

Arytenoid lateralization with a simple suture in bilateral vocal cord paralysis

HAKAN KORKMAZ, MD

Assoc. Prof. Of Otolaryngology

Dışkapı Training Hospital Ankara-Turkey

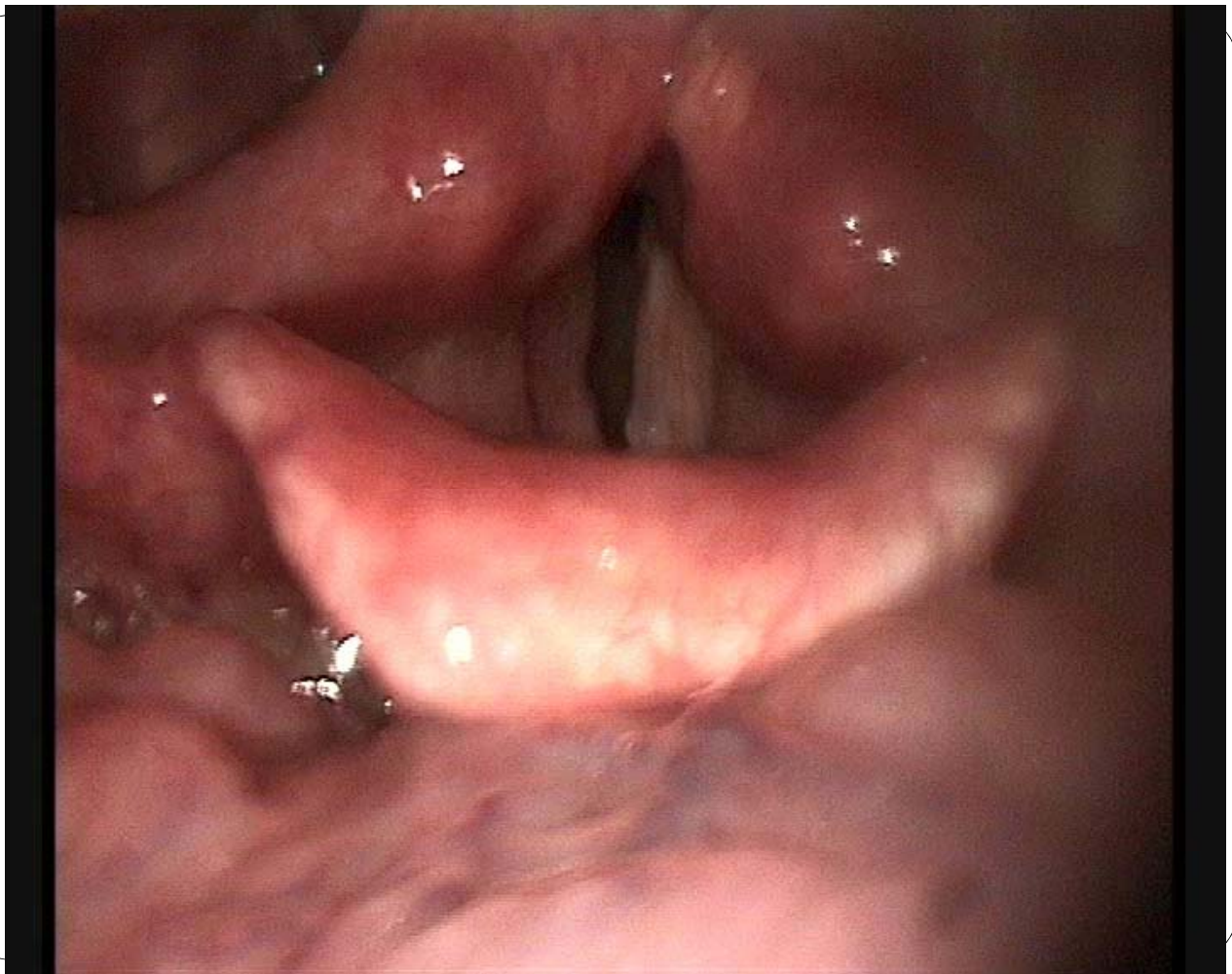
Bilateral vocal cord paralysis (BVCP)

- Iatrogenic (%50)
 - THYROIDECTOMY**
 - Esophageal surgery
 - Tracheal surgery
 - Brain stem surgery
 - Unilateral surgery with unrecognized contralateral cord paralysis: carotid endarterectomy, completion thyroidectomy, anterior approach to servikal disk)
- Trauma
- Entubation
- Neurologic diseases (poliomyelitis, pseudobulbar palsy)
- Inflammatory (RA), metabolic (h.kalemia, h.calcemia, and toxins (vincristine, taxol)
- Idiopathic

Patient presentation

- Usually 2-3 mm posterior glottic opening
- Stridor-dyspnea
- Exercise intolerance
- Usually normal voice and swallowing





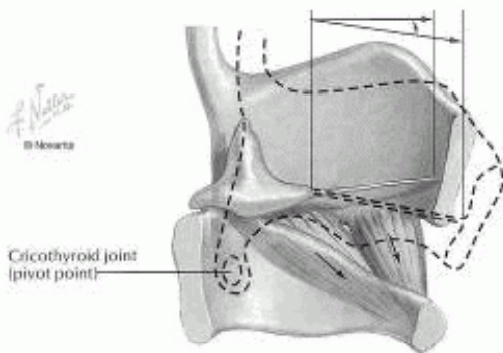
Action of transverse arytenoid muscle
Adduction of vocal ligaments



Action of vocalis and thyroarytenoid muscles
Shortening (relaxation) of vocal ligaments

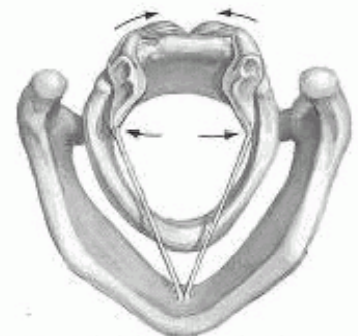


Action of lateral cricoarytenoid muscles
Adduction of vocal ligaments



Cricothyroid joint (pivot point)

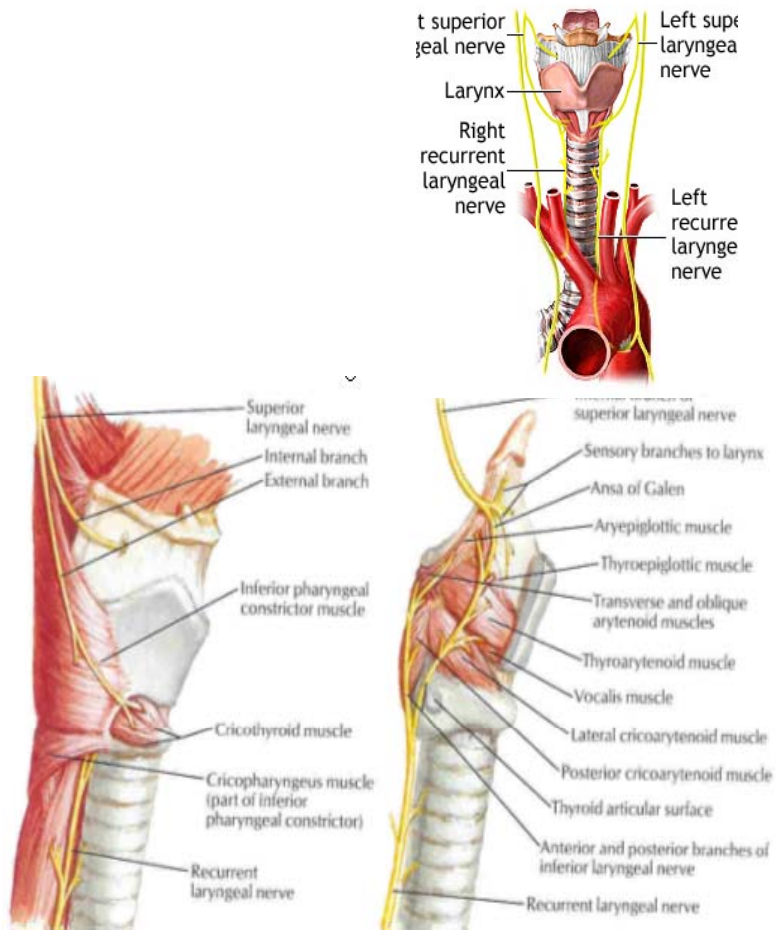
Action of cricothyroid muscles
Lengthening (increasing tension) of vocal ligaments



Action of posterior cricoarytenoid muscles
Abduction of vocal ligaments

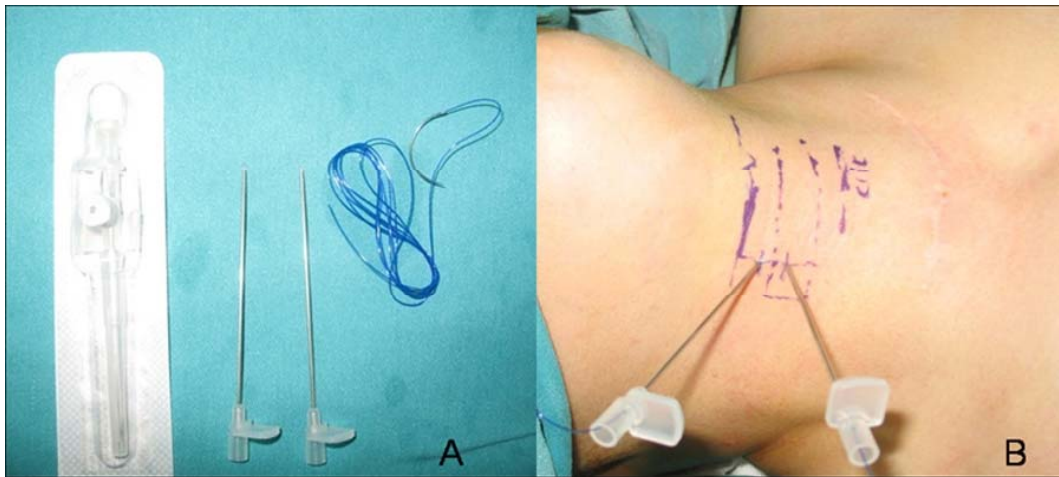
INNERVATION

- Superior laryngeal nerve
- Inferior laryngeal nerve

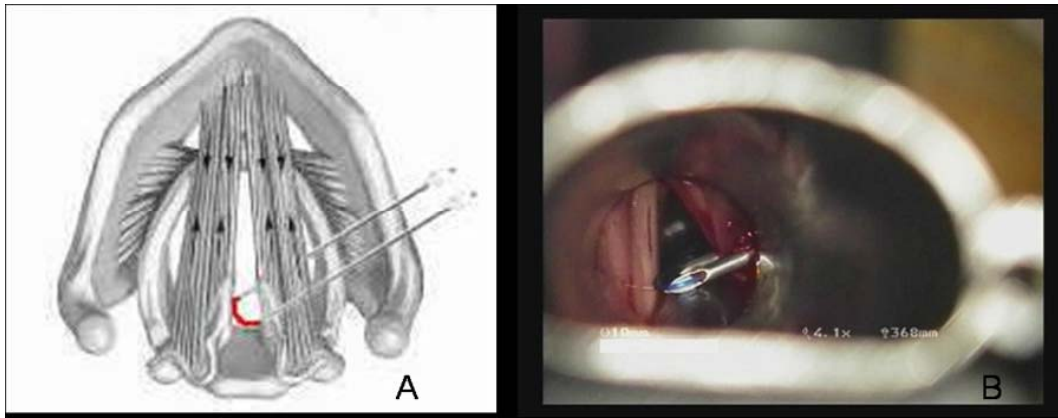


- *Two 16 G iv catheters
- *1/0 nylon thread

The catheters are inserted transcutaneously into the larynx



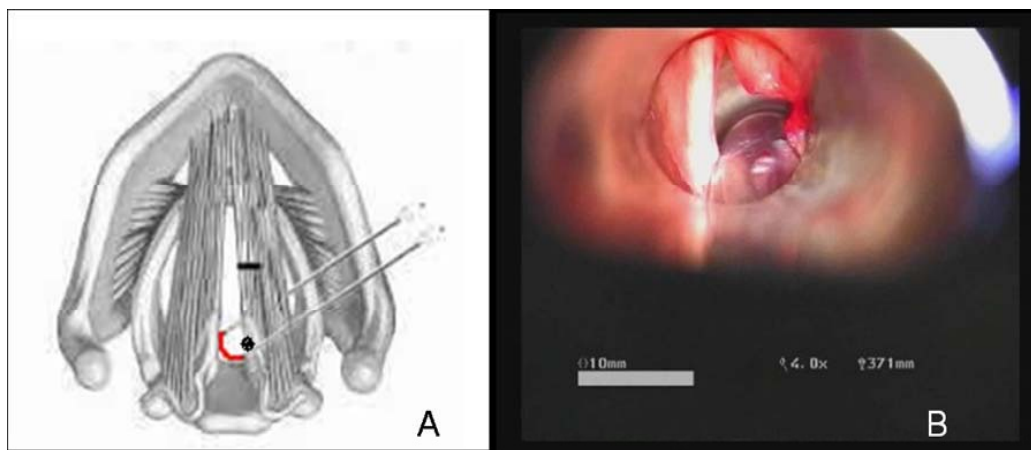
The nylon thread loops around the vocal process of arytenoid



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Konya, 2008

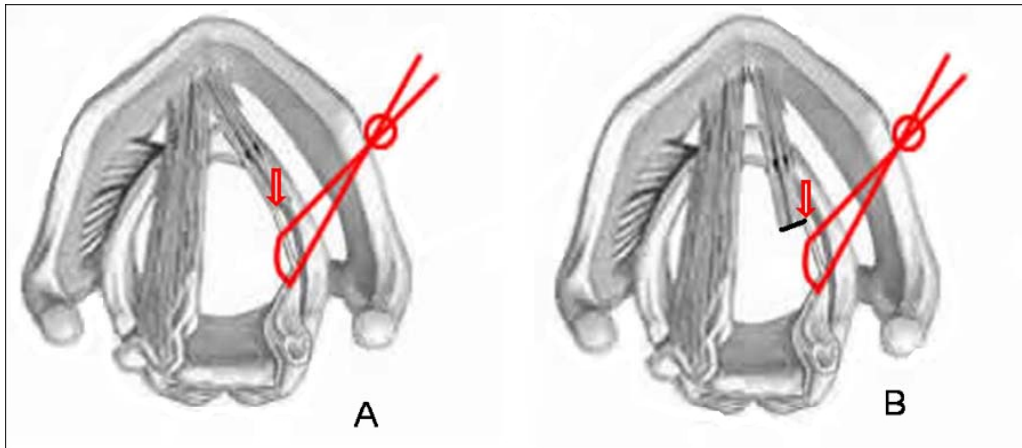
Cordotomy at 2/3 anterior and 1/3 posterior junction



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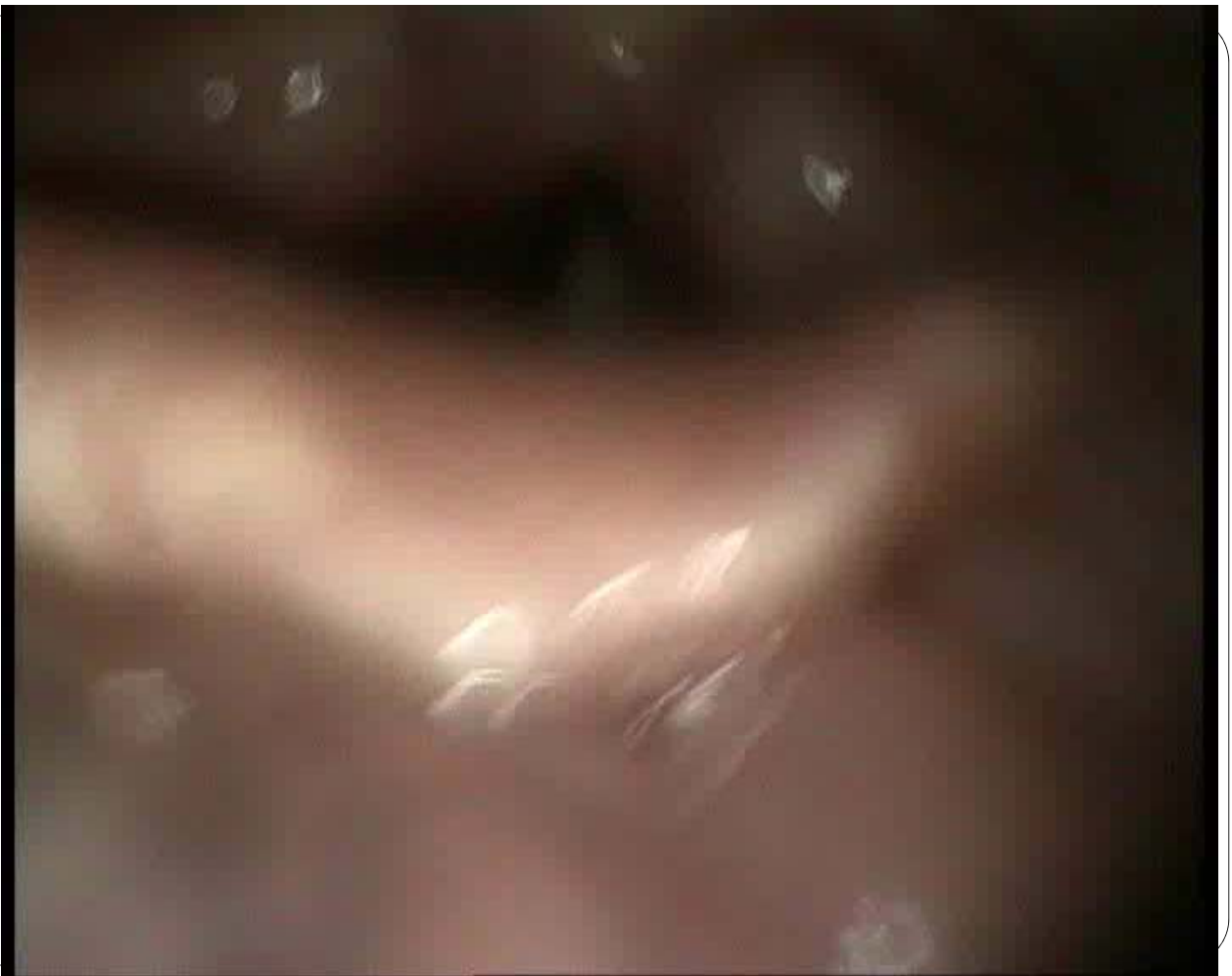
Konya, 2008

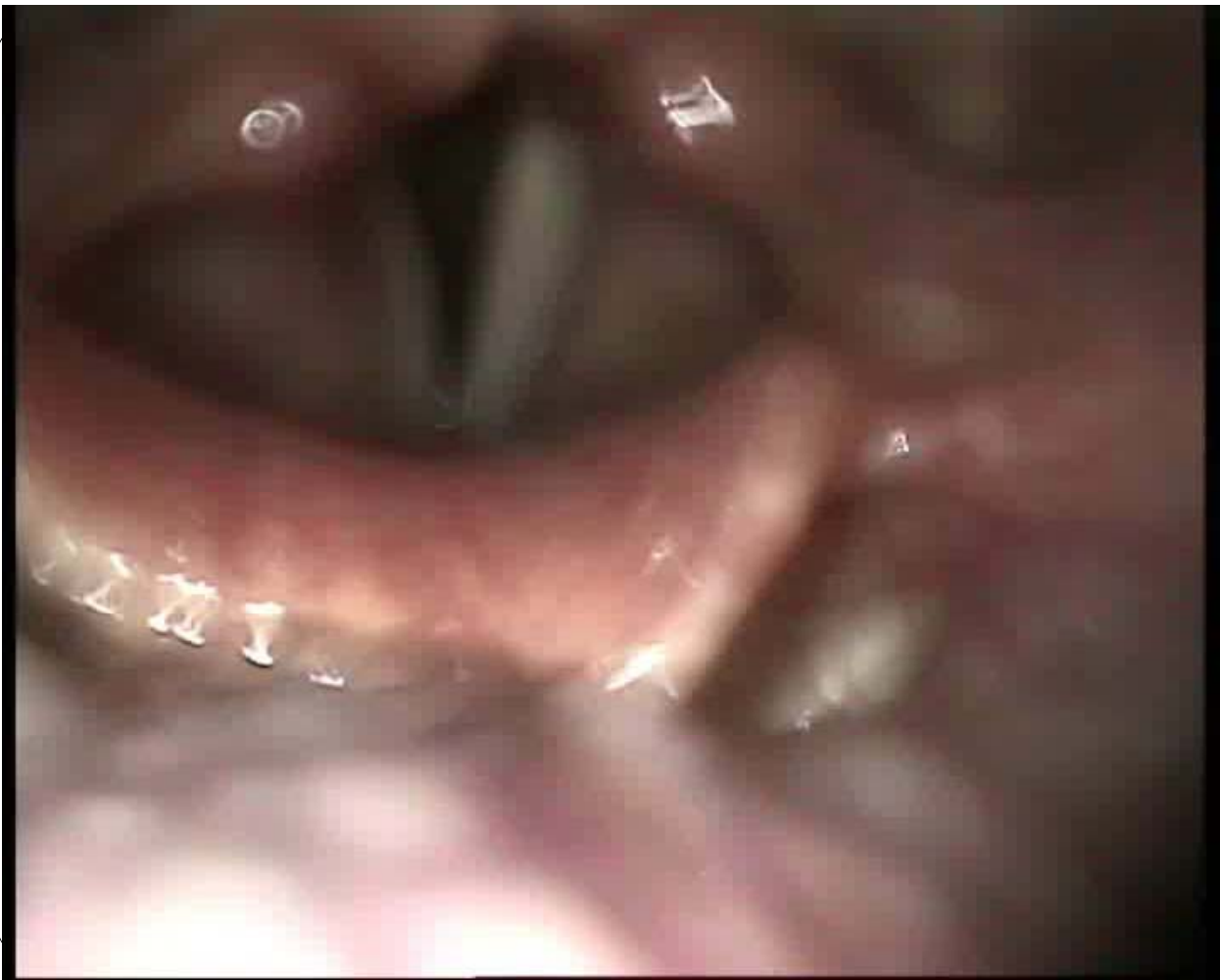
When the cordotomy is done, anterior 2/3 of the cord becomes medialized



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Konya, 2008





What determines the patients' symptoms

- Patient's
 - Age
 - Gender
 - Cardiopulmonary reserve
- Position of the cords
 - Cricothyroid muscle function
 - Fibrosis in denervated muscles
 - Ankylosis of cricoarytenoid joint
 - Stiffness of conus elasticus
 - Muscle mass of cords

- The aim of the treatment is to restore adequate airway along with preserving laryngeal functions
 - voice production (anterior 2/3rd vocal cord should be preserved)
 - prevention of aspiration (avoid excessive posterior opening)
- If the patient does not have compromise of daily activities; there is no need for surgical intervention

Surgical intervention

- If the airway is compromised significantly immediate intervention
 - Tracheotomy X Suture lateralization
- If it is not emergency; timing of surgery is important
 - It may resolve within 6-18 months
 - Laryngeal EMG at 6 months may help
 - Muscle atrophy worsens after 7 months

Patient evaluation

- History
- Physical examination
 - Assessment of dyspnea, exercise intolerance
 - Telescopic office examination of larynx
- Respiratory function test
- Voice analysis

Laryngeal assessment

- Inspiratory glottic airway
- Movement of vocal cords and arytenoids
- Displacement of arytenoids
- Atrophy of cords
- Mucosal scarring, laryngeal reflux

ENDOSCOPIC ARYTENOIDECTOMY

- Tracheotomy usually needed
- Total or Partial, Unilateral or bilateral
- Revision surgery
- Aspiration may be a problem
- 70-80 % sufficient airway

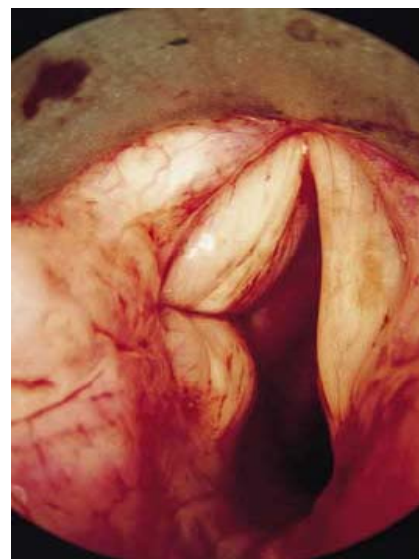
POSTERIOR CORDOTOMY

- Preservation of arytenoid prevents aspiration
- Unilateral cordotomy may not be sufficient for airway
- When bilateral voice may worsen
- Minimum tissue must be removed



Cord Lateralization

- No need for tracheotomy
- Simple, short and minimal damage to the tissues
- Short hospitalization
- Stable airway
- Acceptable voice quality
- Aspiration is not a problem
- Vocal cord anatomy is preserved



- Ejnell et.al. defined the technic in 1982
- Thyroid cartilage is explored
- Suture around the mid vocal cord
- Sufficient airway
- Lichtenberger defined a specific instrument
- Incision and exposure of thyroid cartilage
- Mid cordal suture may disturb voice quality
- Mid cordal sutures may cut the tissues and result in recurrence

Advantages of arytenoid lateralization with cordotomy

- No need for tracheotomy
- No edema or bleeding
- No granulation or scar (minimal mucosal damage)
- No aspiration
- No need for a special instrument
- Sufficient glottic airway
- Satisfactory voice
- Next day decannulation if the patient has already tracheotomy
- Very inexpensive
- Longterm success

