

epiglottitis acuta

Laryngitis acuta subglottica

Phonosurgical procedures

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epiglottitis acuta

- ❑ life-threatening condition
- ❑ Bacterial infection – caused by *Haemophilus influenzae* group B
- ❑ occurs in children 1 – 6 years old
- ❑ rapidly progressing phlegmona epiglottis, septikemia
- ❑ predisposition – physiologically lower immunity against encapsulated bacteria in this age



epiglottitis acuta – clinical state

- ❑ sore throat
- ❑ swallowing difficulties, salivation
- ❑ Increasing dyspnoe
- ❑ paleness, forced forward bending
- ❑ subfebrile event. febrile
- ❑ silent voice, slight cough
- ❑ fast progression (during hours)

epiglottitis acuta – diagnostics

- ❑ **Aspection epiglottitis** - laryngeal mirror, examination using tongue depressor (pressing of tongue root)
- ❑ epiglottitis is edematous, enlarged, reddish
- ❑ saliva (or mucus) accumulate pathologically in hypopharynx
- ❑ do not lay the child down!

epiglottitis acuta – therapy

- ❑ careful transportation to hospital in sitting position
- ❑ endotracheal intubation
- ❑ children ICU
- ❑ intravenous application of ATB – cephalosporins of 2nd or 3rd generation
- ❑ Taking of hemoculture

epiglottitis acuta – prevention

- Vaccination against *Haemophilus influenzae*, group B – in CZ part of hexa vaccine since 2001 → led to elimination of this disease

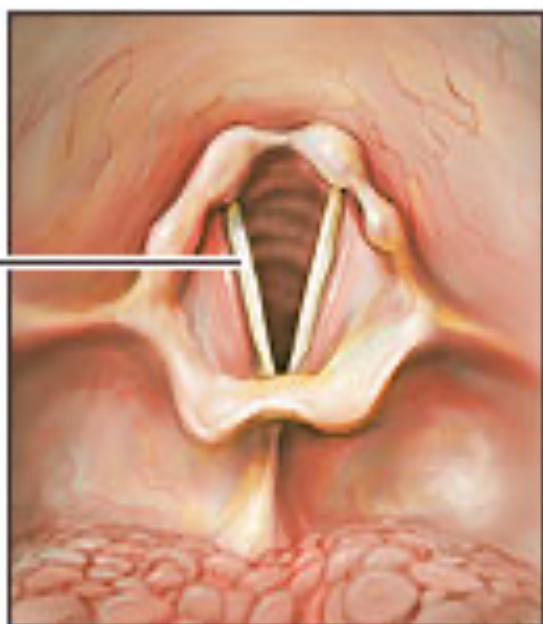
Laryngitis acuta subglottica

- ❑ **Swelling of tissue in subglottic region**, which is the thinnest part of lower airway in small children (subglottic space in infants is about 4 mm in diameter reduction of 1 mm decreases lumen of lower airways by 65% in comparison with adult)
- ❑ **Caused by viruses** (parainfluenza, adenovirus, RS virus)
- ❑ **This disease can be partly influenced by allergens**
- ❑ **Frequent occurrence in night, more in winter**
- ❑ **Usually affects infants and pre-school children**



Vocal cords

Normal
vocal cords



Inflamed
vocal cords



Laryngitis acuta – clinical state

- ❑ Occurs suddenly in healthy people, or follows infection in upper airways
- ❑ inspiratory dyspnoe with stridor
- ❑ Barking cough
- ❑ Rough voice or hoarseness
- ❑ Normal or slightly increased body temperature – NO FEVER
- ❑ Retraction of jugulum, intercostal spaces, epigastrium
- ❑ unrest, cyanosis, greyness of skin

Clinical state evaluation - Downes score method

Symptom	0 point	1 point	2 points
auscultation	Normal	decreased, crackles	silence
Stridor	none	Inspiratory	inspiratory & expiratory
Breathing effort	Free breathing	Jugular retraction	Retraction of chest
cough	none	rough	Barking, dry
Cyanosis	none	Air breathing	O ₂ breathing

Downes score

- ❑ < 3 points – home care
- ❑ 3 – 4 points – hospitalization in inpatient department
- ❑ 5 – 7 points – hospitalization in ICU
- ❑ > 7 points – if the patient's state is not improving after 20 min since drug application – endotracheal intubation is necessary – cannula diameter have to be smaller than usually, artificial pulmonary respiration

Laryngitis ac. – diagnostics

- ❑ assessment of children's clinical state
- ❑ ORL examination – inspection of larynx – direct or indirect laryngoscopy
- ❑ Dif. Diagnosis – necessary to exclude epiglottitis ac. and tracheobronchitis

Laryngitis ac. – therapy

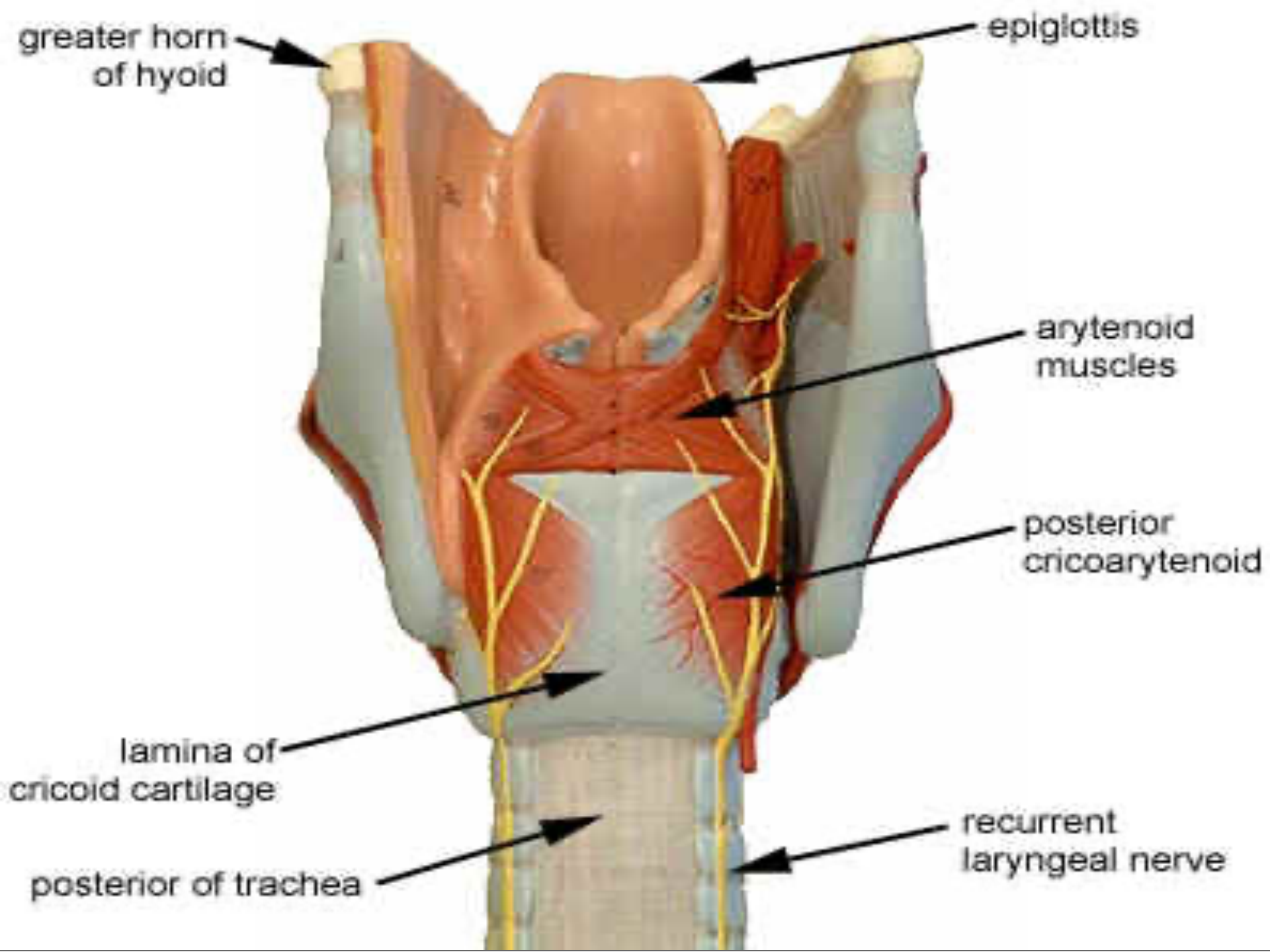
- ❑ Inspiration of cold gas mixture
- ❑ Inhalation of adrenaline (epinephrine) (5mg in 5 ml 1/1 0,9% NaCl)
- ❑ Dexamethason i.v., i.m. 0,6 mg/kg
- ❑ Prednison p.r., p.o.
- ❑ antihistamines (Promethazin 1-2mg/kg/day)
- ❑ Non-codeine antitussives (drugs not leading to respiratory depression)

Laryngitis ac.

- ❑ Often recurrences
- ❑ Dif. diagnosis: exclude allergies, GER, foreign body in lower airways
- ❑ In case of more than 3 recurrences in a short period or atypical progression laryngotracheobronchoscopy in GA is indicated

Larynx, laryngeal muscles paresis

- ❑ MYOPATHIC - cancer- or inflammation-induced damage
- ❑ NEUROPATHIC - damage can be on level:
 - ❑ cerebral
 - ❑ bulbar
 - ❑ peripheral - congenital or acquired

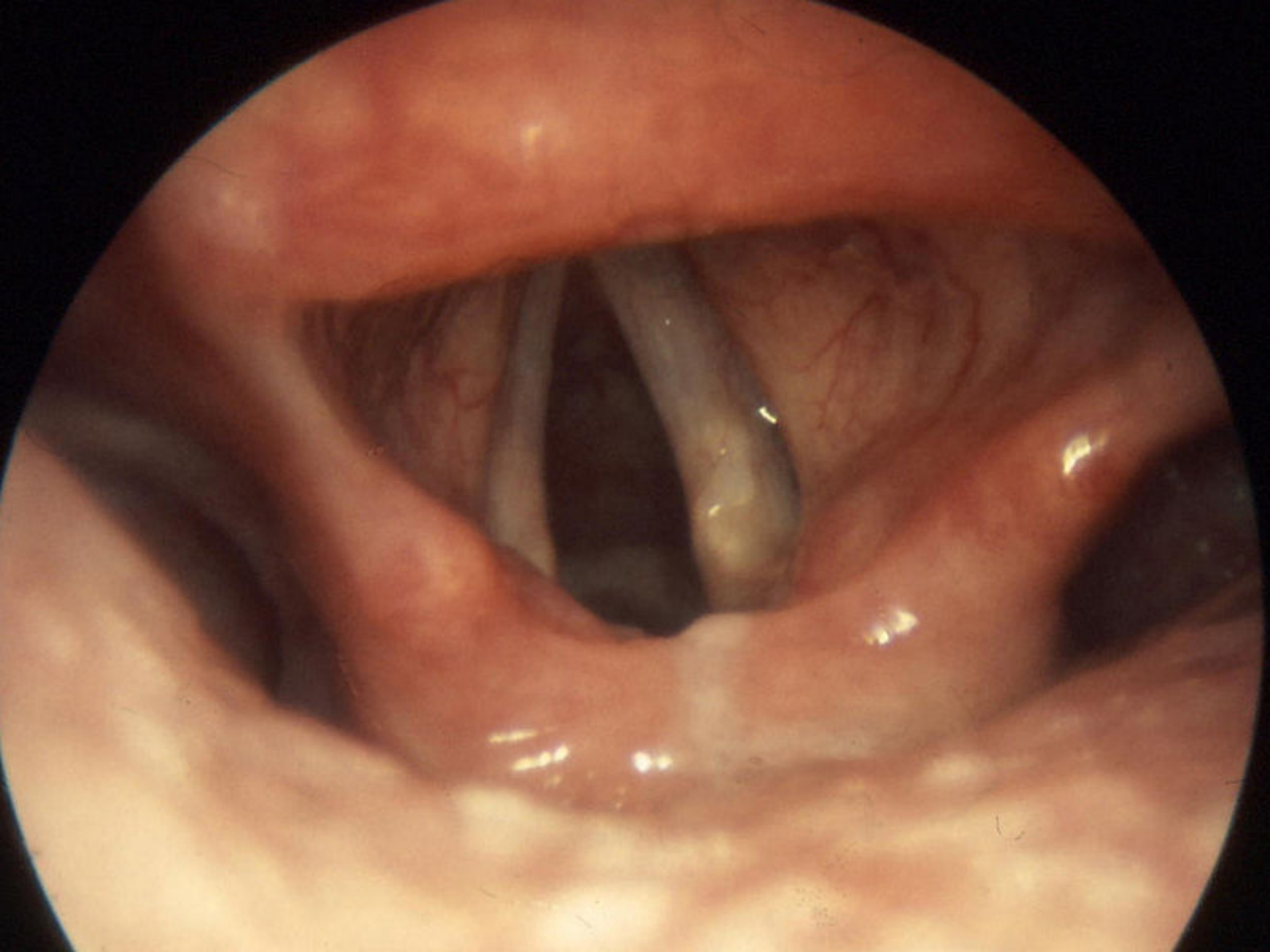


Paresis of laryngeal muscles

- ❑ N. LARYNGEUS SUP. – supplies m. cricothyreoideus (vocal cord tensor), sensitive innervation supraglottic region
- ❑ N. LARYNGEUS INF. – RECURRENS – motoric supply of the other internal laryngeal muscles (abductors, adductors, tensors), sensitive innervation of glottis and subglottis

Voice disorders

- Suddenly occurring
- Gradually progressing
- Inflammations
- Tumors
- Innervation defects
- Permanent organic changes – scars
- Congenital abnormalities
- Malfunctions



Phonosurgical procedures

- ❑ Treatment methods of voice malfunctions by surgical means
- ❑ developed in 1980's
- ❑ Used in patients not responding to conservative phoniatric treatment
- ❑ However co-operation of ENT-surgeon and phoniatrician is still necessary!

Phonosurgical techniques

- ❑ **TRANSORAL PHONOMICROSURGERY**
- ❑ Suspension microlaryngoscopy (1960's)
- ❑ Therapy of lesions in vocal cords region ("singer" nodules, Reinke's oedema, polyps, leukoplakia)



Phonosurgical techniques

- ❑ **METHODS USING VOLUME ENLARGEMENT IN ATROPHIC/PARETIC CORDS**
- ❑ Atrophy of m. vocalis, in elderly people, concave edge of vocal cords = gap between vocal cords is present during phonation
- ❑ Paresis caused by lesion of n. laryngeus recurrens – paramedial position of vocal cord
- ❑ Volume enlargement by implantation of adverse material (in past teflon, nowadays autologous fat), irreversible, can be performed ambulatory

Phonosurgical techniques

❑ SURGERY OF LARYNGEAL SKELETON

❑ Changes position or tonus of vocal cords

❑ 4 types of THYROPLASTY

❑ I. lateral compression of cord (causes shift to medial position)

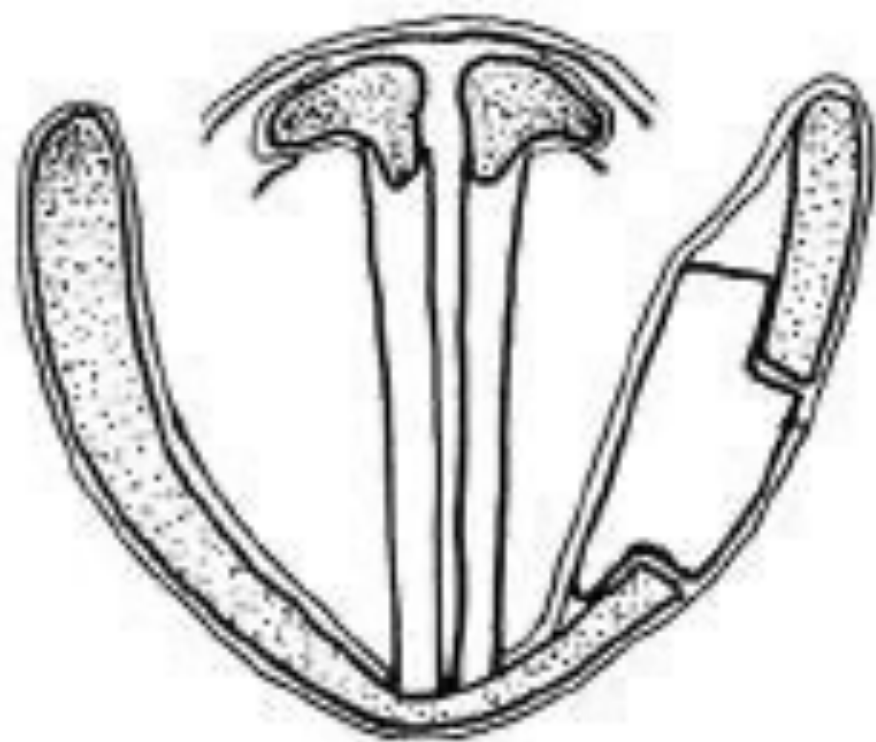
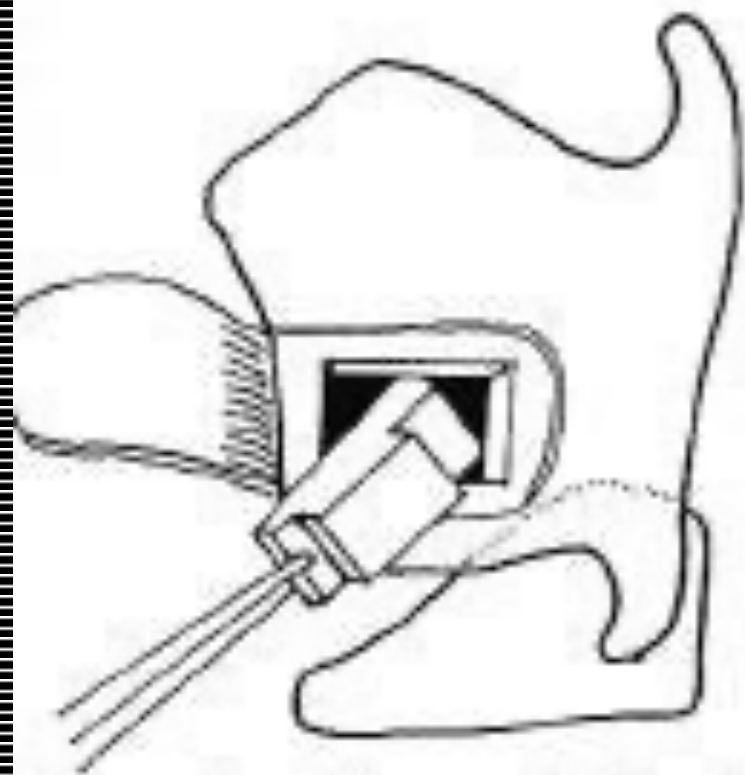
❑ II. lateral expansion of cord (causes shift to lateral position)

❑ III. shortening of vocal cord

❑ IV. Prolongation of vocal cord

THYROPLASTY I

- ❑ lateral compression of vocal cord – in paralytic or atrophic cords (paramedial position of cord – symptoms: hoarse voice, dyspnoea, voice weakness),
- ❑ medialisation of vocal cord by implant, which is inserted between cord and thyroid cartilage through window in thyroid cart., size of implant is individually modified, operation is reversible, performed in LA, voice improvement by more than 90%



Obr. 1 - Thyroplastika I. typu.

Change of voice pitch

- ❑ Thyroplasty III
- ❑ Lowering of voice pitch – in mutation disorders, dysphonia caused by increased stiffness of cords in transsexual of female to male type
- ❑ Leads to shortening of vocal cords and thus lowering of their tonus

Change of voice pitch

- ❑ THYROIDITIS IV
- ❑ Increase of voice pitch – virilization in women, or in transsexuals male-to-female
- ❑ Leads to prolongation of cords and thus increasing their tonus

Reinnervation of n.laryngeus recurrens

- ❑ Direct anastomosis end-to-end
- ❑ anastomosis using graft
- ❑ reinnervation using neuromuscular junction
- ❑ technically difficult, in GA
- ❑ Effect of surgery is unsure, becomes evident in 3-4 months

Spastic dysphonia

- ❑ Tonic or clonic spasm of vocal cords adductors
- ❑ Symptoms: effortful, rough, trembling voice
- ❑ purpose is to lower vocal cords tonus
- ❑ Botulotoxine injections into vocal cords are used
- ❑ Temporary effect, can be repeated, ambulatory technique

Methods in people after laryngectomy

- partial LL = relaxation and shift of vestibular cord to the remaining vocal cord
- total LL = implantation of voice prosthesis to artificial tracheoesophageal fistula = valve enables one-way flow of air from trachea to esophagus → pharynx → mouth (in mouth occurs vocal articulation)