Head & Neck Surgeon's Infectiology

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Head & Neck Surgeon's Infectiology

1. Introduction – when to grab the scalpel?
2. Anatomy
3. Surgical treatment

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Owls to Athens

Abscess: purulent infection in a virtual space between tissues

Empyema: purulent infection in a pre-formed body cavity

Phlegmon: purulent infection with diffuse spread in the tissue (sponge-like)

Cervical Phlegmon – Abscess

- **Origin:** „banal“ infection, post-traumatic, iatrogenic
- **Symptoms:** pain, trismus (=lockjaw), torticollis, aglutition, dyspnoea (= acute emergency)

- **Complication:** septic shock, asphyxia, vascular involvement with septic thrombosis or vascular invasion with lethal haemorrhage, tongue or vocal cord paresis, *descending abscess* => purulent mediastinitis, pericarditis and/or pleuritis

Ubi pus ibi evacua

- Historically, decision making was easy for a surgeon:
  - No tomographic imaging => diagnostic surgery
  - No antibiotics => „septic surgery“ = evacuation as the only „causal“ therapy option: clean out the pus and rinse with antiseptic solutions
  - "Pus bonum et laudabile": in pre-20th century medicine the creamy-yellowish pus was regarded to be important in the wound healing process… (praise what you cannot fight…)

Today: Information Age

- Blood test: Haemogram, CRP
- Tomographic imaging : US, CT, MR +/- i.v. contrast agent
- Microbiology test from aspirate

- **Specific antibiotic therapy**
- So when to grap the scalpel?

When to grap the scalpel?

- Phlegmon/Mini-abscess: i.v. antibiotic therapy
- Antibiotics have merely no therapeutic effect in case of an abscess (pus encapsulated in a wall of granulation tissue). The antibiotic does not reach the area of purulent colliquation.

- Therefore: An abscess warrants surgical drainage of pus combined with antibiotics to avoid septic complications.

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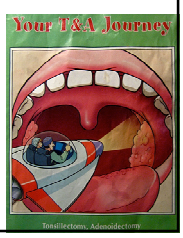
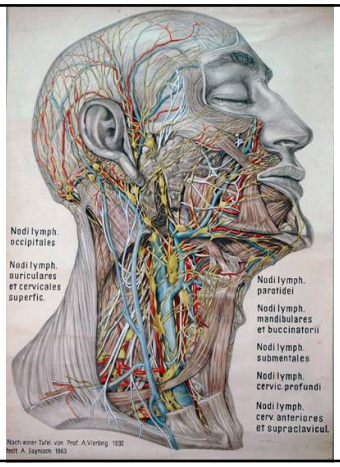
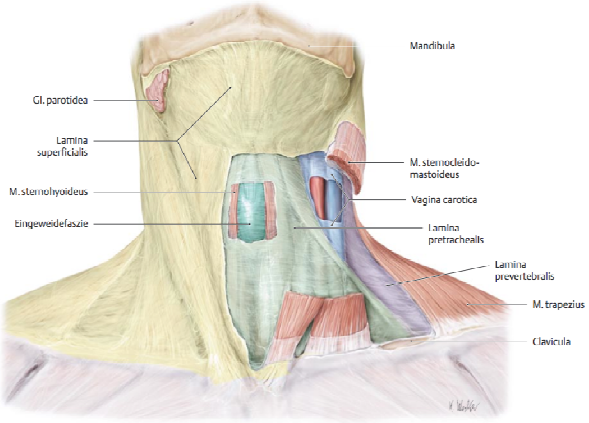
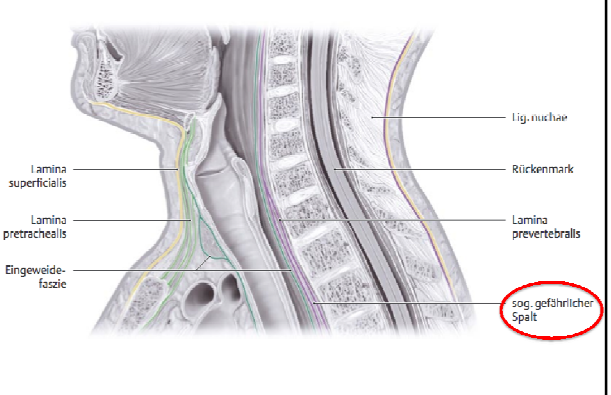



Nodi lymph. occipitales
Nodi lymph. auriculares et cervicales superfic.
Nodi lymph. parotidei
Nodi lymph. mandibulares et buccinatorii
Nodi lymph. submentales
Nodi lymph. cervic. profundi
Nodi lymph. cerv. anteriores et supraclavicul.


Mandibula
Gl. parotidea
Lamina superficialis
M. sternocleido-mastoideus
M. sternohyoideus
Vagina carotica
Eingeweidefaszie
Lamina pretrachealis
Lamina prevertebralis
M. trapezius
Clavicula


Lig. nuchae
Lamina superficialis
Rückenmark
Lamina pretrachealis
Lamina prevertebralis
Eingeweide-faszie
sog. gefährlicher Spalt

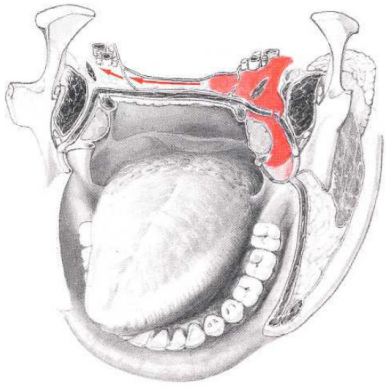
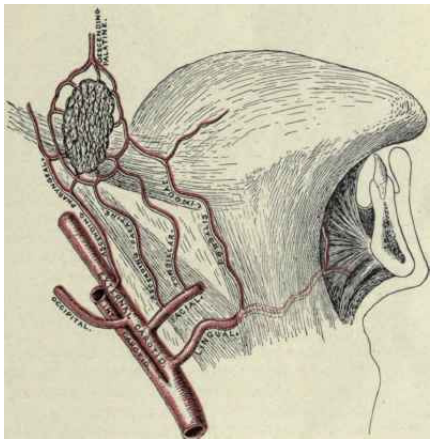


Abb. 5.53. Anatomische Verhältnisse bei Abszessen der Peri- und Retrotonsillar- sowie der Parapharyngealregion



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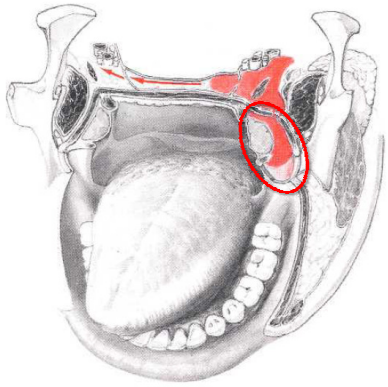

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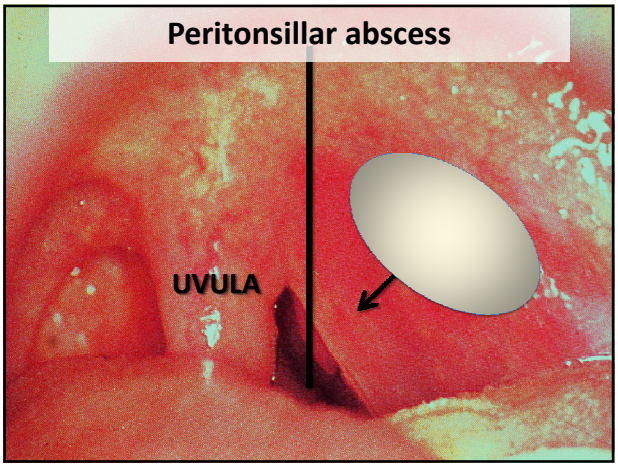
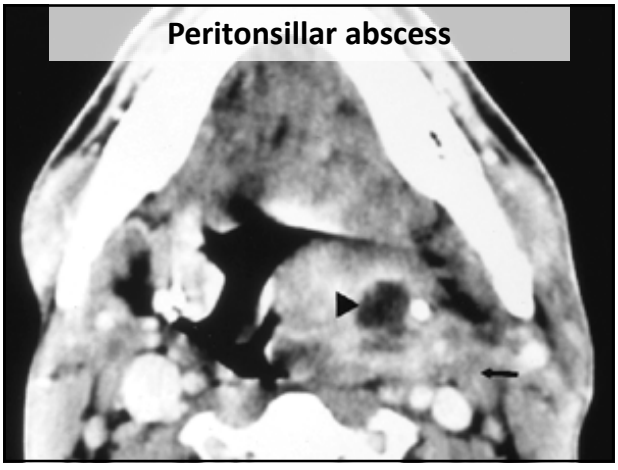
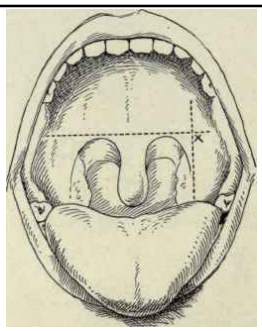


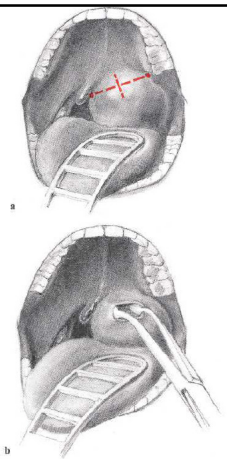


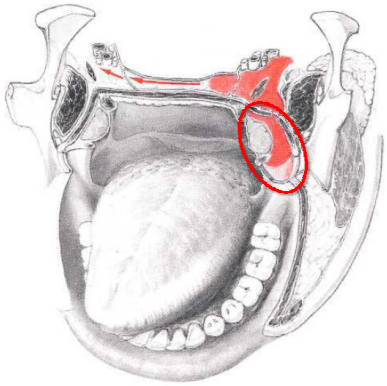
Peritonsillar abscess

- Normally unilateral after tonsillitis (even under antibiotic therapy)
- Aglutition, drooling, trismus
- Incision in LA & daily rinsing with antiseptic
- Alternative: Puncture, often repeated
- Abszess-tonsillectomy (young children)
- Antibiotics
- After incision or puncture, tonsillectomy is often recommended after 3 months



Point of puncture for tonsillar abscess. "If an imaginary horizontal line is drawn across the base of the uvula, and another vertically along the anterior faucial pillar, they will intersect at a point overlying the supratonsillar fossa. Just external to this is the best point for opening a quinsy." - St. Clair Thomson, M.D., Brit. M. J., March 25, **1905**, p. 645.





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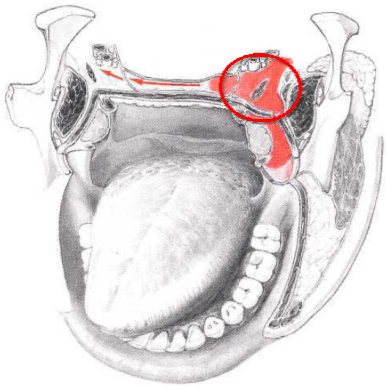

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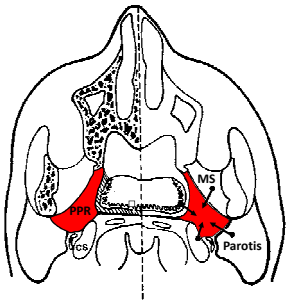
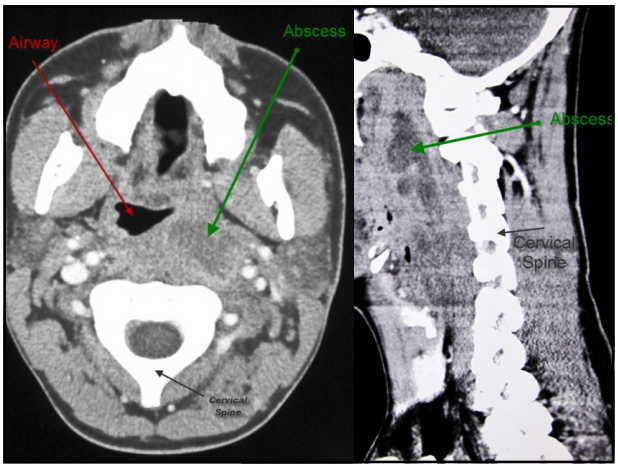
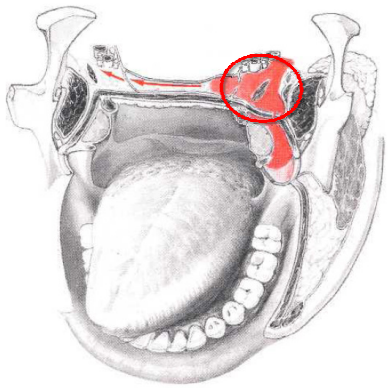
Parapharyngeal abscess





Parapharyngeal abscess

- Older children
- TRISMUS (Mm Pterigoidei)
- CT/MR
- Drainage +/- TE
- i.v. antibiotic therapy



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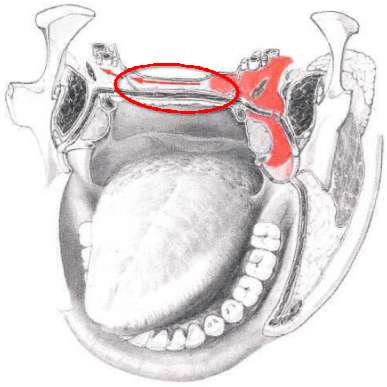

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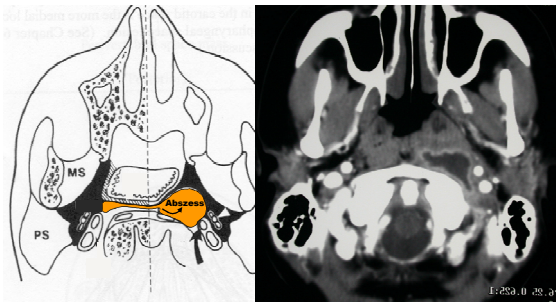
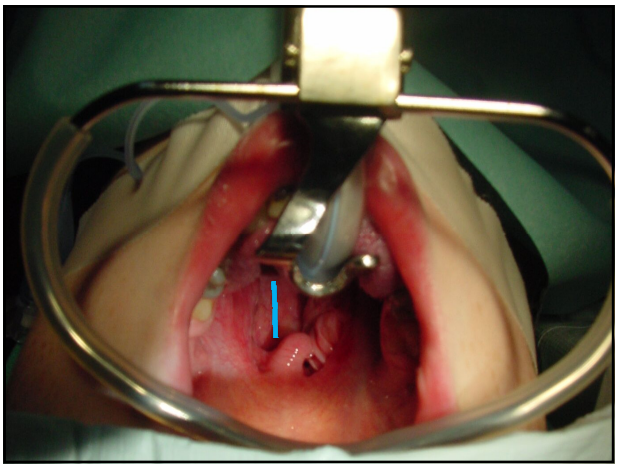
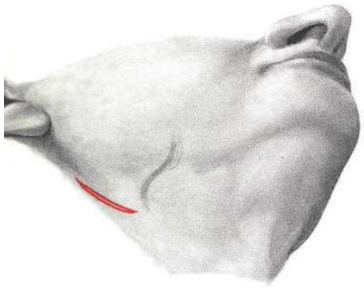
Retropharyngeal abscess



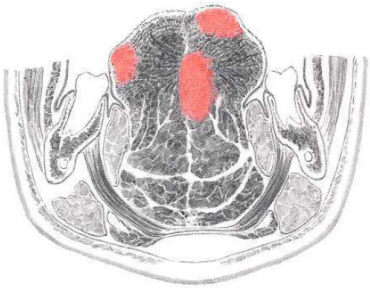
Retropharyngeal abscess

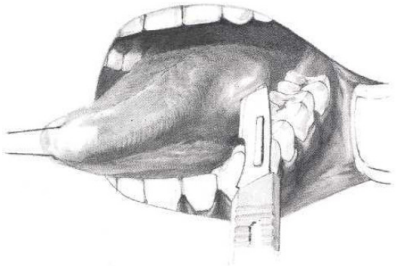
- Children
- Torticollis, dysphagia, dyspnoea
- Bulging of dorsal pharyngeal wall
- CT/MR
- Drainage (peroral/cervical)
- i.v. antibiotic therapy

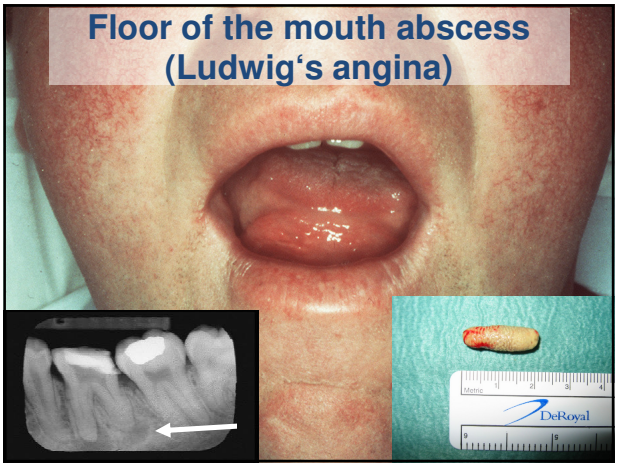


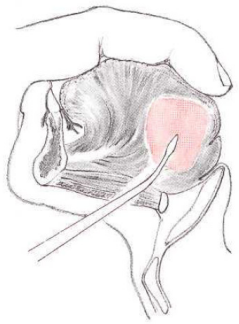


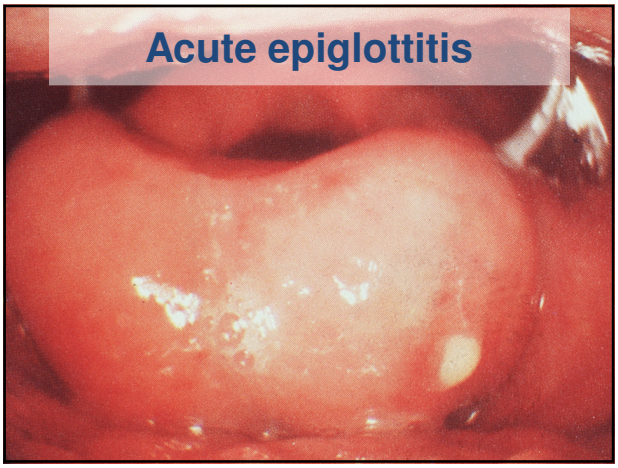
Tongue abscess



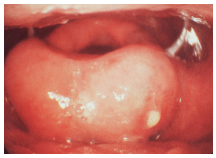



Floor of the mouth abscess
(Ludwig‘s angina)
DeRoyal



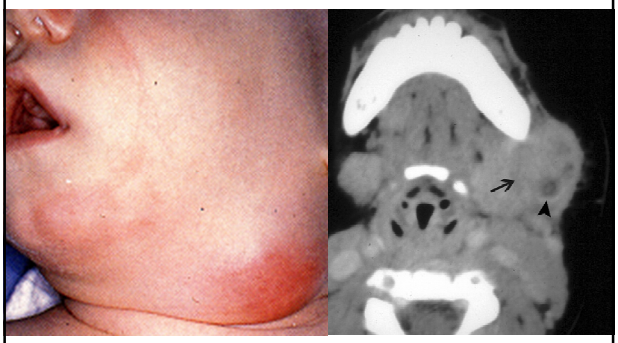


Acute epiglottitis



- Children (2-8yrs), adults
- Severe supraglottic infection
- Haemophilus influenza Type B,
  pneumococcus, β-haemolytic streptococcus
- High fever, inspiratory stridor, dyspnoea, „hot potatoe voice“, drooling, severe pain, imminent asphyxia
- Without treatment lethal in 5-10%!
- Early (!) intubation/intensive care unit
- Antibiotics, steroids, inhalation with adrenaline sol.
- Incidence decreased due to vaccination for haemopilus

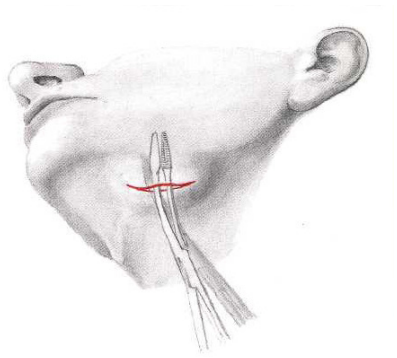
Cervical abscess in a 12 months old child

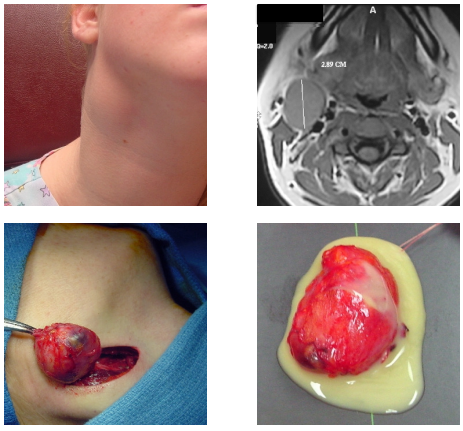


Khanna G et al. Radiographics 2006;26:157-171

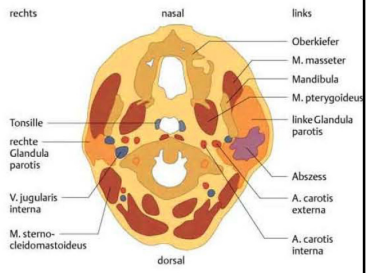
Cervical abscess

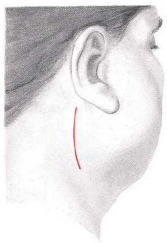
- Inside the inter-fascial spaces of the neck
- Caused by: lymphadenitits, lymphogenous (Tonsillitis), per continuitatem (floor of the mouth injury, iatrogenic, teeth or salivary infections), haematogenous (e.g. from skin infection), descending abscess (e.g. from retropharyngeal abscess)
- Cervical swelling, erythema, perforation
- CT/MR/US
- Drainage (peroral/cervical), daily rinsing
- i.v. antibiotic therapy





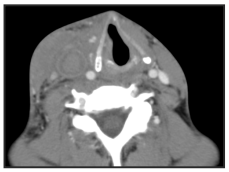
Parotisabszess





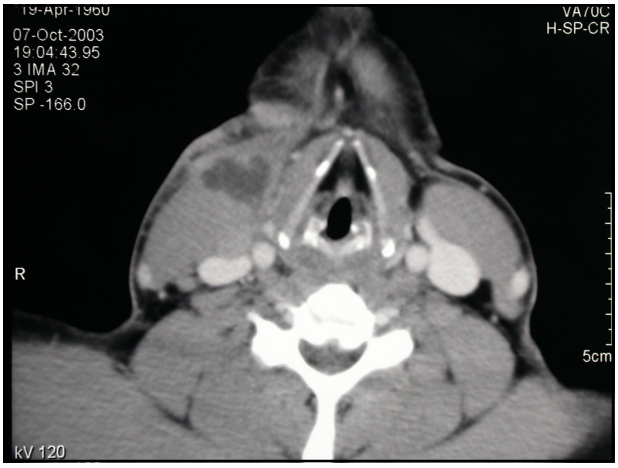
Multilevel cervical abscess

Complications cervical abscess



- septic shock
- asphyxia (airway obstruction)
- vascular involvement with:
  - septic thrombosis of the internal jugular vein (Lemierre)
  - vascular arrosion, psudoaneyrism of the carotid artery, carotid rupture (with lethal haemorrhage in 40%)
- Involvement of cranial/cervical nerval structures: Horner (Sympaticus), hoarseness (X), tongue paresis (XII)
- Descending abscess => purulent mediastinitis, pericarditis and/or pleuritis

(Ling-Feng W et al. Am J Otolaryngol 24: 2003; Gralla J et al. J endovasc ther 11: 2004)

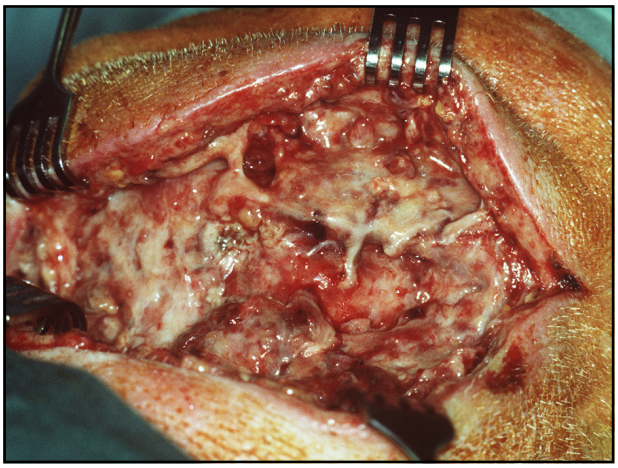


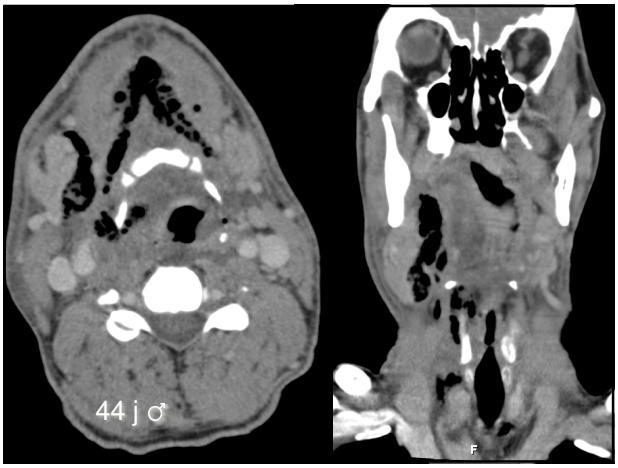
Necrotising fasciitis

- Rapid progressive necrosis of cervical fascias and subcutaneous fat tissue with possible skin and muscle necrosis, accompanied by toxic systemic reaction (1952)
- often mixed flora: often β-haemolytic streptococcus, also staphylococcus, clostridia, gram negative cocci
- Tooth infection, tonsillitis, pharyngitis, (banal) injuries
- diabetics, immune-suppressed, malignoma, but also young otherwise healthy individuals!

Necrotising fasciitis

- Odynophagia, dysphagia, fever, progressive erythematous cervical swelling, septic shock and organ failure within hours!
- CT/MRI
- Emergency cervicotomy with incision and wide opening of all fascial compartments, debridement und drainage. (+/- thoracotomy, often tracheotomy)
- i.v. antibiotic therapy
- Intensive care measures
- High mortality (19-37%)





Head & Neck Surgeon‘s Infectiology

- Purulent cervical infections may have a rapid and fatal course
- Exceptionaly dangerous, when spreading along cervical fascias
- Rapid diagnostics and antibiotic therapy
- Abscesses warrant surgical drainage


Merci!