Treatment of Unilateral Adductor Vocal Cord Paralysis

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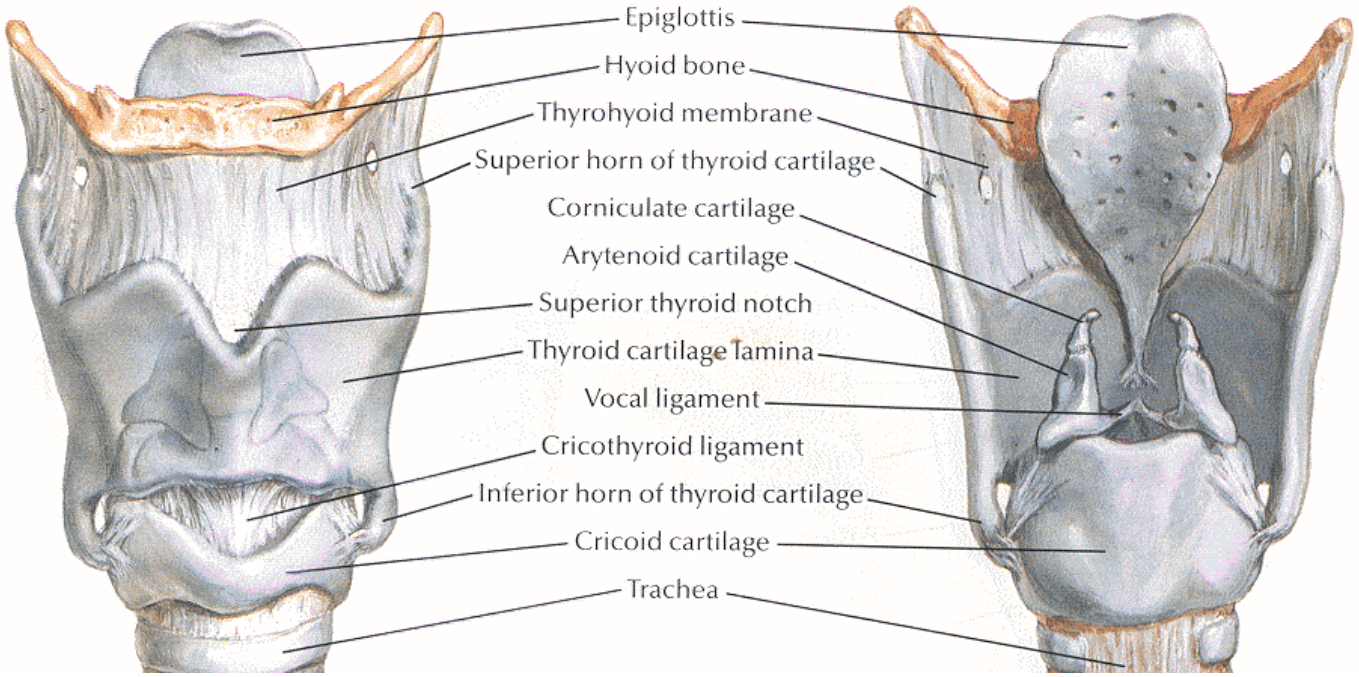
Outline

- Anatomy
- Vocal Histology and voice production
- Patient Evaluation
- Non-surgical treatment
- Surgical treatment

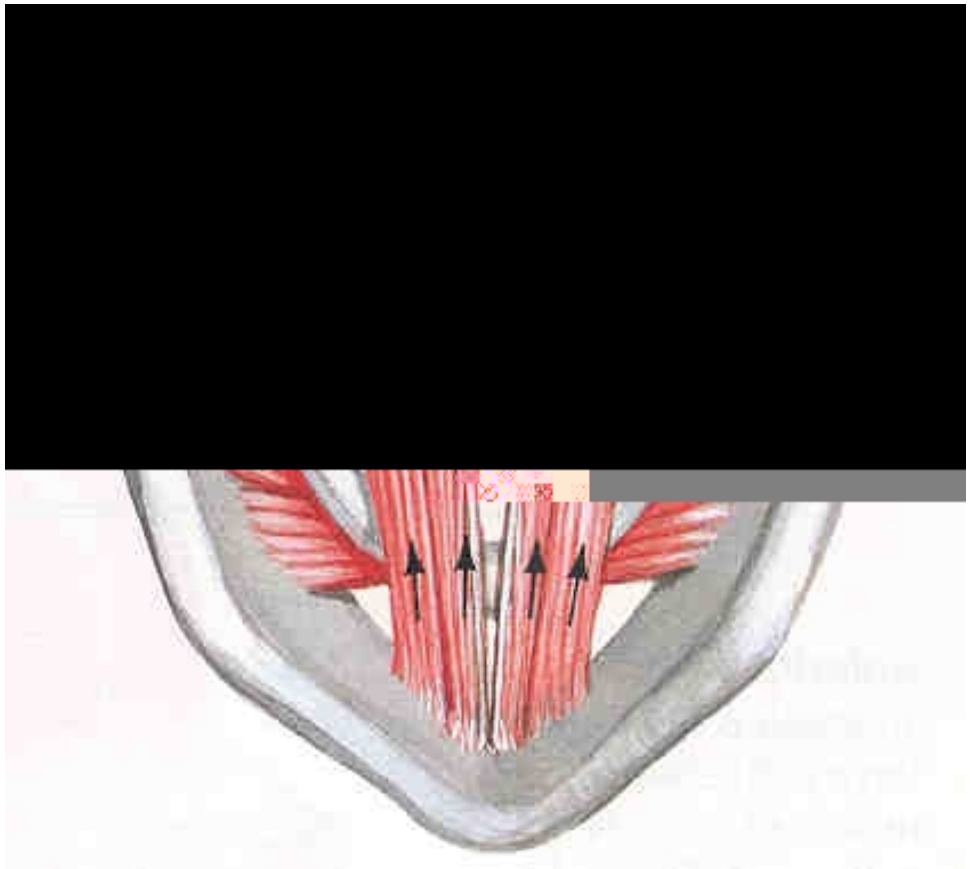
Anatomy - Cartilage



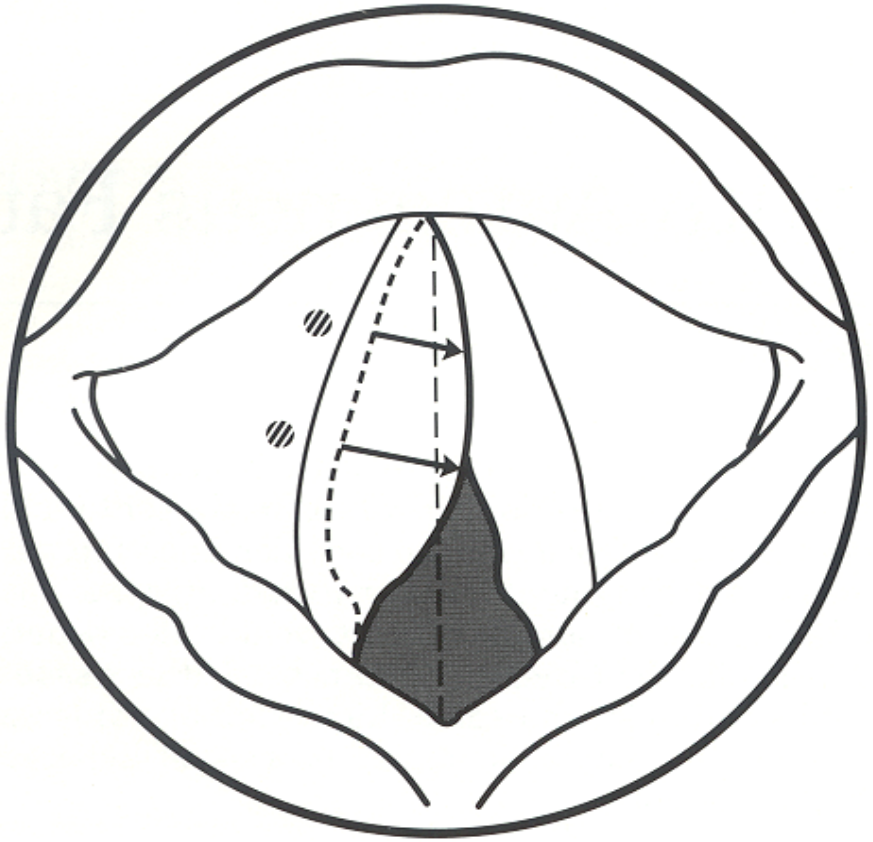
Anatomy - Muscles

- Thyroarytenoid
- Posterior Cricoarytenoid
- Lateral Cricoarytenoid
- Interarytenoid
- Cricothyroid

Anatomy - Thyroarytenoid



Fat Injection



Fat Injection

- Well tolerated
- Can repeat injections
- Anterior defects corrected better than posterior
- Effective temporary medialization
- Hypoallergenic

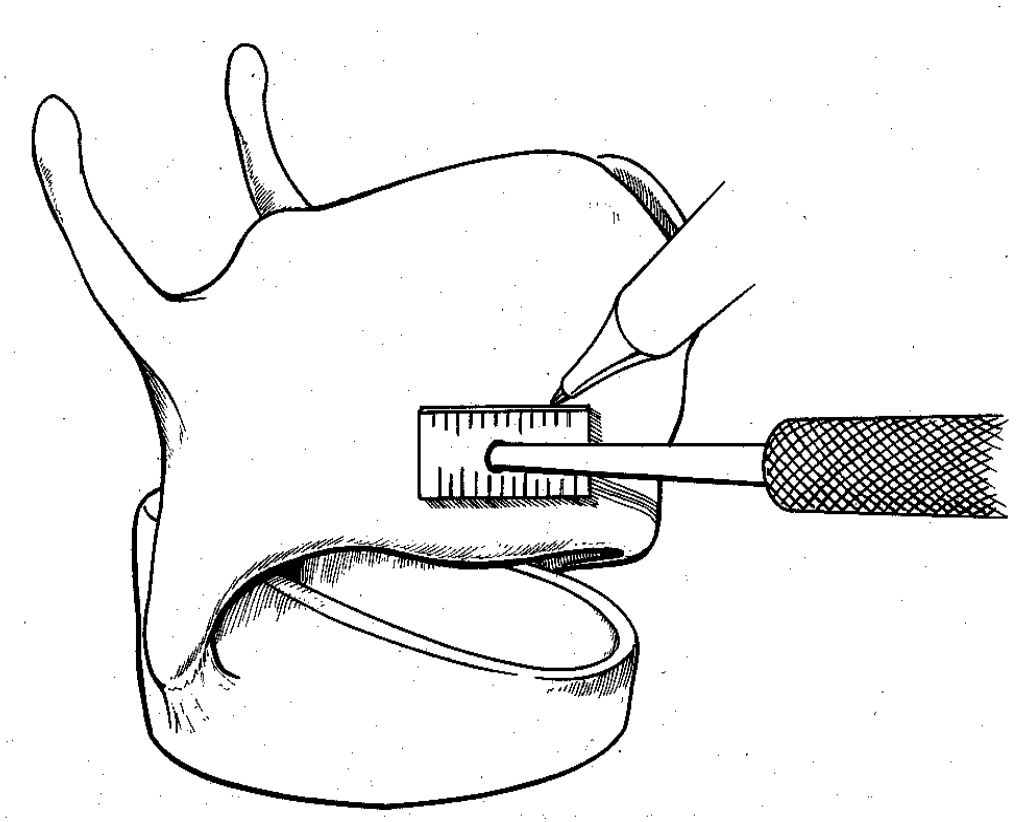
Fat Injections

- Hsiung *et al.* (12) divided failures into two categories
  - Early
    - failure of fat to soften scarred segments
    - large glottal gap
    - large posterior defect
  - Late
    - due to absorption of fat

Type I Thyroplasty

- Introduced by Isshiki in 1974
- Effective for patients with vocal cord paralysis and bowing
- Contraindicated in patients s/p hemi-laryngectomy and laryngeal irradiation

Type I Thyroplasty



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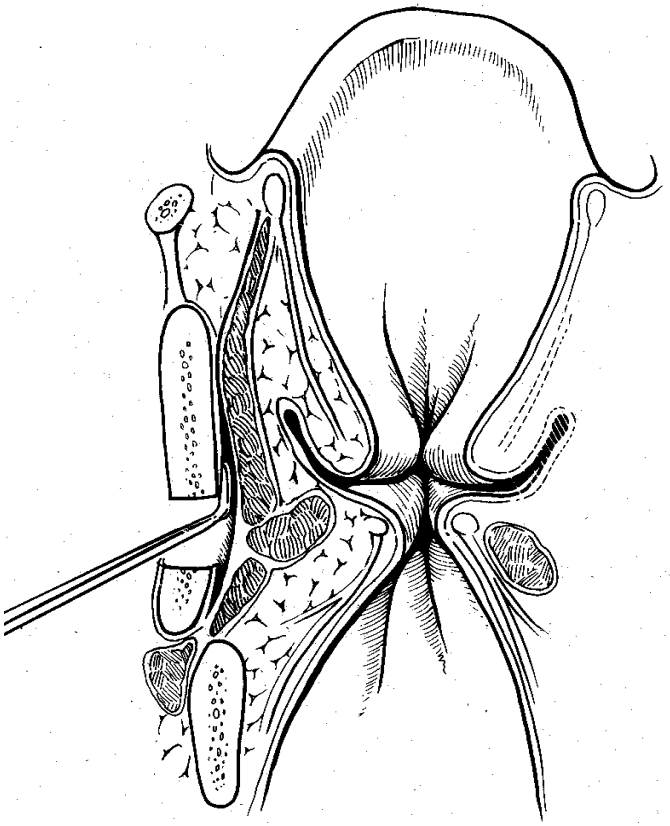

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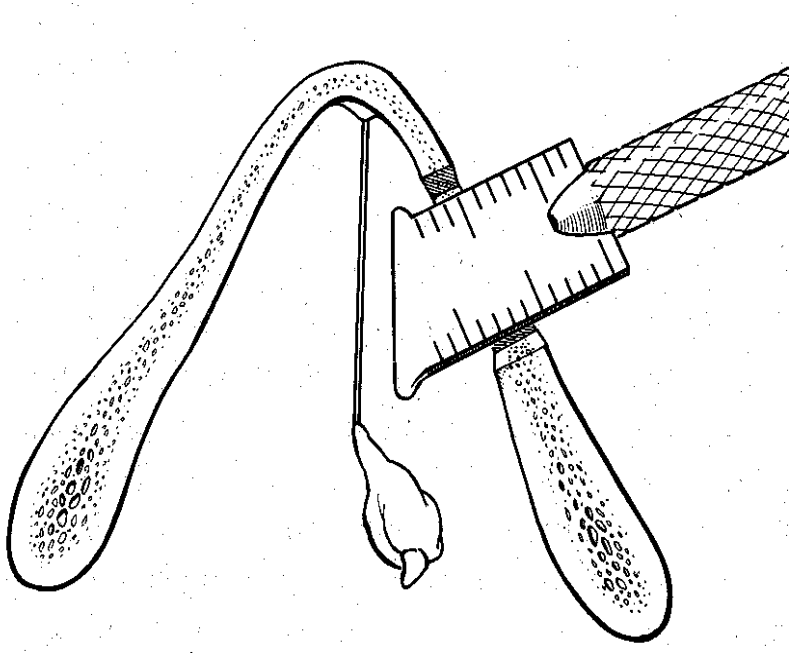

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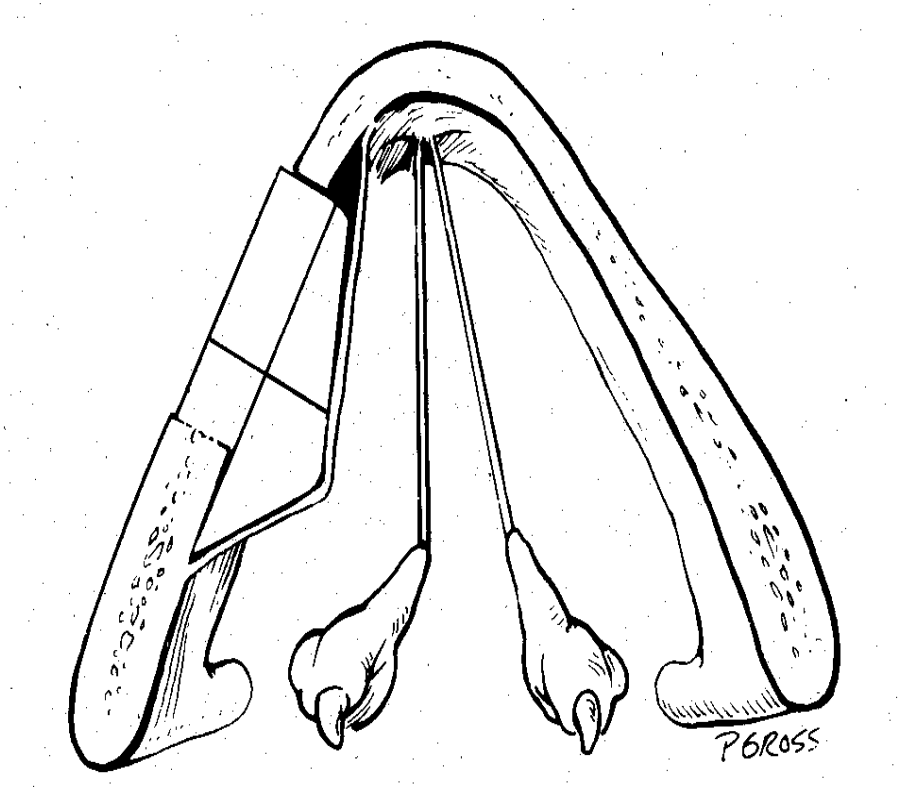

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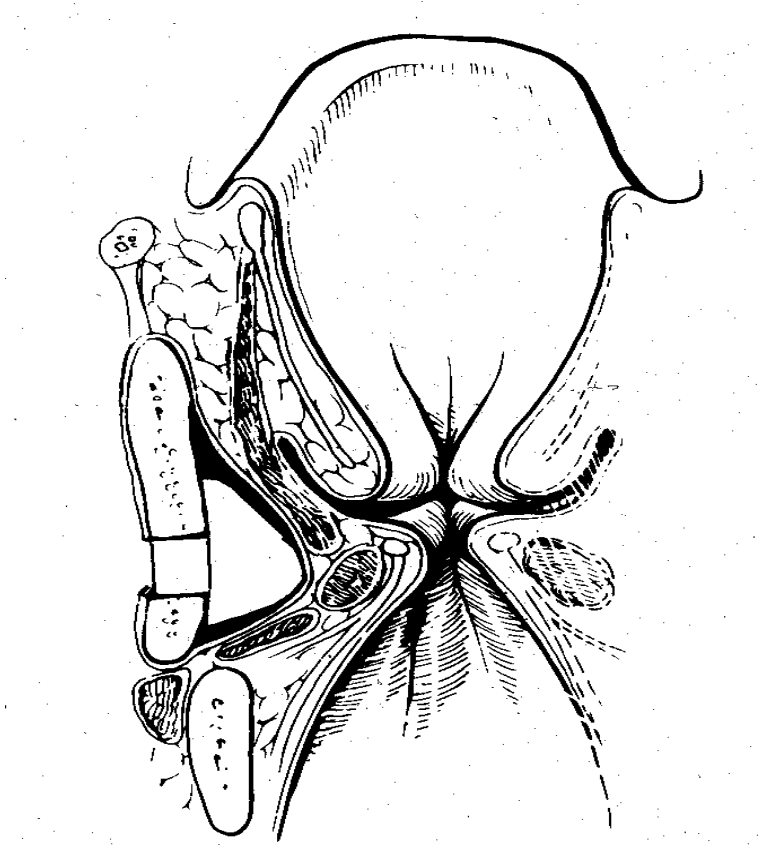


Type I Thyroplasty

- Variations
  - Cartilage window
  - Inner perichondrium
  - Implant type
    - Carved
    - Pre-made, Hydroxylapatite
    - Gore-tex

Type I Thyroplasty

- Benefits
  - Restoration of mucosal wave
  - Improved glottic closure
  - Intraoperative monitoring
  - Adjustable
  - Reversible
  - Primary vs. Secondary

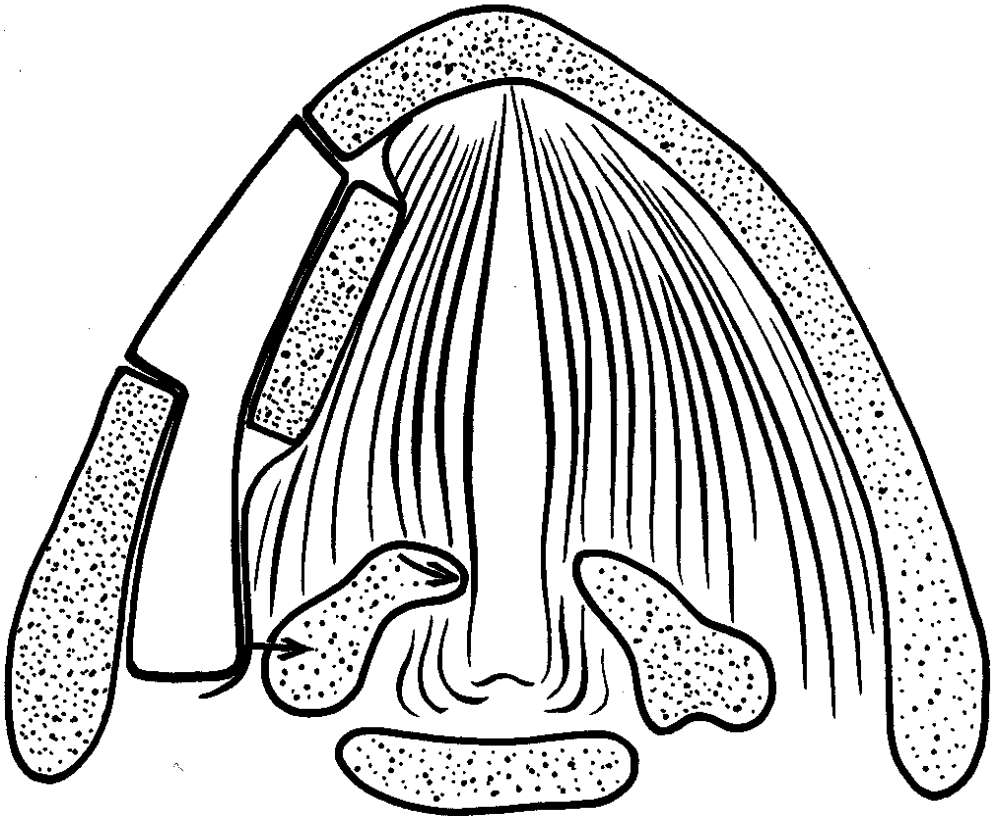
Type I Thyroplasty

- Complications
  - Poor voice quality
  - Graft extrusion
  - Graft migration
  - Airway compromise
  - Hematoma
  - Infection

Type I Thyroplasty

- Persistent posterior glottic gap
  - Most commonly caused by high vagal injury
  - Not well addressed by traditional thyroplasty
  - Two options
    - Implant with large posterior flange
    - Arytenoid adduction

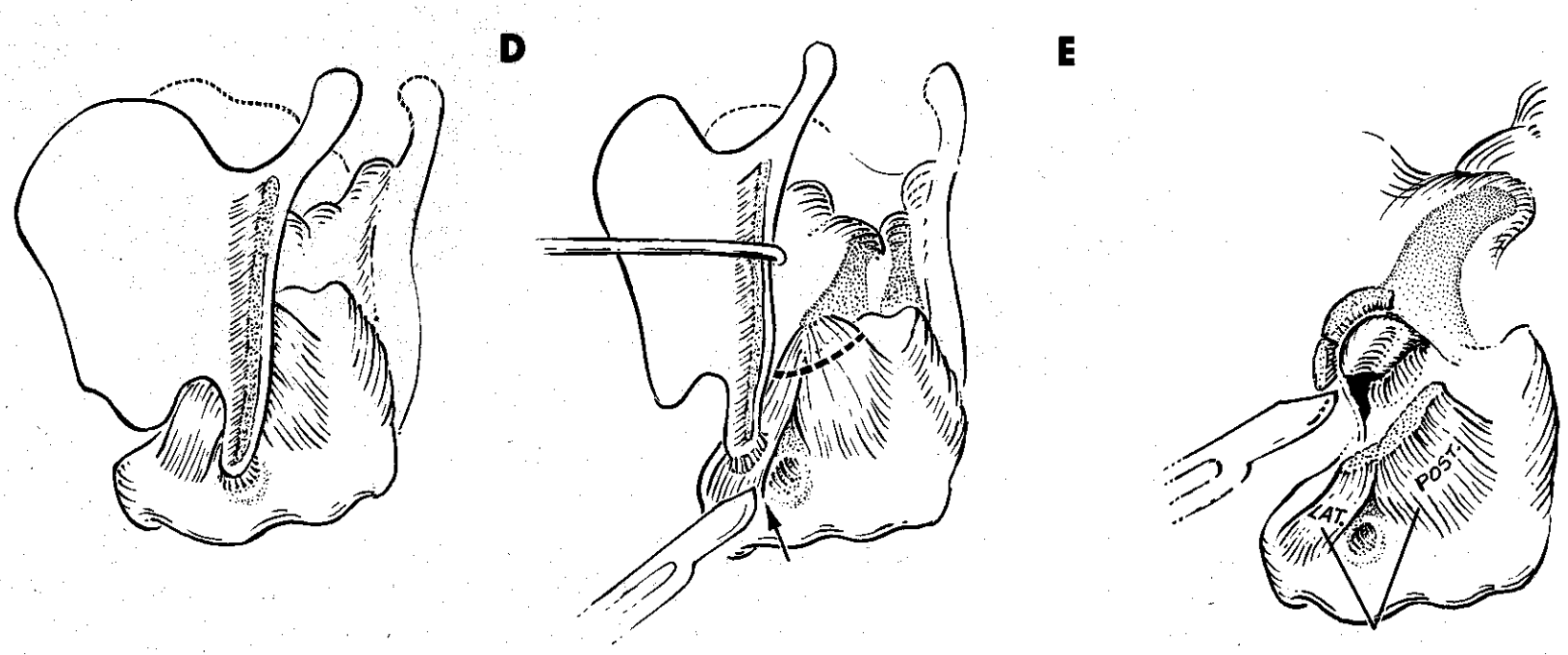
Type I Thyroplasty



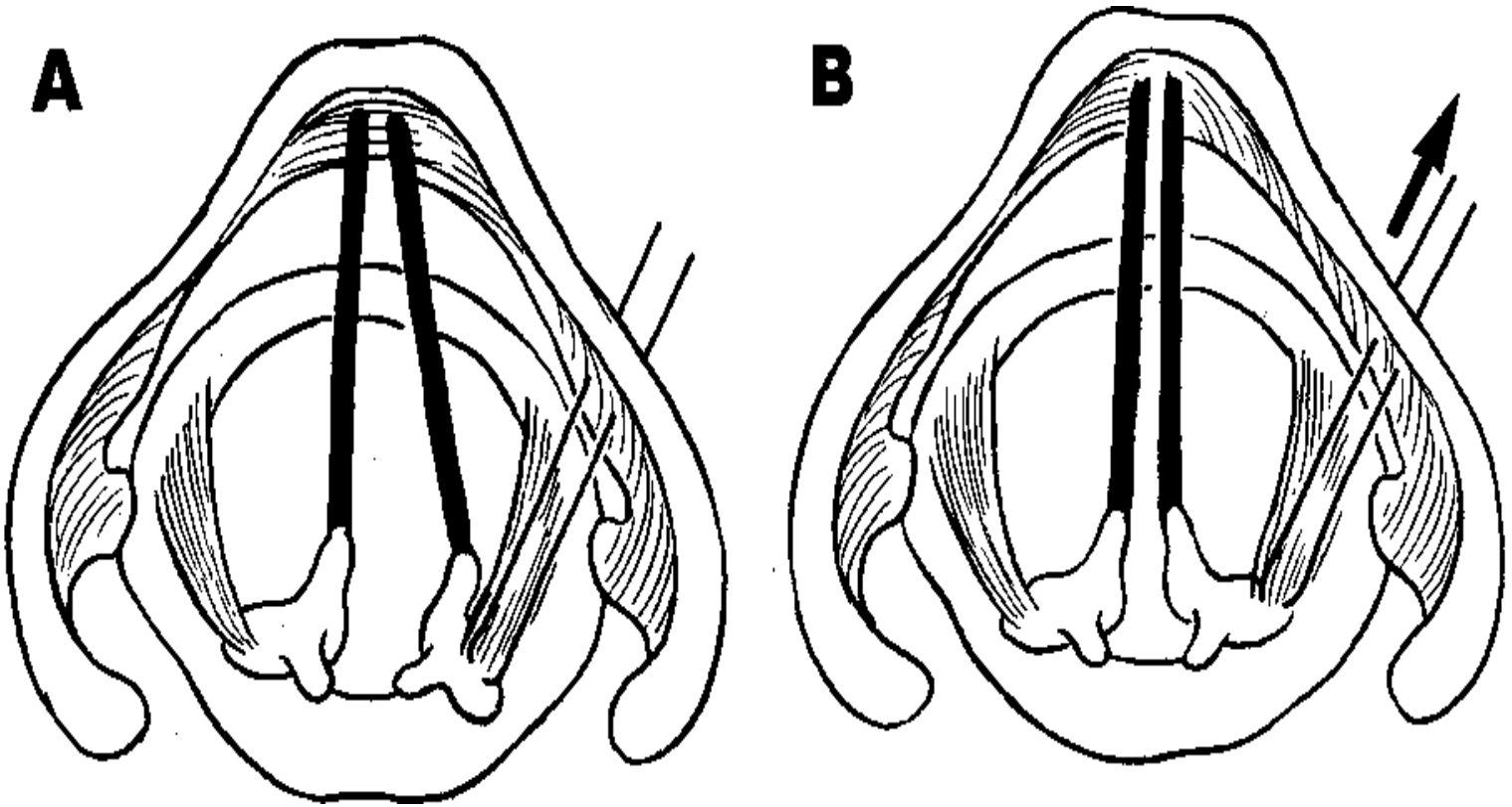
Arytenoid Adduction

- Two main indications
  - Large posterior gap
  - Unequal vocal fold levels
- Improves acoustical power and increases sub-glottic pressure

Arytenoid Adduction



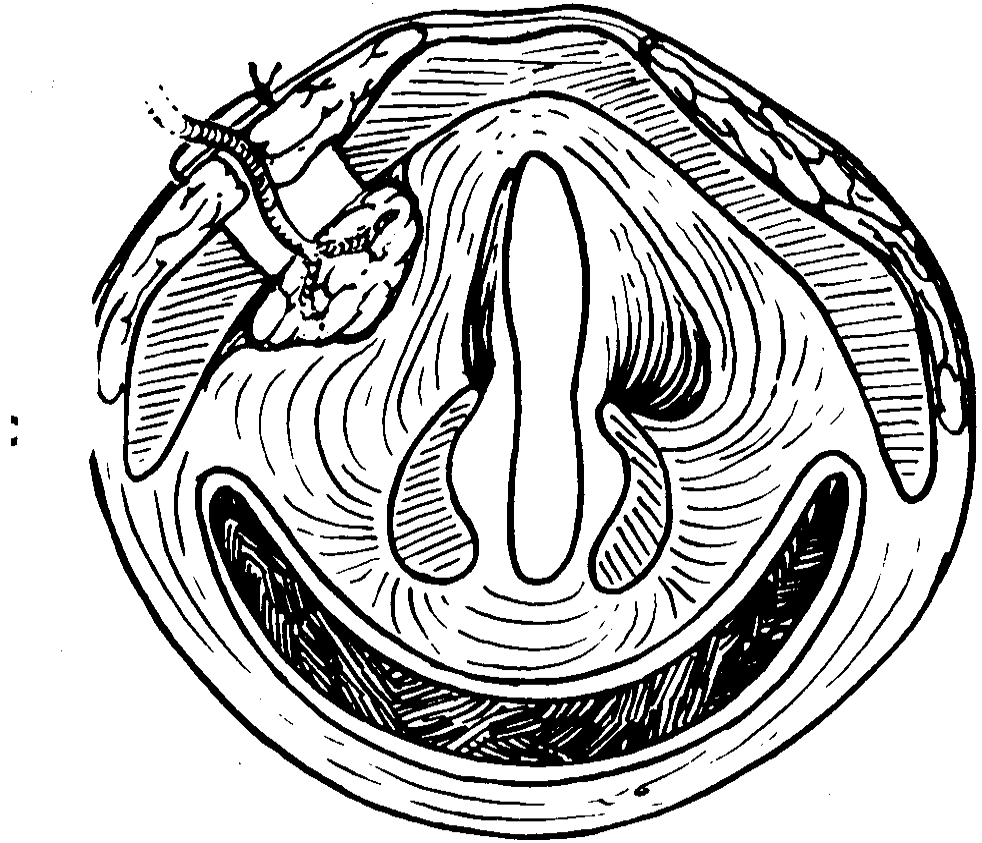
Arytenoid Adduction



Re-innervation

- Indicated for vocal paralysis given
  - Lack of arytenoid fixation
  - Intact ansa cervicalis
- Two different procedures
  - Nerve muscle pedicle
  - Ansa - recurrent laryngeal anastomosis

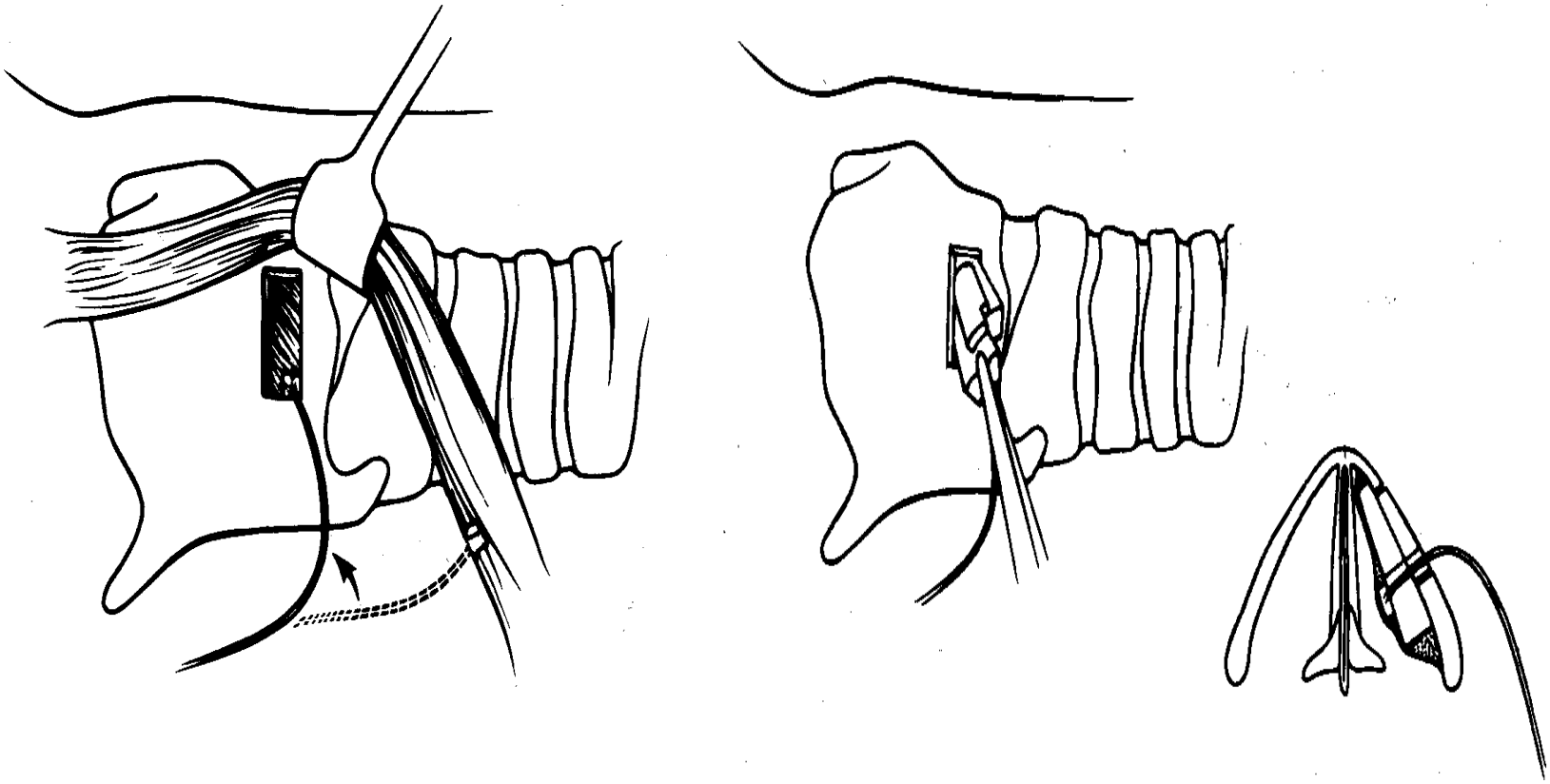
Re-innervation



Re-innervation

- Benefits
  - Allows for preservation of vocal cord bulk
  - Provides tone to vocal fold
  - Used well with medialization procedures

Re-innervation



Re-innervation

- Controversies
  - Patient selection
    - paralysis vs. synkinesis
  - Procedure selection
  - Hypoglossal nerve anastomosis