%**
  - ✓ **Mean time to malignant transformation of 5.8 years**
  - ✓ >>> with increased severity of dysplasia
    - ✓ **30.4% for severe dysplasia**
    - ✓ **10.6% for mild/moderate dysplasia**

- ✓No good evidence for the use of biomarkers in predicting the future behavior of laryngeal dysplastic lesions

The risk and interval to malignancy of patients with laryngeal dysplasia; a systematic review of case series and meta-analysis

Weller, M.D.,* Nankivell, P.C.,* McConkey, C.,† Paleri, V.‡ & Mehanna, H.M.*

*Institute of Head and Neck Studies and Education, University Hospitals Coventry and Warwickshire, Coventry, UK, †Clinical Trials Unit, University of Warwick, Coventry, UK, and ‡Freeman Hospital, Newcastle upon Tyne, UK

Accepted for publication 15 July 2010
Clin. Otolaryngol. 2010, **35**, 364–372

Malignant transformation and intervention type

The variety of interventions reported and the lack of clarity regarding interventions and follow-up regimes made it difficult to extract data on intervention type. The studies were subdivided into two groups, namely those where formal surgical excision had been performed in an attempt to excise the lesion, (using either cold steel or LASER) and a 'non-excision' group where only a biopsy had been performed or the modality of treatment was not made clear. When these two groups were analysed, the MTR was 15% (12%, 18%) for the surgical group (752 patients) and 21% (CI – 16%, 27%) for the 'non-excision' group (188 patients). This did not reach statistical significance even after adjustment for grade ($P = 0.12$).

Effect of treatment modality

The data shows lesions treated by surgical excision have a lower MTR than those that have not. This was not statistically significant, however, and therefore, it is not possible to make strong recommendations regarding the role of surgery in this condition. However, this provides a good basis for further research, enabling sample size calculations to be performed.

Original Investigation

Laryngeal Dysplasia, Demographics, and Treatment
A Single-Institution, 20-Year Review

Selmin Karatayli-Ozgursoy, MD; Paulette Pacheco-Lopez, MD; Alexander T. Hillel, MD; Simon R. Best, MD; Justin A. Bishop, MD; Lee M. Akst, MD

JAMA Otolaryngol Head Neck Surg. 2015;141(4):313-318. doi:10.1001/jamaoto.2014.3736

OBJECTIVES To review laryngeal dysplasia cases at a single institution during the last 20 years and identify changes in patient demographics, categorize treatment approaches, and review rates of progression to cancer.

Table 1. Demographics of the Study Participants

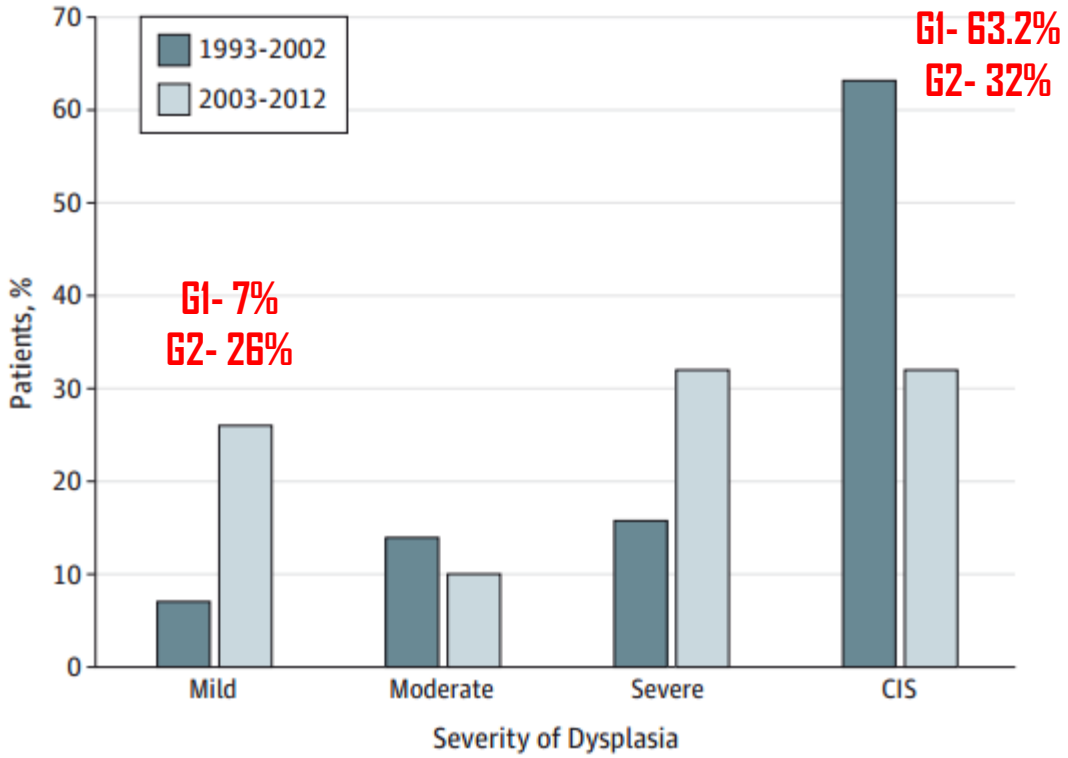
Demographic	No. (%) of Study Participants	
	Group 1 (1993-2002) (n = 57)	Group 2 (2003-2012) (n = 50)
Age ≥65 years	36 (63.2)	20 (40.0)
Sex		
Male	45 (78.9)	38 (76.0)
Female	12 (21.1)	12 (24.0)
Smoking status		
Yes	35 (61.4)	41 (82.0)
No	8 (14.0)	6 (12.0)
Unknown	14 (24.6)	3 (6.0)
>30 Pack-years	13 (22.8)	20 (40.0)

Original Investigation

Laryngeal Dysplasia, Demographics, and Treatment
A Single-Institution, 20-Year Review

Selmin Karatayli-Ozgursoy, MD; Paulette Pacheco-Lopez, MD; Alexander T. Hillel, MD; Simon R. Best, MD; Justin A. Bishop, MD; Lee M. Akst, MD

Distribution of the Severity of Dysplasia for Each Study Period



For mild dysplasia, the difference in the study periods is statistically significant at $P = .007$; for carcinoma in situ (CIS), the difference in the study periods is statistically significant at $P = .002$.

Treatment Modality in Each Group

Treatment Modality	No. (%) of Study Participants		
	Group 1 (n = 57)	Group 2 (n = 50)	Total (N = 107)
Radiotherapy	8 (14.0)	3 (6.0)	**11** (10.3)
Biopsy without complete excision	16 (28.1)	16 (32.0)	**32** (29.9)
Complete excision	33 (57.9)	31 (62.0)	**64** (59.8)

Research

Original Investigation

Laryngeal Dysplasia, Demographics, and Treatment
A Single-Institution, 20-Year Review

Selmin Karatayli-Ozgursoy, MD; Paulette Pacheco-Lopez, MD; Alexander T. Hillel, MD; Simon R. Best, MD; Justin A. Bishop, MD; Lee M. Akst, MD

Table 3. Cancer Progression According to Severity of Dysplasia

Severity of Dysplasia	No. (%) of Study Participants			
	No Cancer Progression (n = 91)	Cancer Progression (n = 9)	Lost to Follow-up (n = 7)	Total (N = 107)
Mild	14 (15.4)	1 (11.1)	2 (28.6)	17 (15.9)
Moderate	10 (11.0)	2 (22.2)	1 (14.3)	13 (12.1)
Severe	23 (25.3)	1 (11.1)	1 (14.3)	25 (23.4)
Carcinoma in situ	44 (48.4)	5 (55.6)	3 (42.9)	52 (48.6)

Table 4. Cancer Progression According to Treatment Modality

Treatment Modality	No. (%) of Study Participants			
	No Cancer Progression (n = 91)	Cancer Progression (n = 9)	Lost to Follow-up (n = 7)	Total (N = 107)
Radiotherapy	10 (11.0)	1 (11.1)	0	11 (10.3)
Biopsy without complete excision	27 (29.7)	3 (33.3)	2 (28.6)	32 (29.9)
Complete excision	54 (59.3)	5 (55.6)	5 (71.4)	64 (59.8)

Overall, 8.4% of PT had a malignant transformation

Laryngeal preneoplastic lesions and cancer: challenging diagnosis. Qualitative literature review and meta-analysis.

Giuditta Mannelli (MD)[a,*], Lorenzo Cecconi (PhD)[b], Oreste Gallo (MD)[a]

[a] *First Clinic of Otolaryngology, Head and Neck Surgery, Department of Translational Surgery and Medicine, University of Florence, Italy*
[b] *Department of Statistics, Informatics and Application "G.Parenti", University of Florence, Italy*

"Obtaining images of high quality and resolution, revealing the detailed morphology of the glottal structures, is on of the main tasks in laryngeal imaging."

WHICH ARE THE CURRENT LARYNGEAL DIAGNOSTIC SYSTEMS?

- ✓ Endoscopy – white light laryngoscopy
- ✓ Stroboscopy
- ✓ **Contact endoscopy**
- ✓ **Autofluorescence**
- ✓ **Narrow band imaging (NBI)**
- ✓ Ultrasound
- ✓ Computed axial tomography (CAT)/MRI

Laryngeal preneoplastic lesions and cancer: challenging diagnosis. Qualitative literature review and meta-analysis.

Giuditta Mannelli (MD)[a,*], Lorenzo Cecconi (PhD)[b], Oreste Gallo (MD)[a]

[a] First Clinic of Otolaryngology, Head and Neck Surgery, Department of Translational Surgery and Medicine, University of Florence, Italy
[b] Department of Statistics, Informatics and Application "G.Parenti", University of Florence, Italy

Contact endoscopy

- ✓ First described in 1979 by Hamou, offers additional in vivo diagnostic procedure based on the staining of the superficial mucosal layer and direct in vivo and in situ examination of the epithelial cells
- ✓ Technique: staining of the superficial cells with 1% MB before the magnification of the suspected areas through the direct contact of the tip of the endoscope
  - ✓ High magnification --- cells + blood vessels
- ✓ False negatives…
  - ✓ Due to incomplete penetration of the stain
  - ✓ Carcinoma in situ --- absence of angioneogenesis does not exclude the possibility of IC
- ✓ Reliability --- 75% to 88%

The Laryngoscope

Enhanced Contact Endoscopy for the Detection of Neoangiogenesis in Tumors of the Larynx and Hypopharynx

Roberto Puxeddu, MD, FRCS; Sara Sionis, MD; Clara Gerosa, MD; Filippo Carta, MD

TABLE II.
Enhanced Contact Endoscopy Vascular Patterns.

Vascular Pattern	Diagnosis	Description
Type 0	Normal mucosa	Thin-end regular subepithelial vessels connecting with a thicker and deeper arborescent vascular network running parallel to the epithelium.
Type I	Inflammation	The subepithelial vessels are increased in number and size, with irregular and sometimes crossing directions.
Type II	Hyperplasia	When the hyperplasia is at the initial stage, intra-CLs are visible running toward the surface. In this phase, CLs are generally still very thin and short, arising from the underlying inflammatory vasculature, with a scattered distribution, but in case of mature hyperplasia, the deeper inflammatory vascular network is not visible, and only the elongated CLs can be easily seen. In the case of vegetating keratosis, the deeper inflammatory vascular network is often not visible, and the elongated CLs are difficult to see. A particular type of "bobby-pin" can be seen in laryngeal papillomatosis, where we found the typical papilla encasing the "bobby-pin" inside the papilloma.
Type III	Mild–moderate dysplasia	Vascular changes become progressively more consistent, with elongated small vessels in the typical "bobby-pin" shape, but some arborescence appears at the end of the CLs.
Type IV	High-grade dysplasia/carcinoma in situ/invasive carcinoma	The vascularity of the chorion is more evident, and CLs appear significantly dilated, with various shapes and a wide range of vascular architectural changes such as corkscrews or tree-like patterns.

CLs = capillary loops.

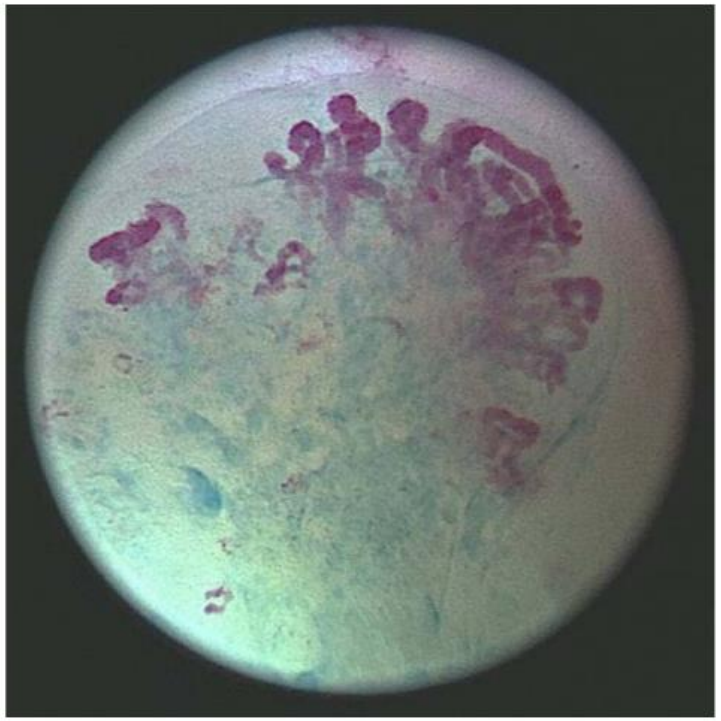


Fig. 4. Patient 31, squamous cell carcinoma. Contact endoscopy + Storz Professional Image Enhancement System–Spectra B mode with 1% methylene blue staining (60×). Type IV alterations of the capillary loops are strongly reliable, with histologic diagnosis of carcinoma. [Color figure can be viewed in the online issue, which is available at www.laryngoscope.com.]

Laryngeal preneoplastic lesions and cancer: challenging diagnosis. Qualitative literature review and meta-analysis.

Giuditta Mannelli (MD)[a,*], Lorenzo Cecconi (PhD)[b], Oreste Gallo (MD)[a]

[a] First Clinic of Otolaryngology, Head and Neck Surgery, Department of Translational Surgery and Medicine, University of Florence, Italy
[b] Department of Statistics, Informatics and Application "G.Parenti", University of Florence, Italy

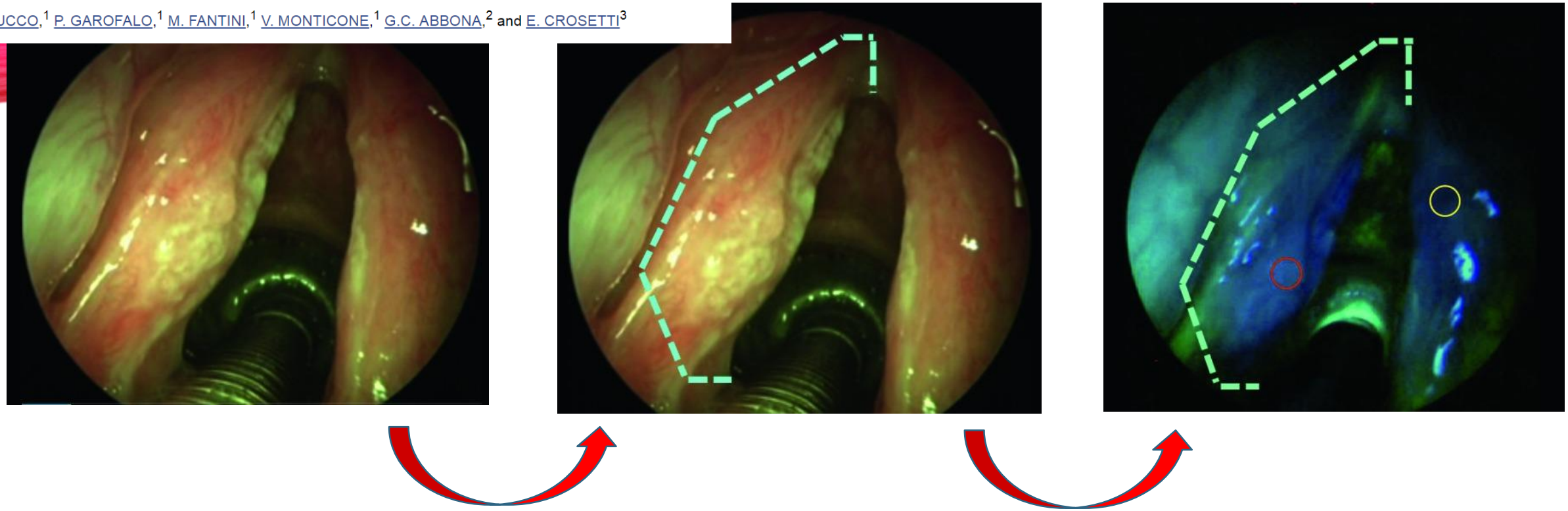
Auto fluorescence

- ✓ Auto fluorescence is defined as a natural fluorescence emission of tissue arising from endogenous fluorophores after exposure and activation by radiation of a suitable wavelength
- ✓ Fluorophores are present at different concentrations in healthy and neoplastic laryngeal mucosa

(Wagnieres et al., 1998). Autofluorescence diagnosis is based on the ability of oxidised flavin mononucleotide (FMN) in the normal cells to emit green fluorescence when exposed to blue light. Nicotinamide adenine dinucleotide plus hydrogen (NADH) and flavin adenine dinucleotide (FAD) are important intracellular fluorophores found in all tissue layers; their concentration is nearly 100 times lower in malignant tissue than in benign tissue (Uppal and Gupta, 2003), therefore, malignant cells do not have fluorescence to the same degree as benign cells (Baletic et al., 2004).

Direct autofluorescence during CO_2 laser surgery of the larynx: can it really help the surgeon?

G. SUCCO,[1] P. GAROFALO,[1] M. FANTINI,[1] V. MONTICONE,[1] G.C. ABBONA,[2] and E. CROSETTI[3]



Stepwise protocol used for intraoperative work-up. **A:** during direct microlaryngoscopy, **initial assessment in white light** of a suspected left vocal cord SCC staged cT1a; B: the area of excision is marked with several laser spots, maintaining an apparent margin of healthy tissue of approximately 2 mm compared to the visible limits of the suspected neoplastic lesion; C: **assessment of field using direct autofluorescence showing an area of surgical excision insufficient compared to that found by autofluorescence in the dark** [the histological examination on the surgical specimen and biopsy on the contralateral vocal cord found an invasive SCC in both the site of the clinically visible tumour (red circle) and in the contralateral vocal cord (yellow circle)

UPSTAGING FROM GLOTTIC T1A TO T1B

Laryngeal preneoplastic lesions and cancer: challenging diagnosis. Qualitative literature review and meta-analysis.

Giuditta Mannelli (MD)[a,*], Lorenzo Cecconi (PhD)[b], Oreste Gallo (MD)[a]

[a] *First Clinic of Otolaryngology, Head and Neck Surgery, Department of Translational Surgery and Medicine, University of Florence, Italy*
[b] *Department of Statistics, Informatics and Application "G.Parenti", University of Florence, Italy*

Flaws on autofluorescence!!!

- ✓ Illuminating light does not penetrate through diseased epithelium
- ✓ Granulation tissue and telangiectasia produce similar reduction in bright-green fluorescence (attribute to the absorptive properties of heme molecule)
- ✓ Scar tissue, necrosis and inflammation can unpredictably alter mucosal fluorescence

Laryngeal preneoplastic lesions and cancer: challenging diagnosis. Qualitative literature review and meta-analysis.

Giuditta Mannelli (MD)[a,*], Lorenzo Cecconi (PhD)[b], Oreste Gallo (MD)[a]

[a] *First Clinic of Otolaryngology, Head and Neck Surgery, Department of Translational Surgery and Medicine, University of Florence, Italy*
[b] *Department of Statistics, Informatics and Application "G.Parenti", University of Florence, Italy*

Narrow band imaging (NBI)

- ✓ Optical image enhancement technology that enhances vessels in the surface mucosa using the characteristics of the light spectrum (Sano et al, 2001)
- ✓ NBI system contains a lighting unit with special filters that narrow the frequency range --- 400-430 nm (blue) and 525-555 nm (green) bands
- ✓ Since blue light wv (415 nm) is absorbed by hemoglobin the capillary blood vessels are seen brown in the summary picture
- ✓ Abnormalities of the intraepithelial papillary loop, located beneath the basement membrane of epithelium, have been found to predict the depth of superficial cancer invasion

Proposal for a descriptive guideline of vascular changes in lesions of the vocal folds by the committee on endoscopic laryngeal imaging of the European Laryngological Society

Christoph Arens[1] · Cesare Piazza[2] · Mario Andrea[3] · Frederik G. Dikkers[4] · Robin E. A. Tjon Pian Gi[4] · Susanne Voigt-Zimmermann[1] · Giorgio Peretti[5]

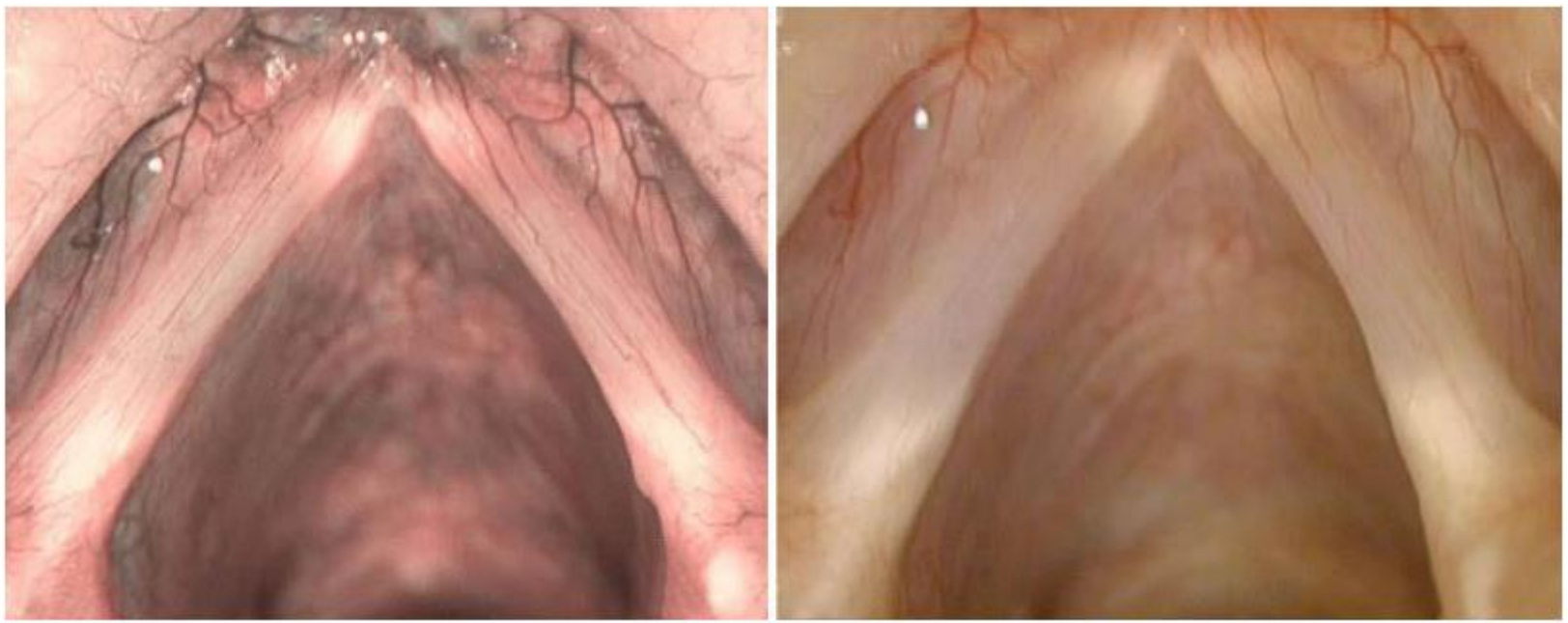


Fig. 1 Laryngoscopic picture (WL and NBI) presenting a normal vascular pattern of vocal folds (*thin*, parallel running to the medial edge of vocal fold, arising from posterior and anterior blood vessels of vocal folds)

Proposal for a descriptive guideline of vascular changes in lesions of the vocal folds by the committee on endoscopic laryngeal imaging of the European Laryngological Society

Christoph Arens[1] · Cesare Piazza[2] · Mario Andrea[3] · Frederik G. Dikkers[4] · Robin E. A. Tjon Pian Gi[4] · Susanne Voigt-Zimmermann[1] · Giorgio Peretti[5]

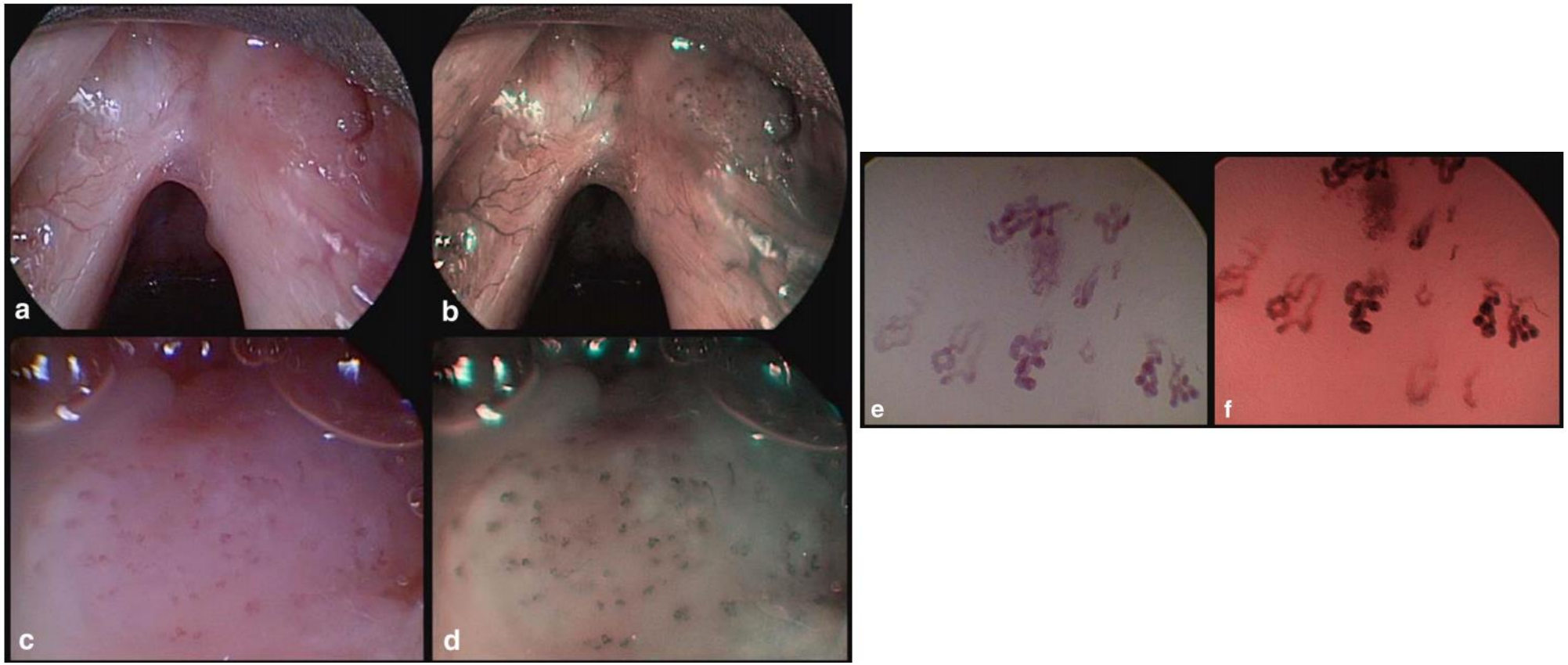


Fig. 12 **a–f** Typical dots in carcinoma in situ (**a**, **c**, **e** WL and **b**, **d**, **f** NBI, **e**, **f** contact endoscopy)

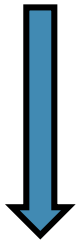
Consensus statement by otorhinolaryngologists and pathologists on the diagnosis and management of laryngeal dysplasia

Mehanna, H.,* Paleri, V.,† Robson, A.,‡ Wight, R.§ & Helliwell, T.¶

*Institute of Head and Neck Studies and Education, University Hospitals Coventry and Warwickshire, Coventry, UK, †Freeman Hospital, Newcastle upon Tyne, UK, ‡Dept of Otorhinolaryngology, North Cumbria Acute Hospitals NHS Trust, §Dept of Head Neck surgery, James Cook University Hospital Middlesbrough and ¶Division of Pathology, University of Liverpool

Accepted for publication 5 March 2010
Clin. Otolaryngol. 2010, **35**, 170–176

clinicians. The aims of the workshop were to develop consensus criteria for the histopathological reporting and clinical management of patients with laryngeal dysplasia/intra-epithelial neoplasia. As a prelude to detailed



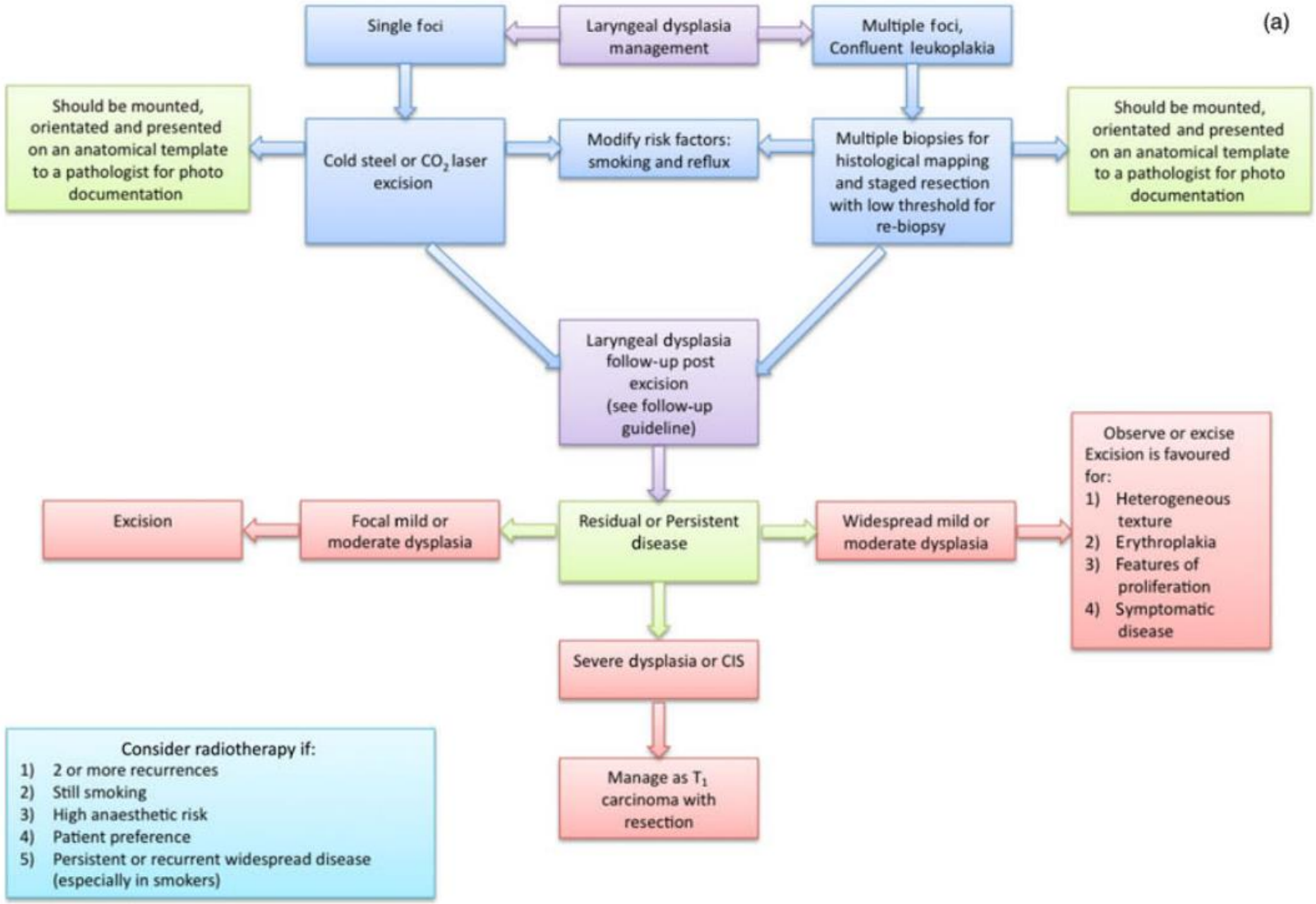
The Journal of Laryngology & Otology, 1 of 2.

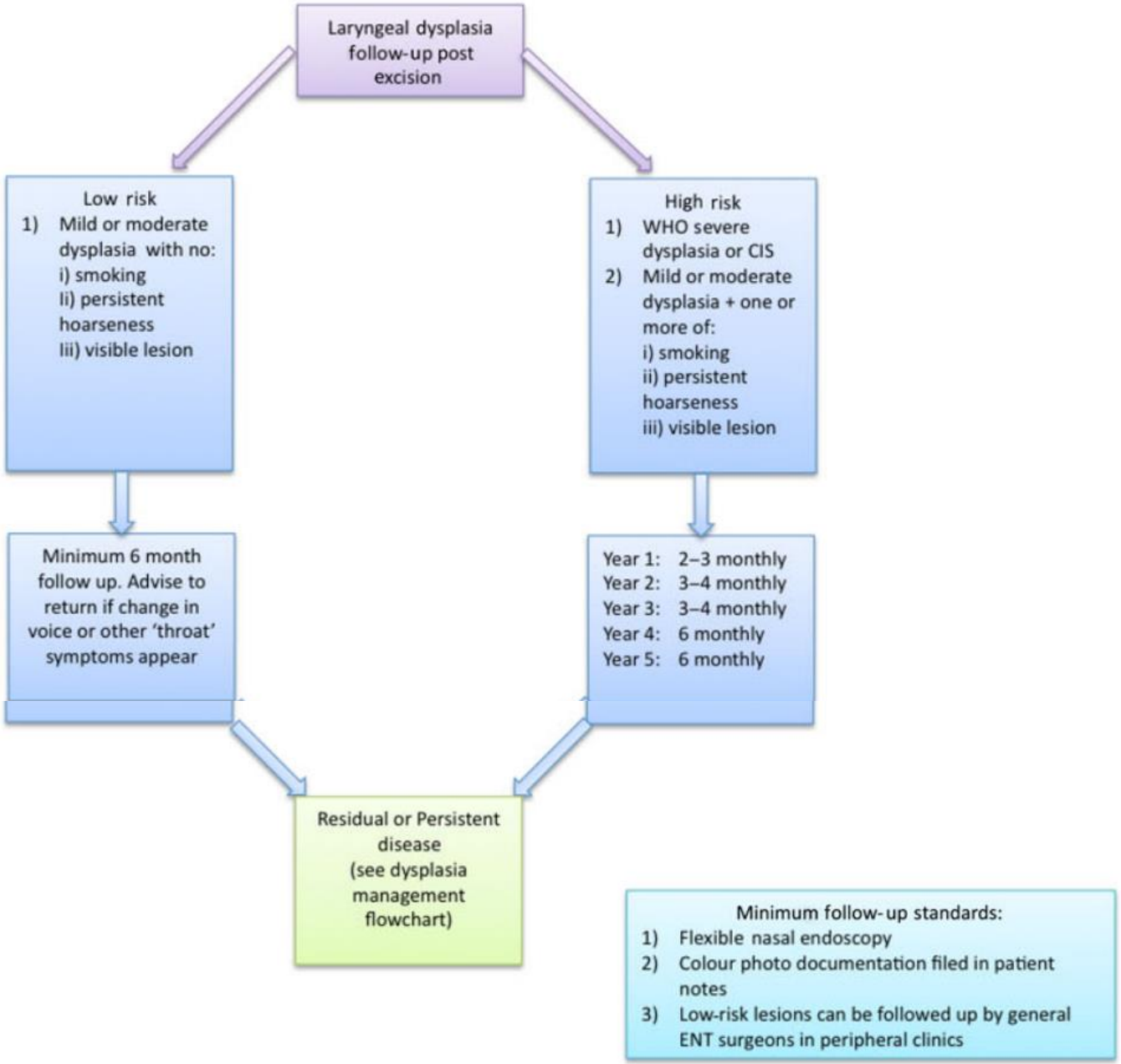
doi:10.1017/S0022215115000833

Laryngeal dysplasia: an evidence-based flowchart to guide management and follow up

B COSWAY, V PALERI

Department of Otolaryngology, Head and Neck Surgery, Freeman Hospital, Newcastle Upon Tyne, UK




Laryngeal dysplasia follow-up post excision
Low risk
1) Mild or moderate dysplasia with no:
i) smoking
Ii) persistent hoarseness
Iii) visible lesion
High risk
1) WHO severe dysplasia or CIS
2) Mild or moderate dysplasia + one or more of:
i) smoking
ii) persistent hoarseness
iii) visible lesion
Minimum 6 month follow up. Advise to return if change in voice or other 'throat' symptoms appear
Year 1: 2–3 monthly
Year 2: 3–4 monthly
Year 3: 3–4 monthly
Year 4: 6 monthly
Year 5: 6 monthly
Residual or Persistent disease
(see dysplasia management flowchart)
Minimum follow-up standards:
1) Flexible nasal endoscopy
2) Colour photo documentation filed in patient notes
3) Low-risk lesions can be followed up by general ENT surgeons in peripheral clinics

Consensus statement by otorhinolaryngologists and pathologists on the diagnosis and management of laryngeal dysplasia

Mehanna, H.,* Paleri, V.,† Robson, A.,‡ Wight, R.§ & Helliwell, T.¶

*Institute of Head and Neck Studies and Education, University Hospitals Coventry and Warwickshire, Coventry, UK, †Freeman Hospital, Newcastle upon Tyne, UK, ‡Dept of Otorhinolaryngology, North Cumbria Acute Hospitals NHS Trust, §Dept of Head Neck surgery, James Cook University Hospital Middlesbrough and ¶Division of Pathology, University of Liverpool

Accepted for publication 5 March 2010
Clin. Otolaryngol. 2010, **35**, 170–176

Table 1. Potential priority areas of research identified by the group

1. Epidemiological
   - Incidence/natural history
   - Progression rate
   - Mortality rates/laryngectomy rates
   - Response to radiotherapy
   - Control for site/selection bias
2. Diagnostic
   - Reproducibility – type of biopsy
3. Pathogenesis
   - HPV
   - Cellular mechanism of recurrence
   - Biomarkers predicting progression
   - Behaviour/mechanism of progressive lesions
   - ?Animal models/cell lines
4. Treatment
   - Effect of radiotherapy on dysplasia (does it get more unstable)
   - Are there markers of radioresistance
   - Screening for second primaries in lung & oral cavity
   - Standardisation of treatment
     - Non-surgical treatment
     - Chemoprevention
5. Follow-up
   - Smoking cessation and its effects on natural history
   - Triggers for re-biopsy
6. Outcomes
   - Voice outcomes


WELL, I WASN'T ABLE TO GET THE NAIL OUT OF YOUR HEAD...
BUT I WAS ABLE TO *PHOTOSHOP* IT OUT OF YOUR HEAD!
HOW'S THAT SUPPOSED TO HELP?
Cyanide and Happiness © Explosm.net

Thank you!