

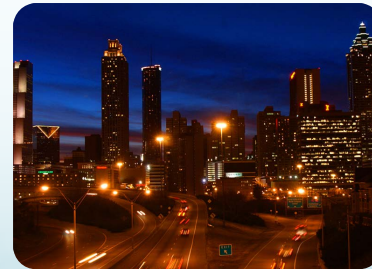
EMORY



# Laryngeal Papillomatosis Associated Dysplasia in the Adult Population: An update on prevalence and HPV subtype

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GSO Annual Fall Meeting  
December 7-8, 2013

# Disclosures

- None

# Introduction

- HPV subtypes most frequently associated with laryngeal papillomatosis include HPV 6, 11, as well as HPV 16, 18, 31, 33, 51<sup>1</sup>
- High risk HPV subtypes (16/18) are increasingly associated with oropharyngeal carcinoma's
- Recent studies cite dysplasia associated with laryngeal papillomatosis to occur with a 22-50% prevalence
- The association of high risk HPV subtypes have yet to be explored for laryngeal papilloma associated dysplasia

# Objectives

- To determine the prevalence of laryngeal dysplasia in a sample population of adult patients with laryngeal papillomatosis
- To determine if there is an association of high or low risk HPV subtypes with laryngeal papilloma associated dysplasia's
- To assess pathologic agreement between pathologists when grading dysplasia

# Methods

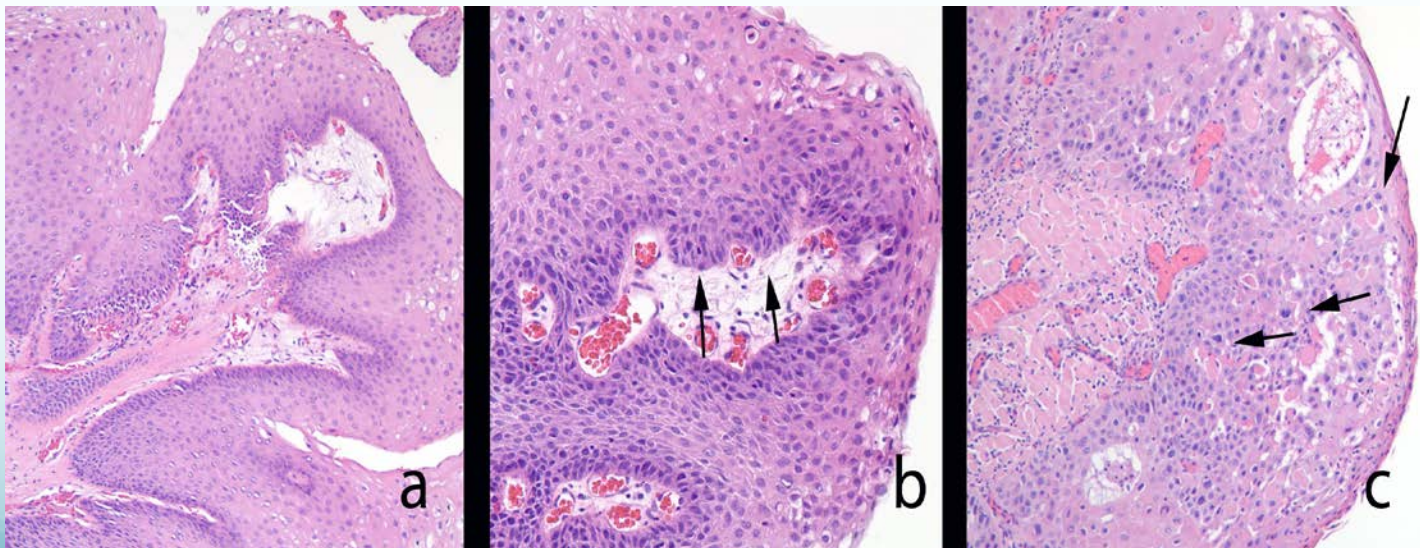
- Institutional IRB approval
- Retrospective review
- Inclusion criteria:
  - Patients over age 18 (both adult and juvenile onset)
  - At least one surgical procedure under GA
  - Pathologic confirmation of laryngeal papillomatosis

# Methods – Chart review

- Demographic data
  - Age, sex
- Disease data
  - Onset, duration, number of procedures, presence of dysplasia (initial diagnosis)
- Degree of dysplasia
- HPV sub-typing
- Risk factors
  - GERD/LPR, smoking, head and neck irradiation, carcinogen exposure, immunosuppression

# Methods – Pathologic Review

- All pathologic specimens reviewed by a single H&N pathologist (SM)
  - Diagnosis (present/absent)
  - Grade (WHO classification)



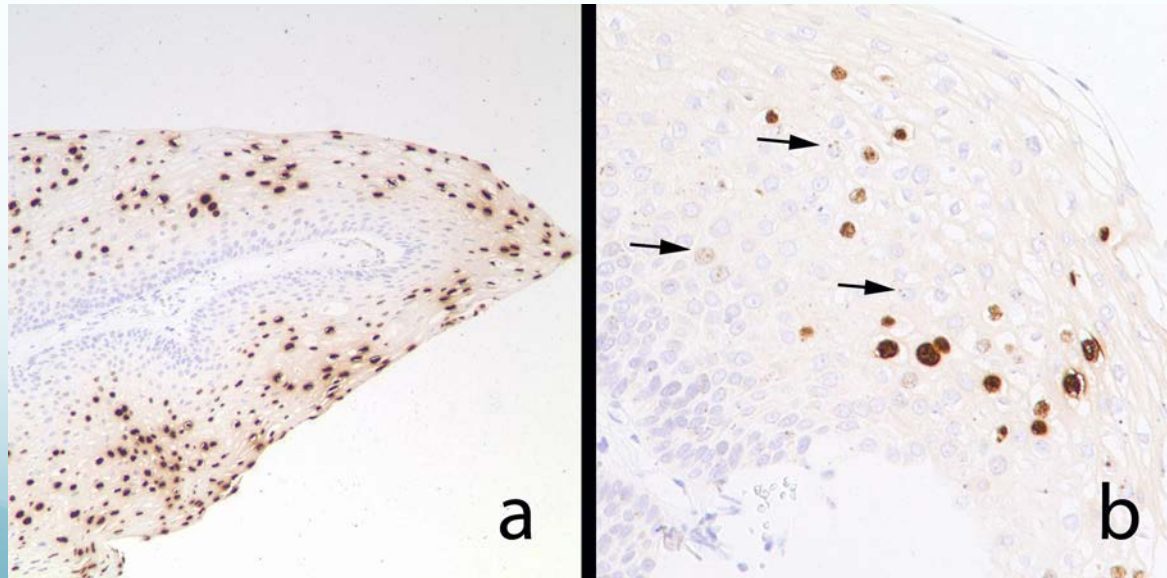
Low Grade Dysplasia

Moderate Grade Dysplasia

High Grade Dysplasia

# Methods – Pathologic review

- Specimens identified to be dysplastic were then further tested by ISH for HPV subtype
  - HPV 6/11 or HPV 16/18 DNA probe
  - Presence of punctate or diffuse staining patterns were noted





# Results: Patient demographic

- 85 patients
  - 26 female
  - 59 male
- Onset of disease
  - 17 JORRP
  - 68 Adult onset
- 154 total specimens reviewed

# Results – Patient demographics

	Mean	Minimum, Maximum	Standard Deviation
Age (years)	47.6	18,89	16.7
Duration of disease (years)	12.0	1,70	14.8
Mean age of onset (years)	35.3	1,89	15.8
Number pathology specimens per patient	1.8	0,14	2.0

# Results: Inter-rater Agreement

- Presence or Absence of Dysplasia
  - “Good” agreement (0.73 Cohen’s Kappa)

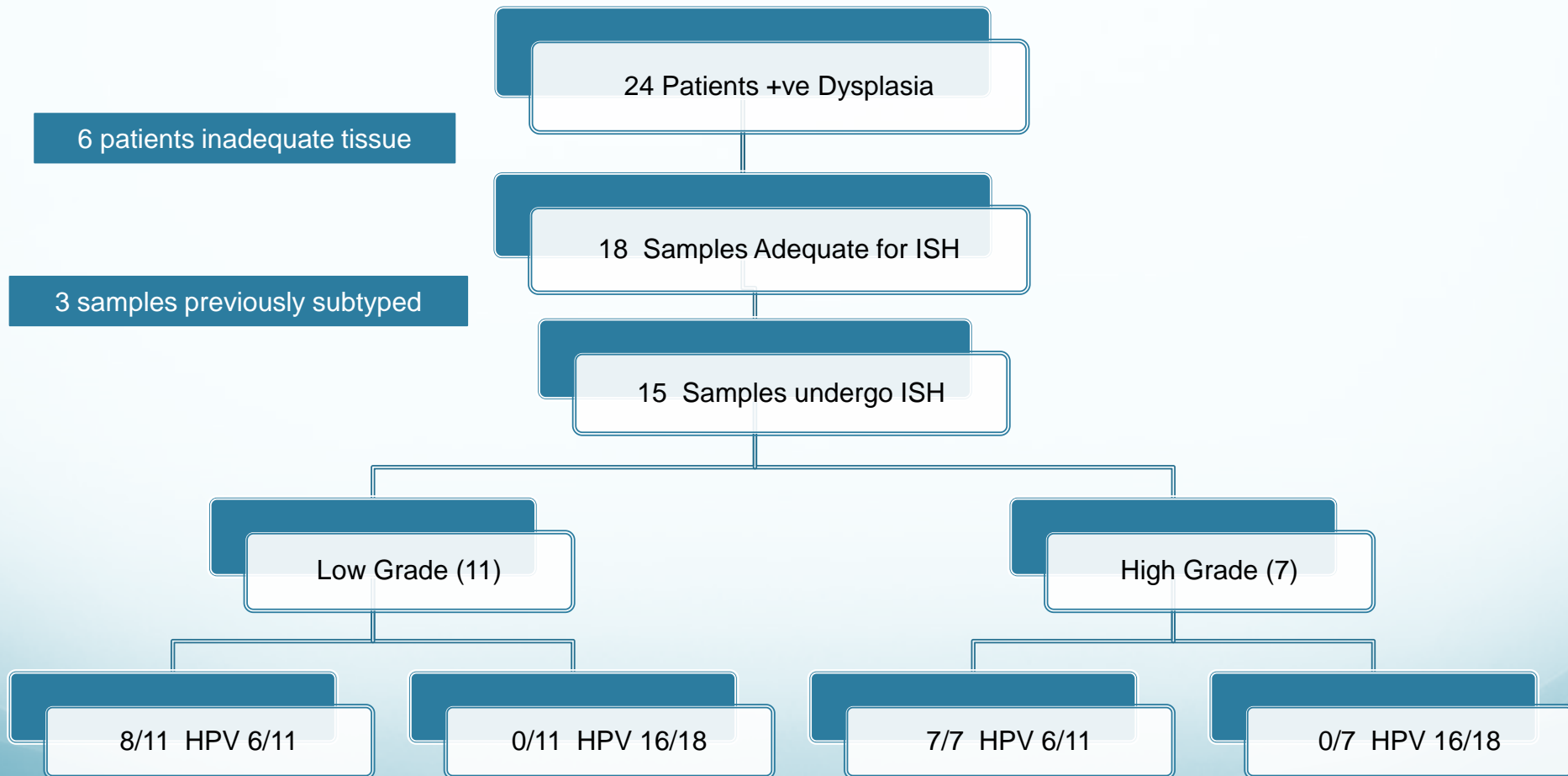
	Dysplasia absent (R)	Dysplasia present (R)	Total
Dysplasia absent (I)	58	6	64
Dysplasia present (I)	3	18	21
Total	61	24	85

# Results: Inter-rater agreement

- Degree of Dysplasia
  - Overall agreement “fair” (0.63 Kappa Value)

	No dysplasia	Low (R)	Moderate (R)	High (R)
No dysplasia	58	5	0	0
Low (I)	3	7	0	0
Moderate (I)	0	4	0	2
High (I)	0	0	0	6

# Results: HPV subtyping



# Results: Risk Factors

- No relation of risk factors to presence or grade of dysplasia
  - Smoking
  - Reflux
  - Adjuvant therapy
    - 6 cidofovir
  - Immunosuppression
  - XRT

# Study limitations

- Single pathologist reviewed slides
  - Un-blinded to original results
- Single institution
  - Tertiary care institution
- Rare disease

# Conclusions

- 28% prevalence of laryngeal dysplasia in this sample population
- No association of high risk HPV subtypes with presence or degree of dysplasia associated with laryngeal papillomatosis
- Pathologic inter-rater agreement “good” for the identification of dysplasia, but not for grade of dysplasia



# References

1. Go C, Schwartz MR, Donovan DT. Molecular transformation of recurrent respiratory papillomatosis: viral typing and p53 overexpression. *Ann Otol Rhinol Laryngol.* 2003; 112(4): 298-302.
2. Blumin JH, Handler EB, Simpson CB, Osipov V, Merati AL. Dysplasia in adults with recurrent respiratory papillomatosis: incidence and risk factors. *Annals of Otolology, Rhinology & Laryngology.* 2009; 118(7):481-5.
3. Hall JE, Chen K, Yoo MJ, Fletcher KC, Ossoff RH, Garrett CG. Natural progression of dysplasia in adult recurrent respiratory papillomatosis. *Otolaryngol – Head and Neck Surgery.* 2011; 144(2):252-256.

THANK YOU



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