Arytenoid lateralization with a simple suture in bilateral vocal cord paralysis

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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
- Exersize intolerance
- Usually normal voice and swallowing
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

Cordotomy at 2/3 anterior and 1/3 posterior junction
When the cordotomy is done, anterior 2/3 of the cord becomes medialized
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 aritenoid 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