


Folie 1

Laryngitis

Tracheal cannula

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Folie 2

- acute
- chronic
- specific
- non specific

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Acute laryngitis (1)

- most common type of acute laryngeal infection
- but also functional cause: "phonotrauma"
 - vocal misuse, overuse or abuse
 - "vocal stress in dry and smoky rooms"
- symptoms include hoarseness with dry, unproductive coughing, dyspnea, and a burning throat.
- vocal cords are reddened, edematous, and thickened, with coatings of viscous mucus.

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Acute laryngitis (2)

- self limited (5-10 days)
- Supportive care—rehydration, voice rest, +/- steroids
- caused by viruses, occasionally by vocal stress in dry and smoky rooms

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Chronic laryngitis (1)

- consequence of persistent vocal stress and smoking
- but also: climate, heat, low humidity, dust, infections of the upper and lower airway tract, reflux and inhalation of corticoids
- found in persons above 50 years of age
- mucosal epithelium is thickened (hyperplasia and hyperkeratosis), with submucosal edema, inflammation, and glandular hyperplasia

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Chronic laryngitis (2)

- leukoplakia and exophytic keratosis may develop and need to be distinguished from laryngeal carcinoma!!!
- causal treatment (smoking,...), rehydration, +-voice rest, +steroids, PPI, - antibiotics

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Laryngitis posterior (1)

- = Gastro esophageal reflux laryngitis
- special form of chronic laryngitis caused by reflux of stomach contents (usually nightly) into the esophagus and the hypopharynx
- Symptoms: hoarseness >throat clearing>cough >globus>dysphagia
- Over 50 % deny heartburn!

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Laryngitis posterior (2)

Diagnosis:

- laryngoscopy
- gold standard is 24-h dual-probe pH-metry and impedance

Treatment:

- proton pump inhibitor (PPI) for minimum 2-3 months
- [Laparoscopic Nissen fundoplication]

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viral croup syndrome (1)

- characterized by acute laryngo-tracheo-bronchitis
- young children (often younger than 2 years)
- secondary to parainfluenza viruses in most cases
- autumn/winter
- associated hoarseness or muffled voice, dry barking cough, odynophagia
- inspiratory stridor and dyspnea

viral croup syndrome (2)

- progression of symptoms is slower than in epiglottitis
- Hospital admission for observation (i.v. antibiotics, i.v. steroids, and adrenaline nebulizations and ventilatory support)

Epiglottitis (1)

- supraglottitis
- serious condition occurring in children between the ages of 1-5 years
- H. influenza type B
- less commonly seen in children in developed countries (since routine Hib vaccination)
- adults are more commonly affected these days and often present with supraglottitis.
- can lead to airway obstruction very rapidly
- high temperature muffled voice and rapid onset of stridor



Epiglottitis (2)

- do not distress the child [and parents] (e.g. for i.v. access -> this may aggravate the stridor > cause complete airway obstruction!)
- antibiotics
- senior anesthetist and ENT surgeon on call
- if child tolerates: oxygen by mask and nebulized adrenaline
- operating room: endotracheal intubation, and when this fails, emergency tracheostomy

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Laryngeal papillomas

- most common benign tumors of the larynx caused by human papillomaviruses (mainly HPV-6 and HPV-11) in adults
- spreading, glassy-red, raspberry-like soft tumors are seen most often at the vocal cords
- risk of malignant transformation
- histologically fibroepitheliomas
- sometimes excessive growth of the papillomas
- repeated surgical treatment
- Vaccination?

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Mycobacterial laryngitis

- Tuberculosis (TB)—interarytenoid fold is most common site
- highly associated with active pulmonary TB
- granulomatous or ulcerative lesions

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Fungal laryngitis

- *Candida albicans*
- dysphonia with white plaques or speckles and erythema on the TVFs
- immunocompromised patients
- immunocompetent patients with use of recent use of broad-spectrum antibiotics or inhaled corticosteroids

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Reinke's edema (laryngitis chronica hyperplastica)

- fluid accumulation between the glottic epithelium and the vocal cord ligament
- caused by vocal stress and nicotine abuse
- edematous glassy swelling of the vocal cords
- not always surgery necessary

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immune diseases

- *Sarcoidosis*—non-caseating granulomas usually of the supraglottis
- 5 % of patients with pulmonary sarcoid have laryngeal disease
- *Amyloidosis*—firm, non-ulcerated, orange-yellow to gray submucosal nodules

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Granulomatosis with polyangiitis (GPA or Wegner's granulomatosis)

- diagnosis is confirmed on histology — necrotizing granulomatous inflammation, multinucleated giant cells and small vessel vasculitis
- C-ANCA positive in active disease
- subglottic stenosis in 16 % of patients

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summary

- broad spectrum of pathologies possible: infectious processes to indolent diseases that look like malignancies
- thorough history very important step toward a differential diagnosis
- excellent visualization of the laryngeal structures
- treatment of specific pathologies depends on the causative pathogen or etiology (as well as age, vocal demands and clinical characteristics of the patient)

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Tracheostomy cannulas

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Tracheostomy cannulas

- allow securing the breathing by keeping open and stabilising the tracheostomy
- by-passing the upper airways and the larynx
- for preserving and long-term ventilation and the protection of the lower airways
- type of the inserted cannula has to meet the requirements regarding material, design and function

Classification of tracheostomy cannulas

- according to the material
- according to the function

material

metal

- ✓ 925 sterling silver
- ✓ High material strength
- ✓ only very thin walls
- ✓ -> a high air passage
- ✓ may be worked up and repaired
- ✓ bactericidal effect
- ✓ possibility to sterilize
- ✓ low adhesion of secretion
- missing adaptation to the anatomic situation
- discoloration
- high costs
- Cave: radiotherapy and during tomographic imaging

synthetic

- ✓ silicone, polyvinylchloride (PVC) (plus teflon softening agents and stabilisers)
- ✓ offered as unflexible, pre-shaped tracheostomy cannulas (duroplastic) or as flexible cannulas
- ✓ low weight

according to the function

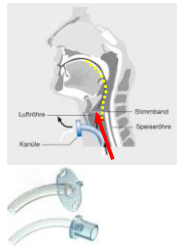


- blockable
- non-blockable
- Tracheostomy cannulas with perforation (voice cannulas)
- Special cannulas

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Non-blockable cannulas

- maintains airway once aspiration risk has passed
- without and with inner cannula
- diameter of the inner tube is important
- Women: 8mm
- Men: >8-9 mm
- Cave: aspiration!
- Phonation also possible!



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Tracheostomy cannulas with perforation (voice cannulas)

- different types of perforation
- With and without cuff



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Short cannulas

- silicone
- short form
- no inner cannula
- risk of necrosis!
- HME
- indication: LE



Blockable cannulas

- Complete closure of the trachea
 - Ventilation
 - Aspiration
- „Cuff“
 - low pressure
 - pilot balloon does not tell you is how much air pressure is in the cuff -> manometer
 - not >25mm Hg!
 - the cuff is not to hold the tube in position
 - blockable cannulas cannot avoid aspiration!



Blockable cannulas

- fenestrated outer tube with cuff
- phonation
- therapy SLP



Inner Cannula

Use of an inner cannula:

- provides a vital safeguard against life-threatening complications of tube obstruction in a cuffed tube and must be present at all times
- Tracheostomy tubes without an inner cannula should be avoided wherever

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Deflating the Cuff

- Why?
- To assess the patient's ability to maintain their own airway
- To assess the patient's ability to cope with their secretions
- To assess the patient's ability to use their voice and to start swallowing
- Follow trache guidelines ie. Cuff down 24 hours prior to decannulation
- Blue dye test should be performed at this stage to assess swallow

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Cannulas with subglottic suction and preserved voice function

- subglottic suction without
- infections ↓
- „protocol“
- swallowing possible



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Decannulation

- general condition?
- Pulmonal situation?
- Breathing?
- endoscopy? FEES.
- Swallowing possible?
- efficacy of coughing, throat clearing?
- NO reflux/vomiting?

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Steps to decannulation

1. Change to fenestrated uncuffed tube (downsized)
2. Start capping off tracheostomy (NOT with a cuffed unfenestrated tube!) during the day for 12 hrs
3. When 24 hrs of uninterrupted capping (monitoring) decannulation is possible

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Tube change



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summary

- tracheostomy tubes are increasingly encountered
- range of specialists may be involved in tracheostomy tube management
- range of different sized and shaped tubes are available
- patients may be able to speak and swallow food safely with a tracheostomy tube!
