

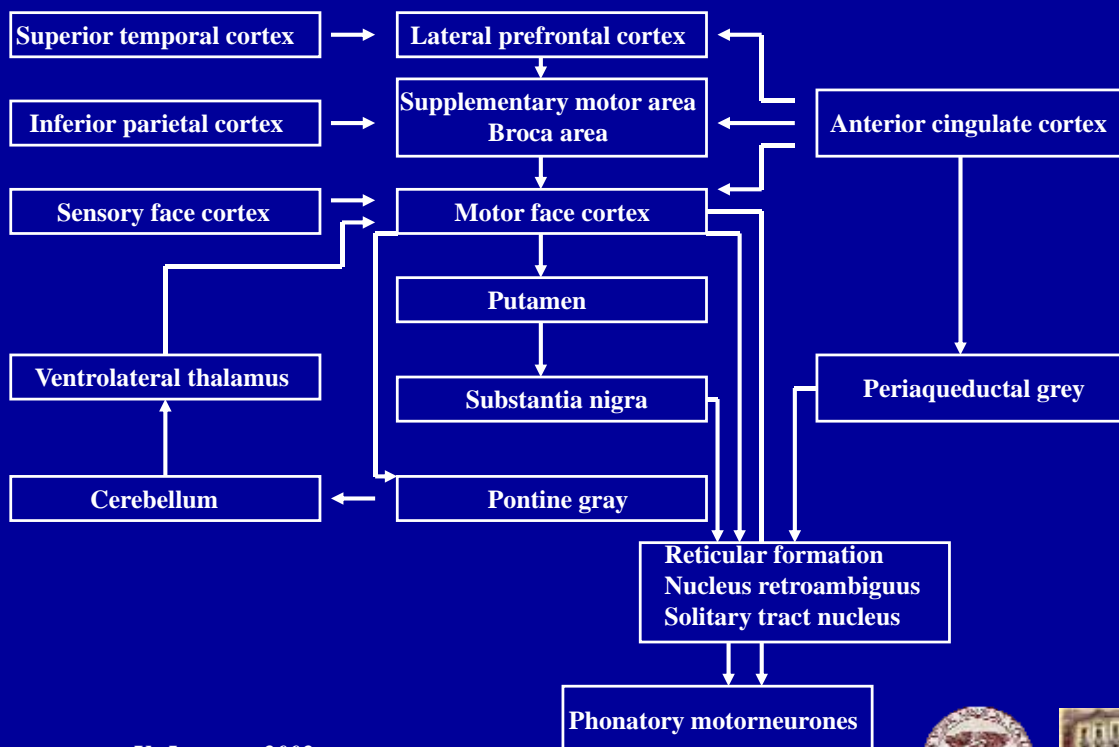
MECHANISMS OF VOCAL FOLD PARALYSIS (immobility) AND DIFFERENTIAL DIAGNOSIS

Steven D. Schaefer, MD, FACS
Professor and Chair
Department of Otolaryngology
New York Eye and Ear Infirmary
New York Medical College



Vocal Fold Paralysis

Neural Pathways for Speech Production

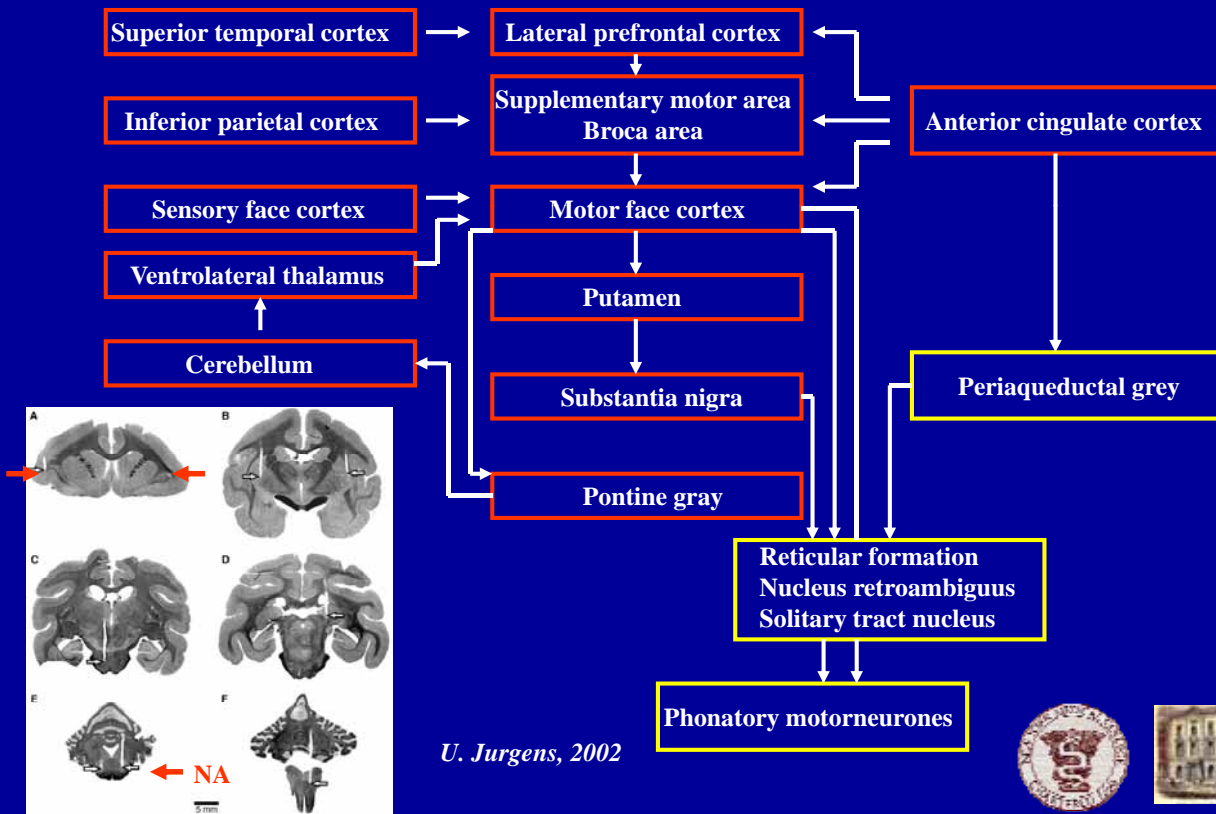


U. Jurgens, 2002



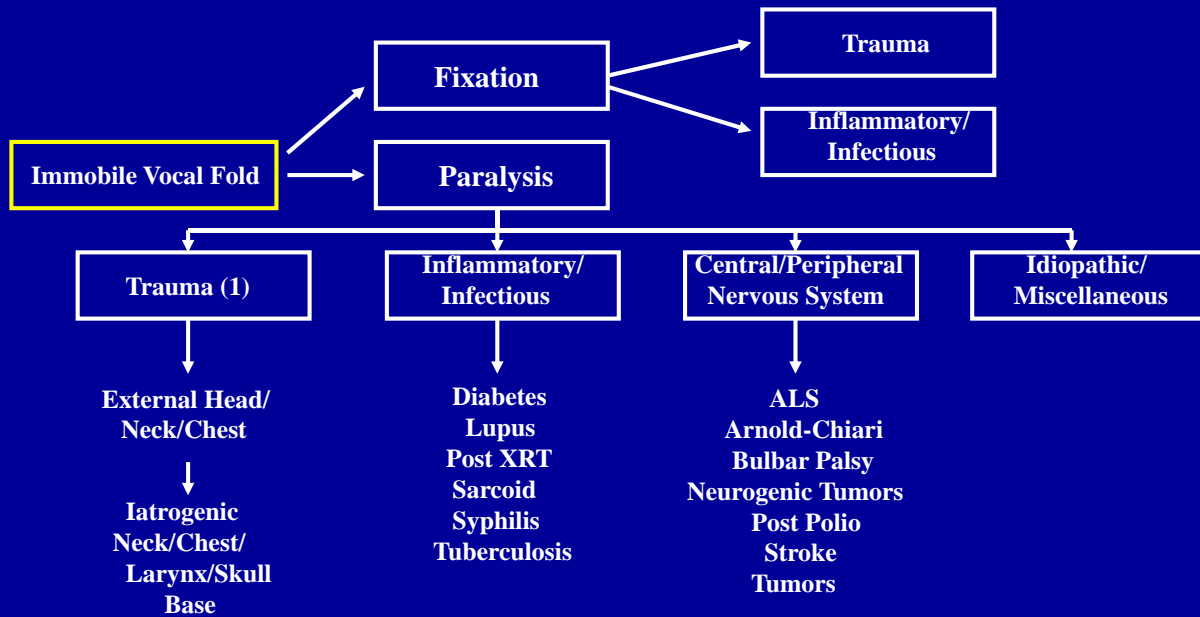
Vocal Fold Paralysis

Neural **Innate** and **Voluntary** Vocalization Pathways



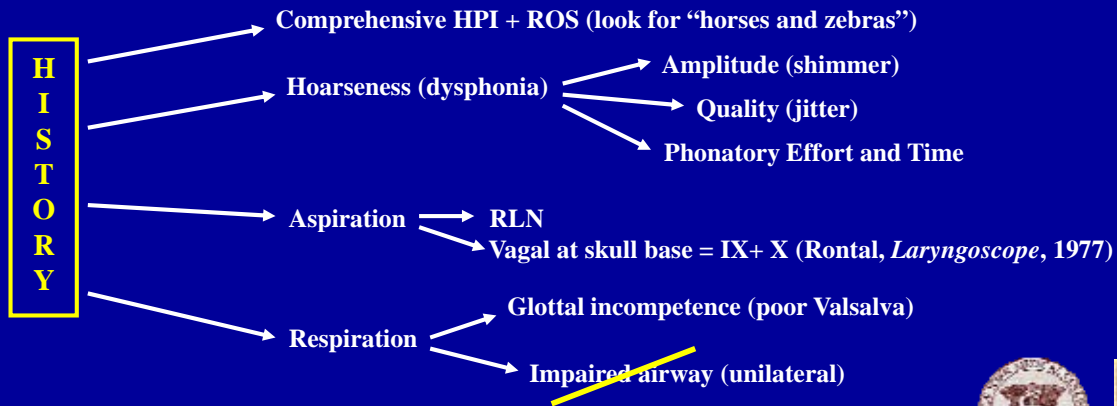
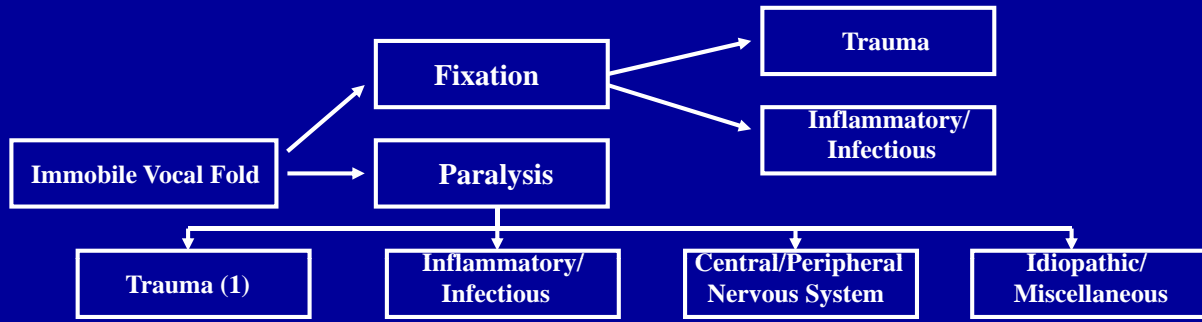
Vocal Fold Paralysis

Etiology of Immobile Vocal Fold

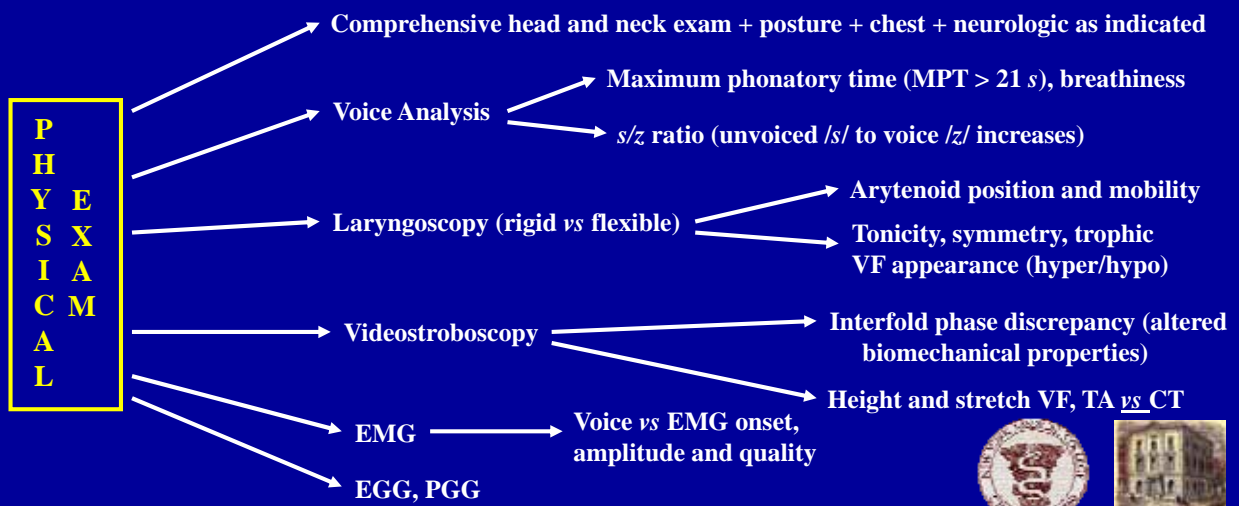
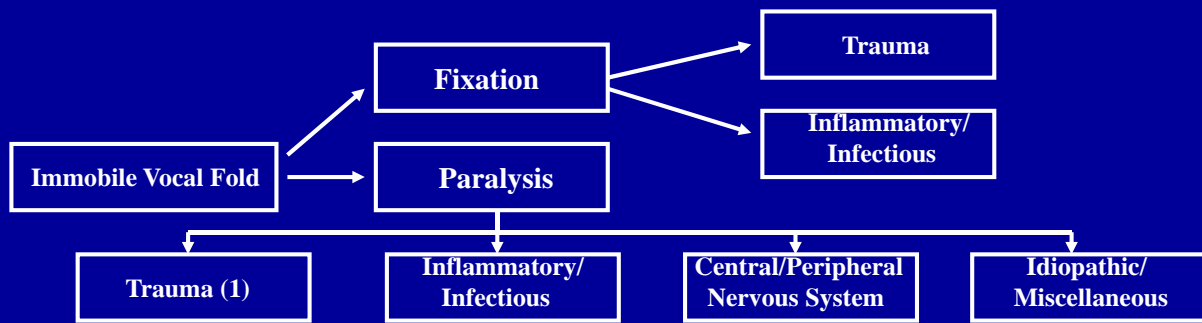


(1) Trauma + idiopathic = 34 – 44%, Maisel, 1974; Terris, 1992; Benninger, 1998; Netterville, 2003

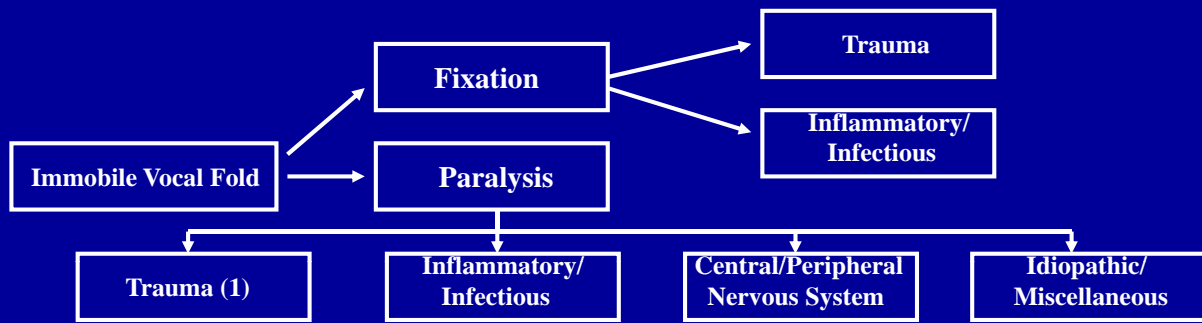
Vocal Fold Paralysis (Unilateral)



Vocal Fold Paralysis



Vocal Fold Paralysis



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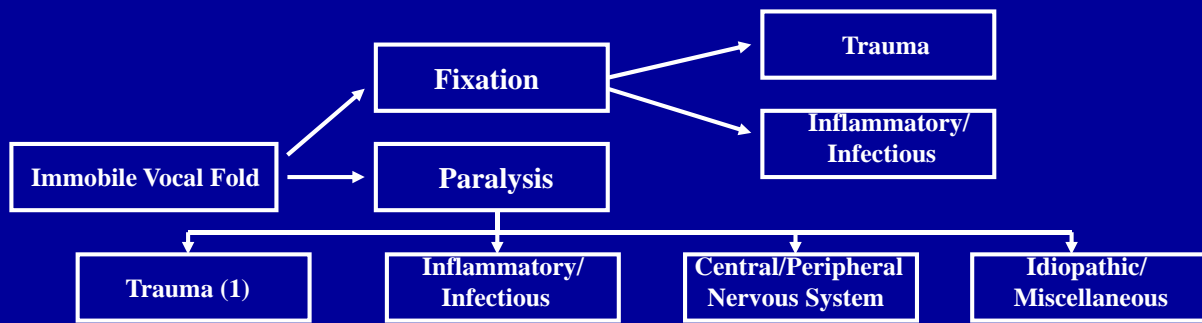
Videostroboscopy
High speed video

Interfold phase discrepancy (altered biomechanical properties)

Height and stretch VF, TA vs CT



Vocal Fold Paralysis



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Videostroboscopy
High speed video

Interfold phase discrepancy (altered biomechanical properties)

Height and stretch VF, TA vs CT

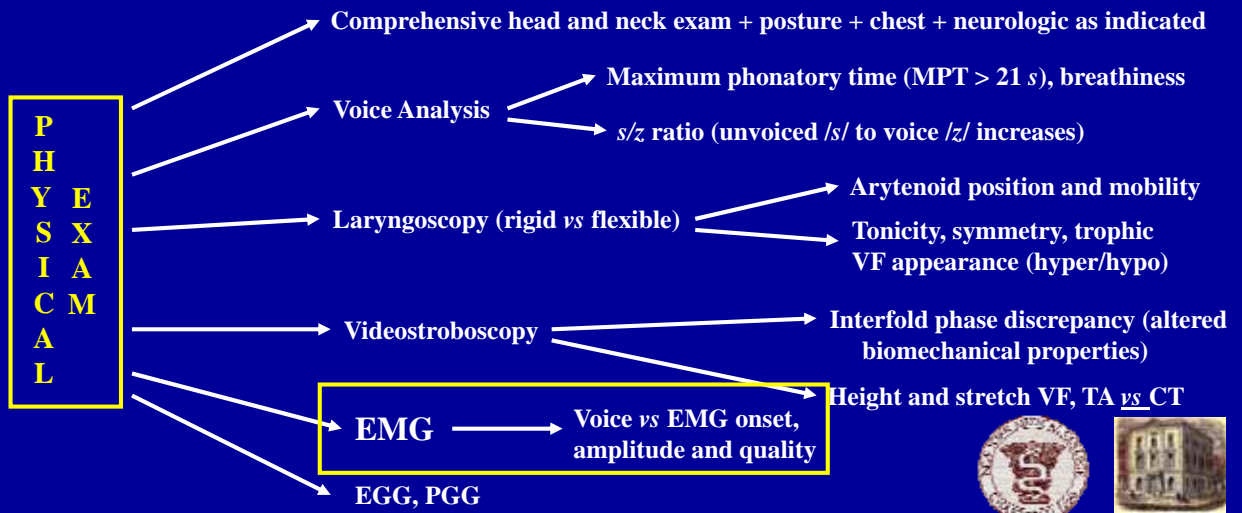
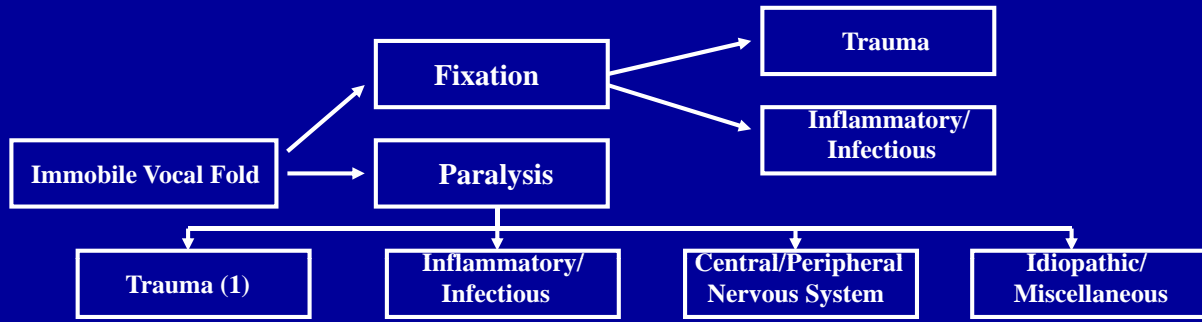


- Paralysis
- Hoarding
- Supraglottic compensation

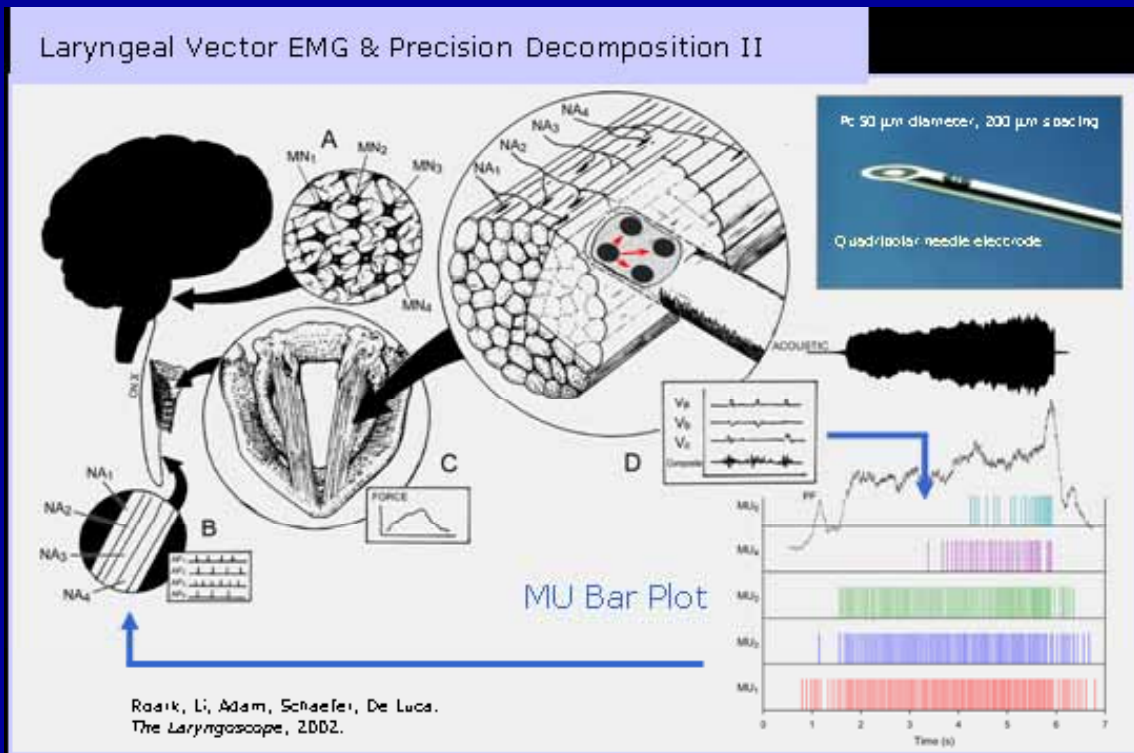
NY EYE & EAR DR. PITMAN



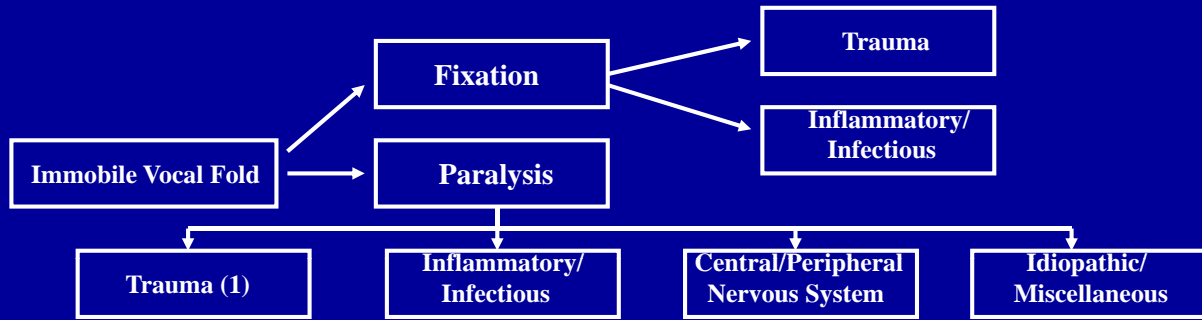
Vocal Fold Paralysis



Vocal Fold Paralysis

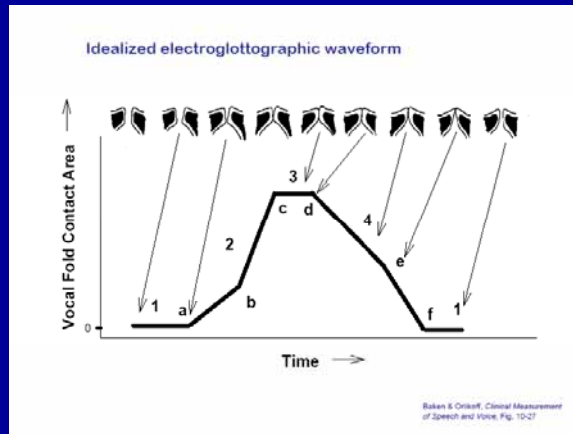


Vocal Fold Paralysis

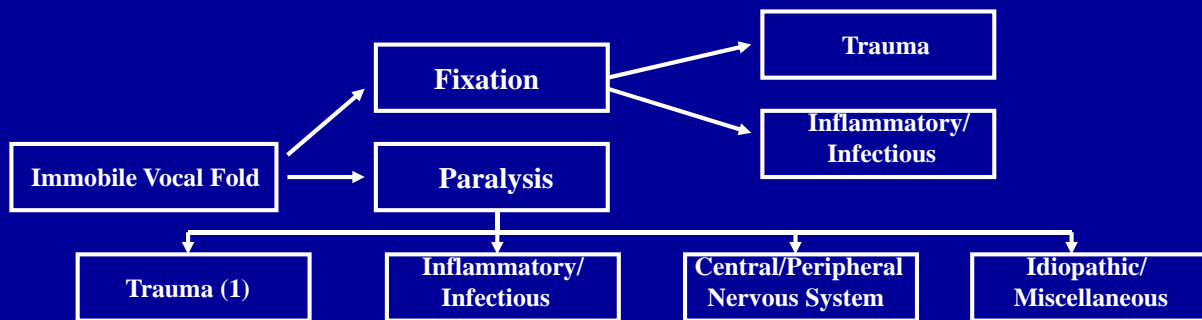


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EGG, PGG



Vocal Fold Paralysis



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Serology, TF testing

CXR vs chest CT

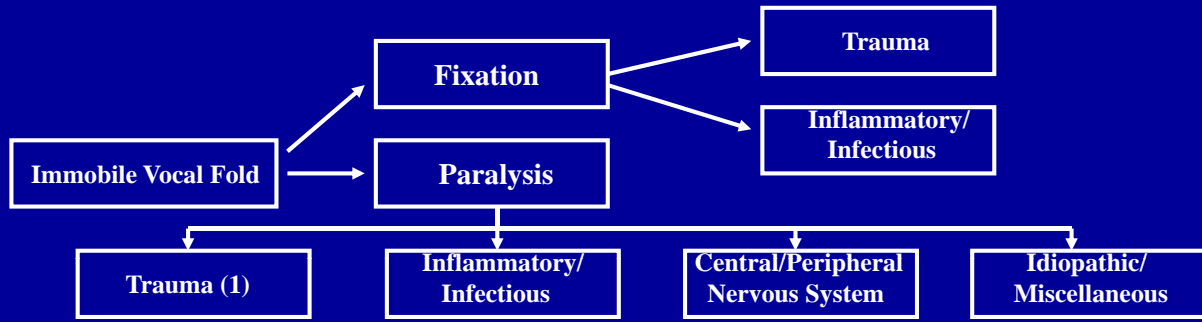
Laryngeal CT

Skull base CT/MRI

Direct laryngoscopy, palpation arytenoids

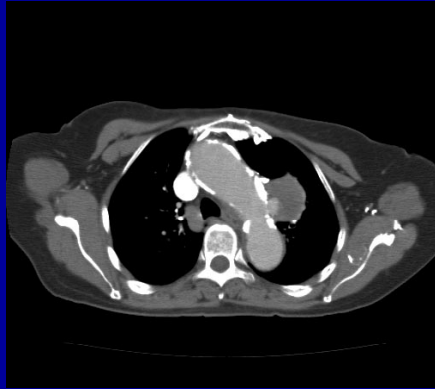
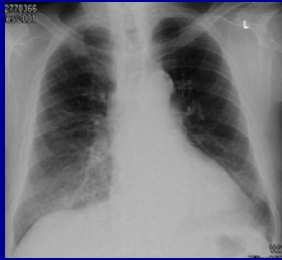


Vocal Fold Paralysis

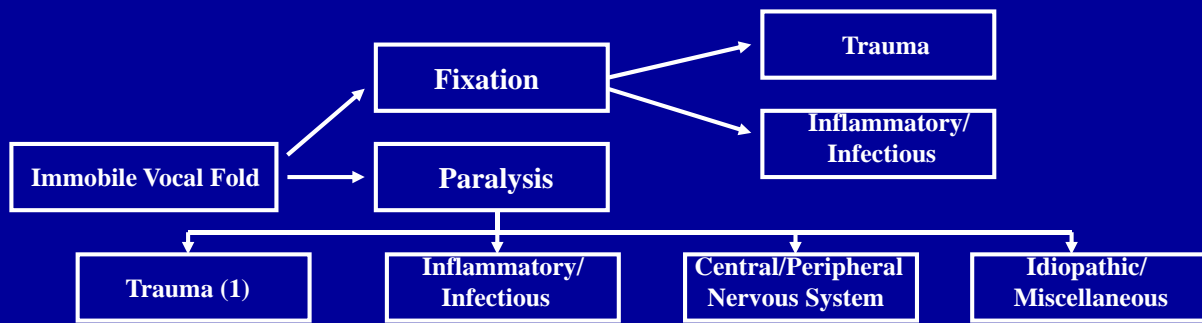


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CXR vs chest CT → CT > CXR, especially for left VF



Vocal Fold Paralysis



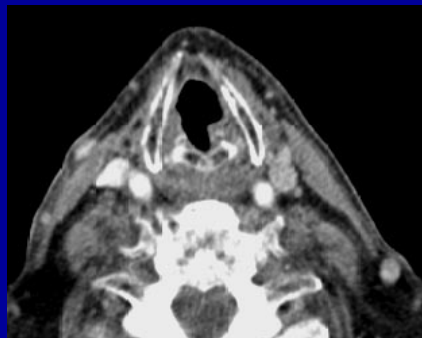
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Skull base CT/MRI → Complementary imaging

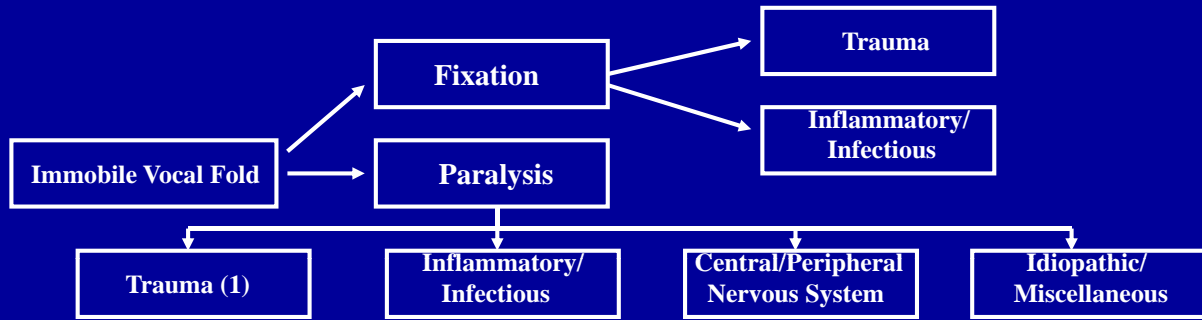
Laryngeal CT → Trauma = fixation CA joint

Carcinoma = RLN infiltration vs vocal fold infiltration

R/O Silent primary



Vocal Fold Paralysis

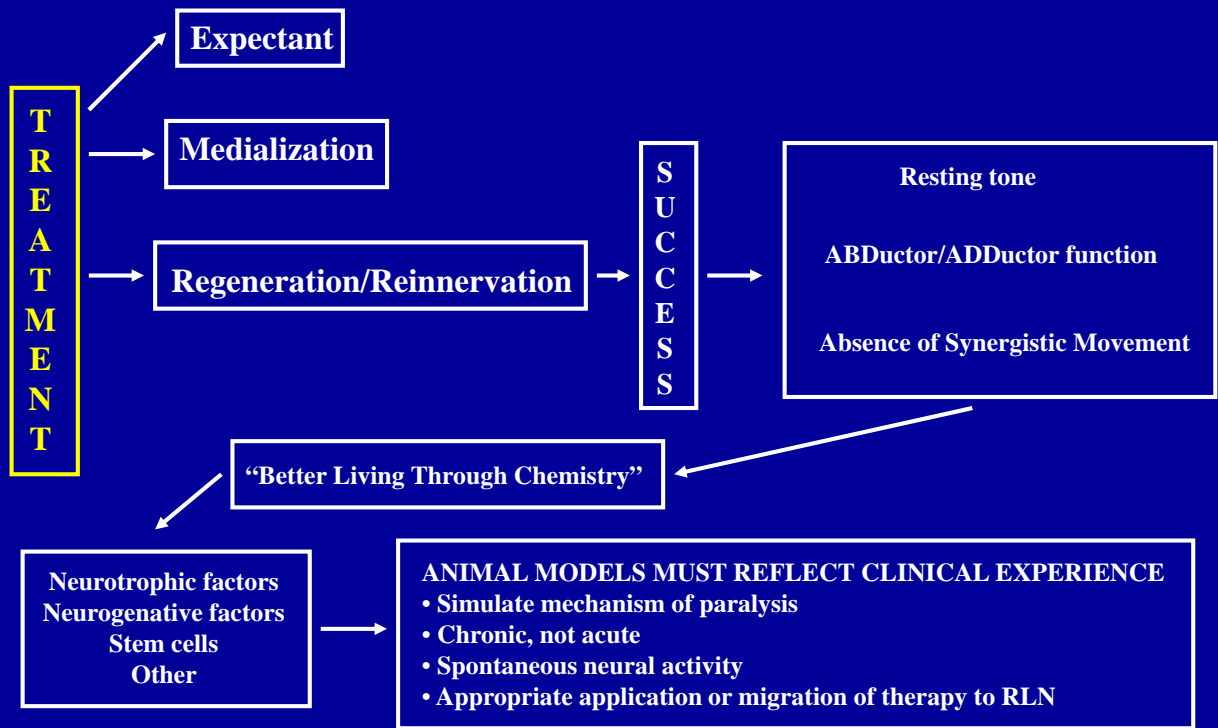


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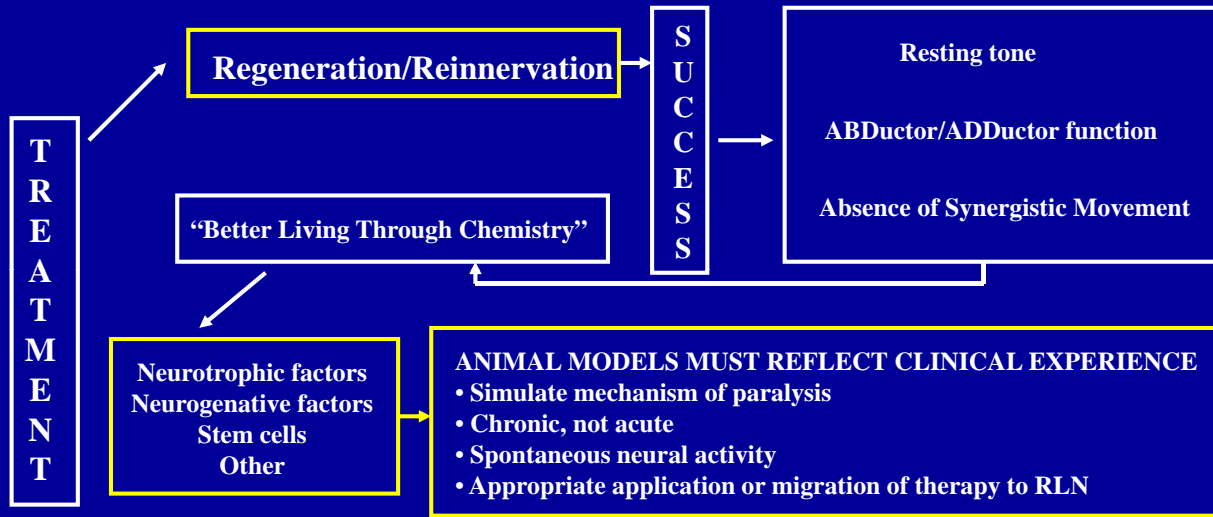
Direct laryngoscopy, palpation arytenoids



Vocal Fold Paralysis



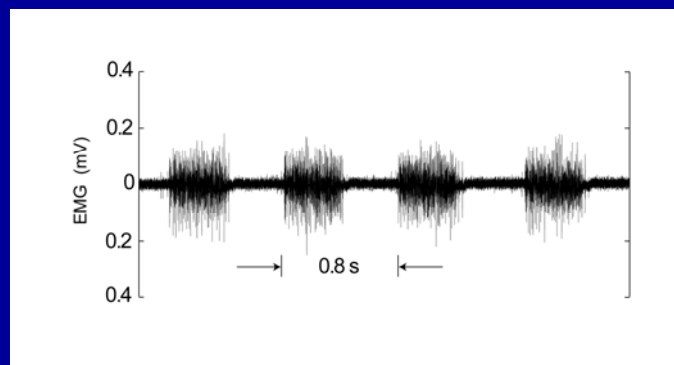
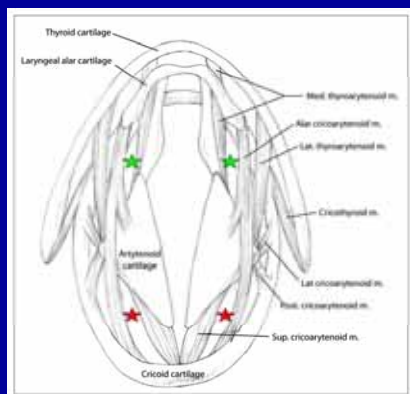
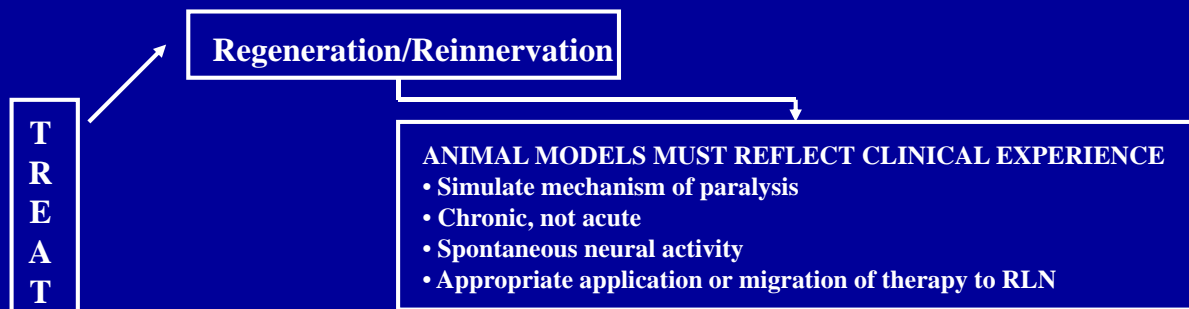
Vocal Fold Paralysis



Tessema, 2008, 2009



Vocal Fold Paralysis

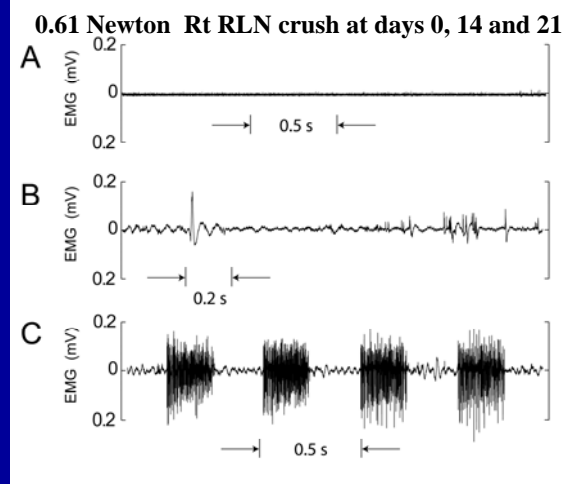
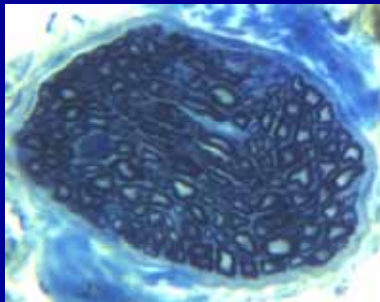


Vocal Fold Paralysis

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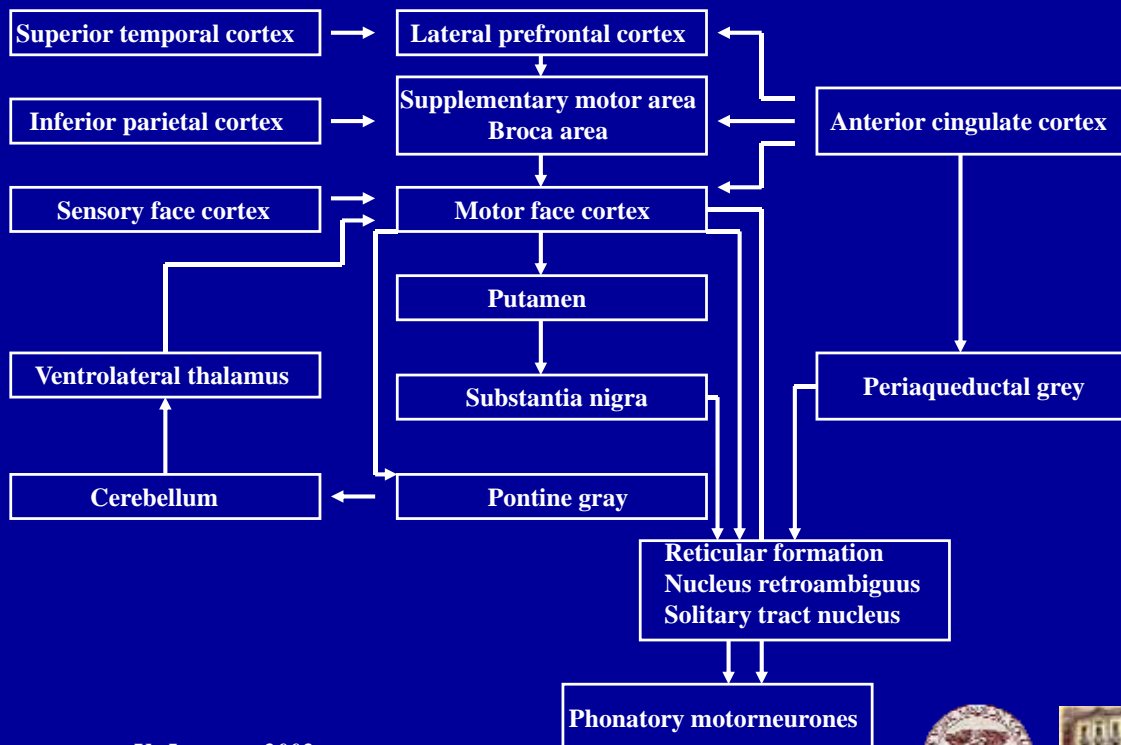
ANIMAL MODELS MUST REFLECT CLINICAL EXPERIENCE

- Simulate mechanism of paralysis
- Chronic, not acute
- Spontaneous neural activity
- Appropriate application or migration of therapy to RLN



Vocal Fold Paralysis

SUMMARY-From Neural Pathways to Reinnervation



U. Jurgens, 2002

