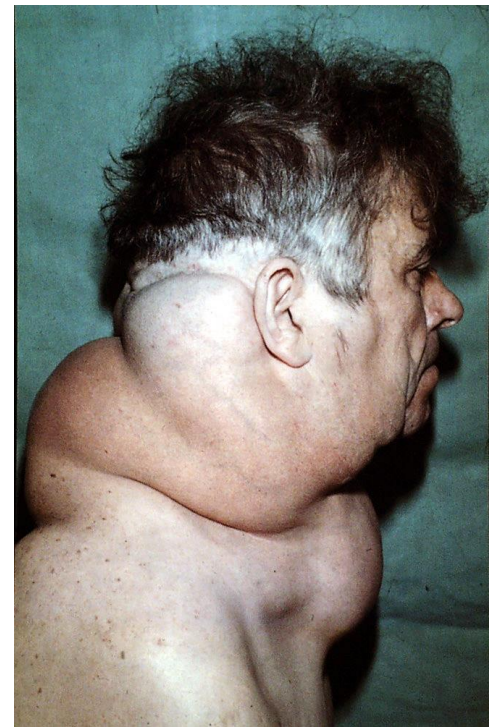


# Neck



**ENT Clinic of Masaryk university, Brno  
Faculty St. Ann Hospital**

Head: Ass.prof. Gál Břetislav, MD, Ph.D.

Pekařská 53, Brno , 656 91

# Neck - anatomy

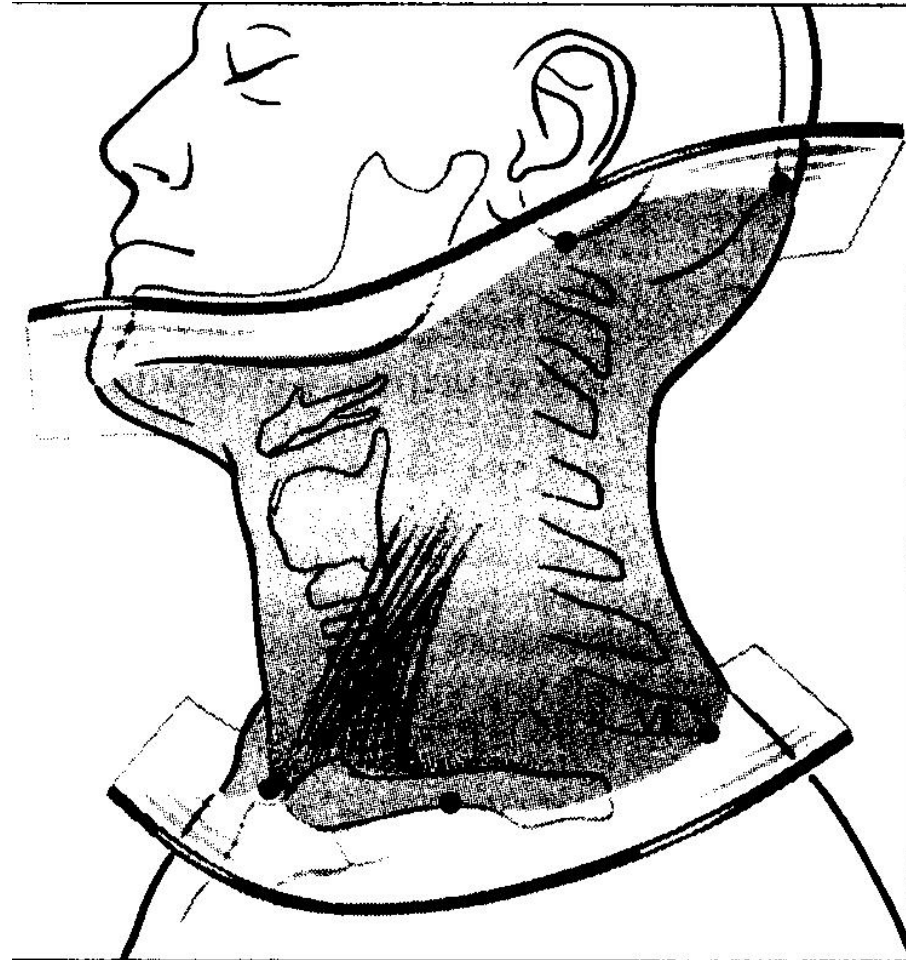
*Superior boundary* – inferior edge of mandibula, mastoid process and protuberantia occipitalis ext.

*Inferior boundary* – plain formed by the suprasternal notch, clavicle and the spinous process of the seventh cervical vertebra.

**Osteomuscular system** is adapted to the upright human posture.

**Visceral part of the neck** contains upper aerodigestive tract, the carotic sheath and its contents on each side and cervical lymphatic systém

There is on the neck cca 200 lymph nodes





# Lymph nodes of the neck

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## Nodi cervicales superficiales

Along v. jug. ext. tributary zone: parotid gland, retroauricular region, intraparotid and occipital lymph nodes.

## Nodi lymphatici cervicales profundi

They are in the carotid sheath.

### Superior group (subdigastric)

Lymph channels lead to this regional lymph nodes (group) from the tributary tissue area: soft palate, tonsils, radix linguae, supraglottis, sinus piriformis.

*Nodus jugulodigastricus = Woodova uzlina= Küttnerova uzlina= Chassegnacova uzlina je v*

### Middle group

Tributary tissue area: supraglottis, glandula thyreoidea, sinus piriformis. Boundary to the crossing of m. omohyoideus and carotid sheath.

### Inferior group

Tributary tissue area: subglottis, trachea, cervical oesophagus, glandula thyreoidea. „Great venous angle“ = the left jugulosubclavian angle. In this area is Troisier-Wirchow lymph node. Ductus thoracicus (thoracic duct) receive afferents from the lower half of the body, the cranial area.

## Lymphatic chain at n. accessorius

Tributary tissue area: nasopharynx, oropharynx, paranasal sinuses..

## Lymphatic chain along vasa transversa colli

nodi supraclaviculares – closely above clavicula.

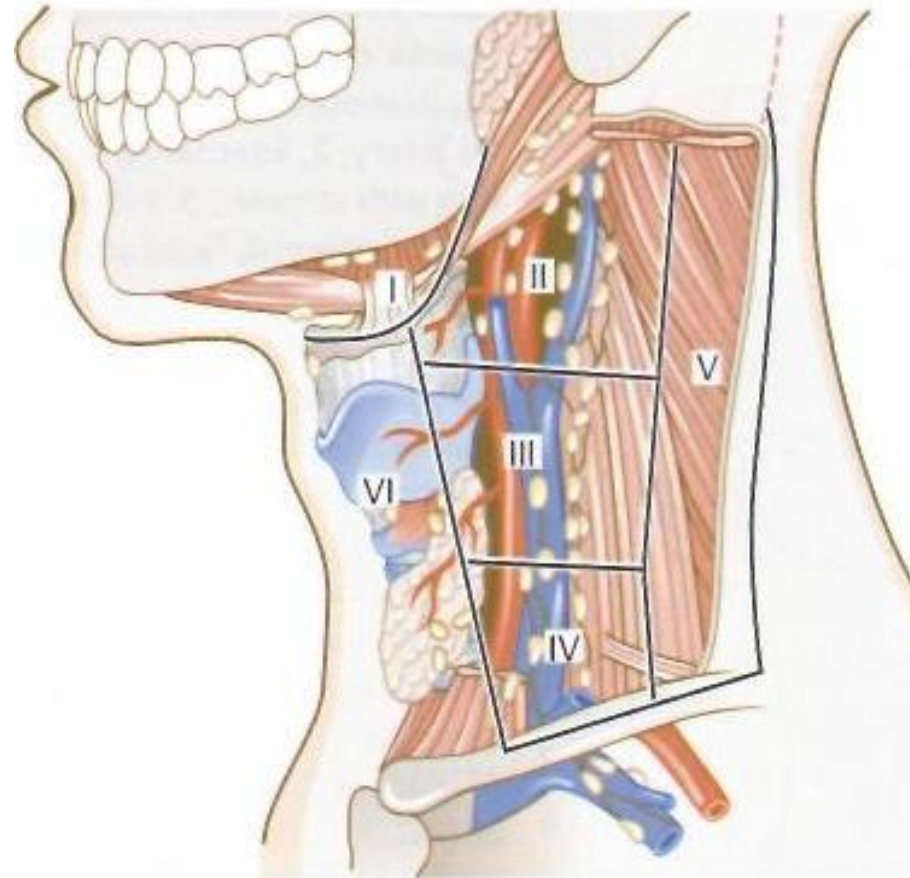
## Special groups of lymphnodes

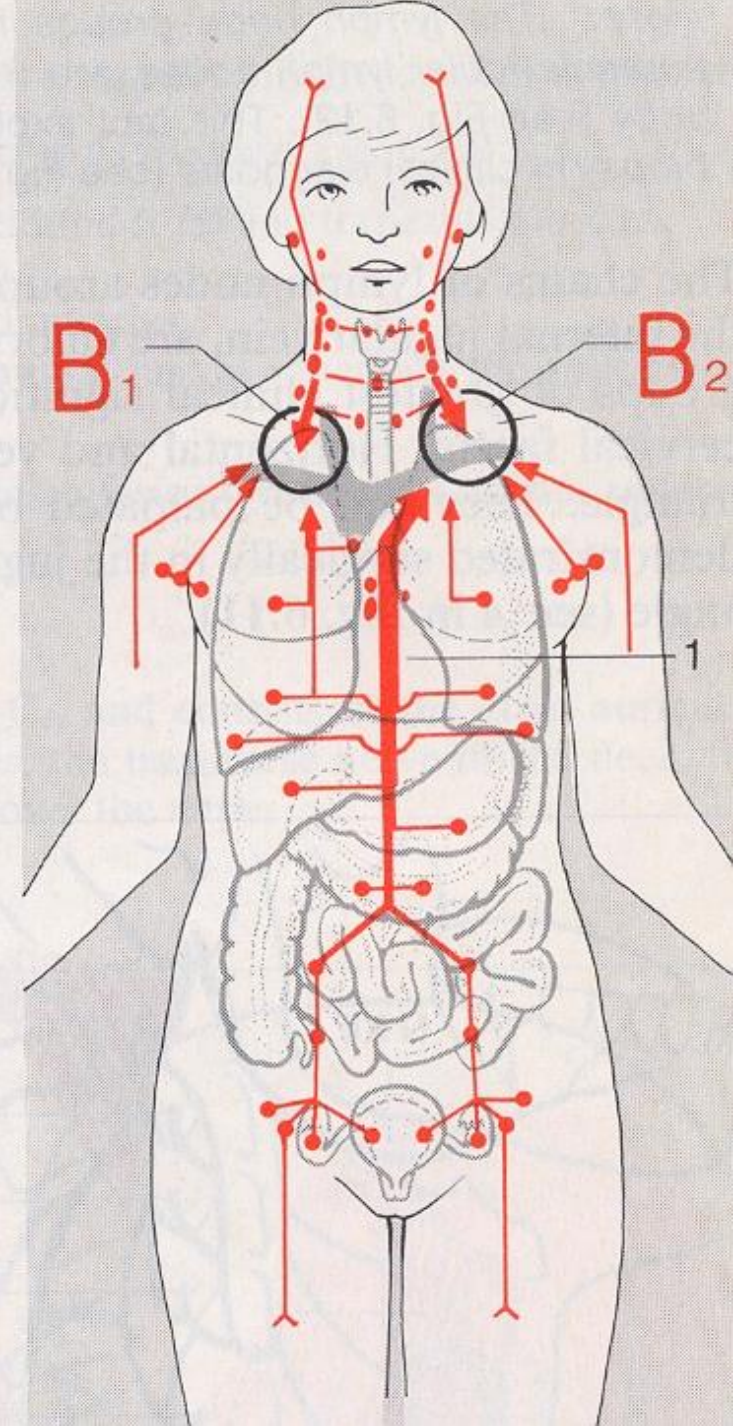
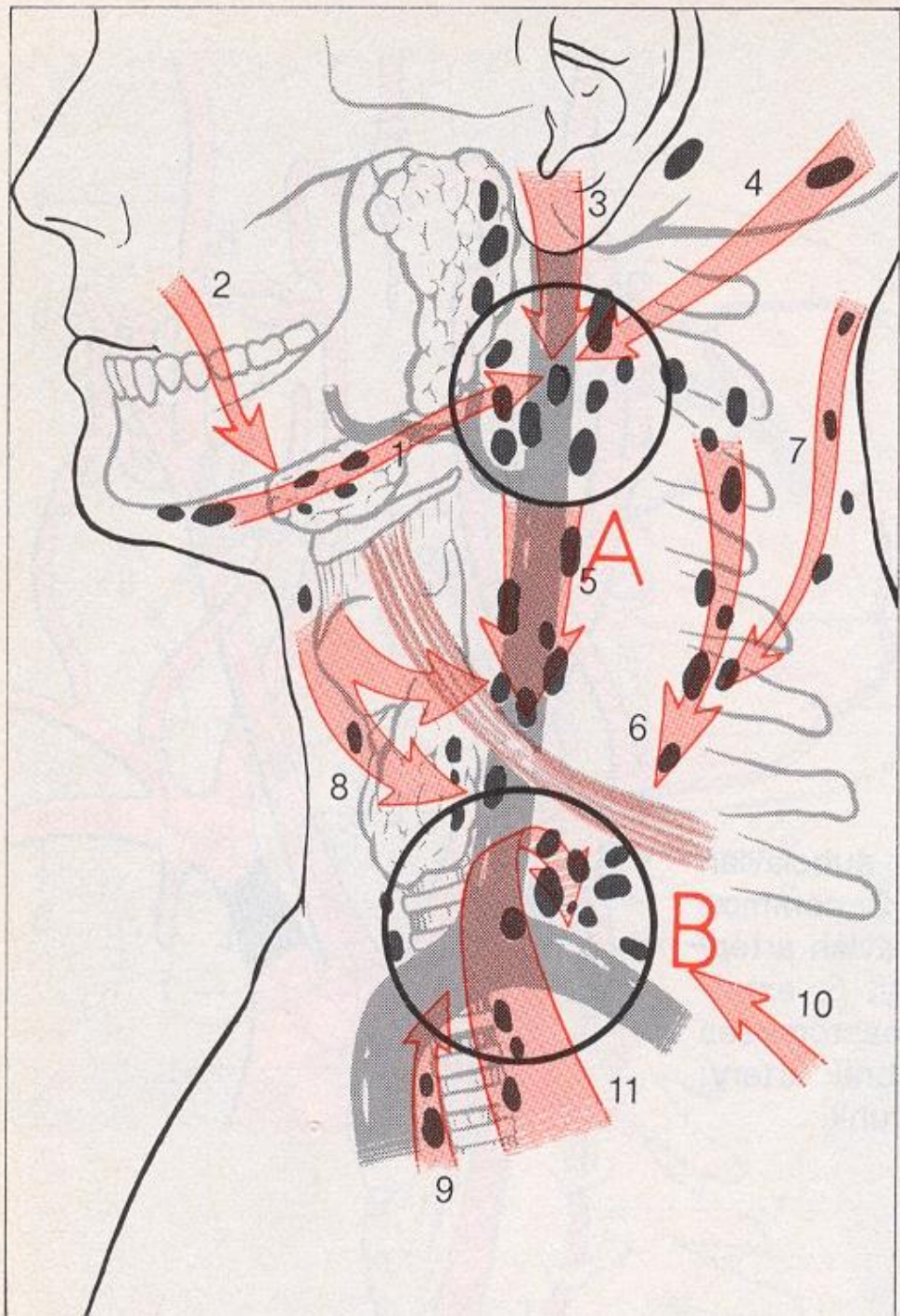
Nodi submentales, retropharyngei (the greatest Rouvier lymph node), paratracheales, nodus praelaryngicus (Poirier lymph node).

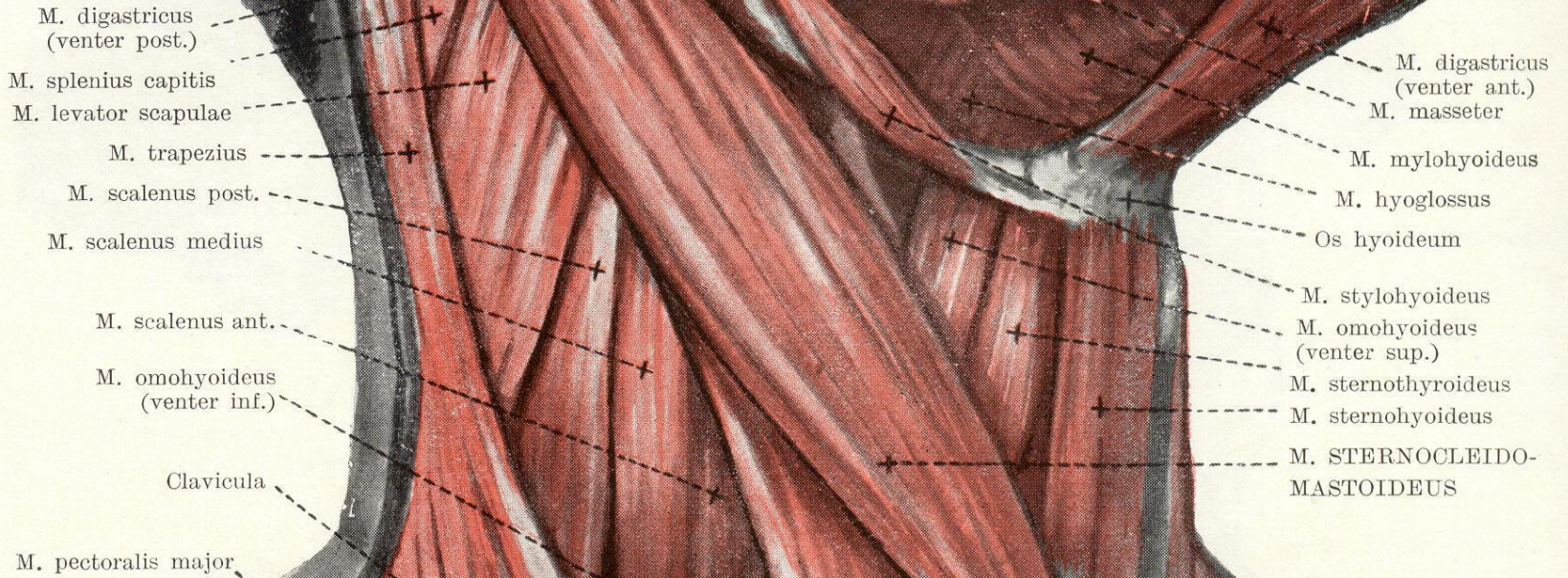
# The Memorial Sloan Kettering Cancer Center classification

## Classification of cervical lymph nodes

- I** submental and  
submandibular group
- II** upper jugular group
- III** middle jugular group
- IV** lower jugular group
- V** posterior triangle group
- VI** anterior compartment  
group









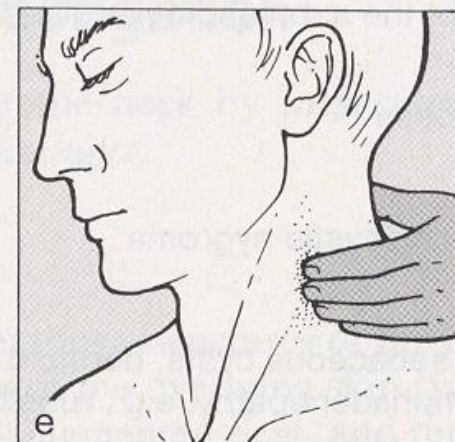
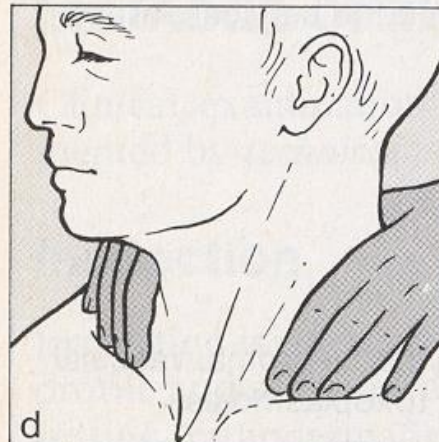
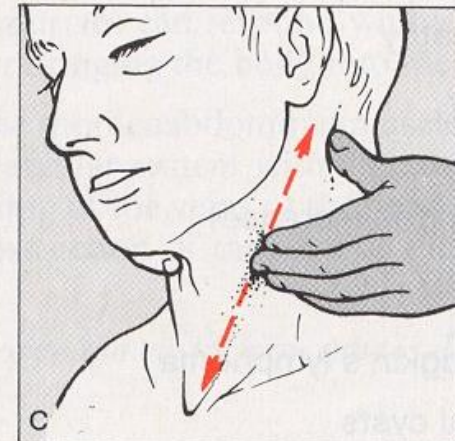
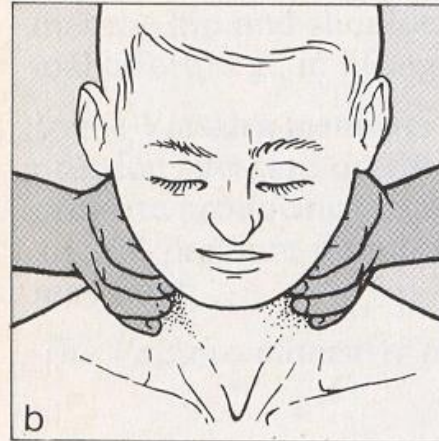
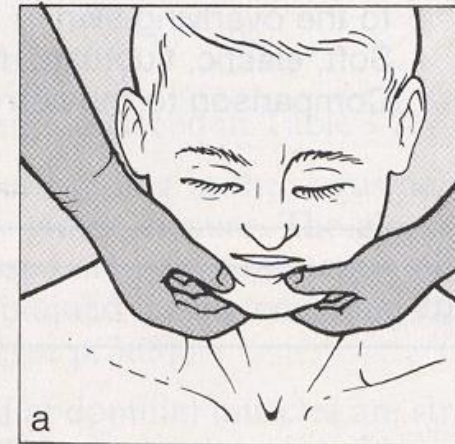
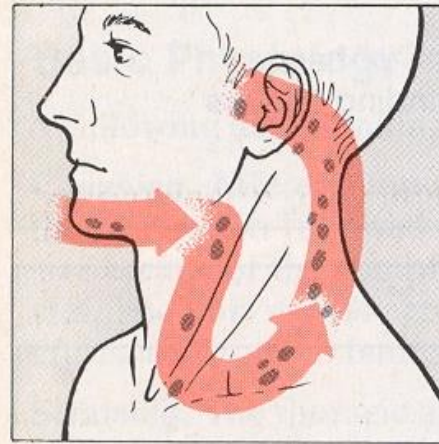
# *Investigation*

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- inspection
- palpation
- diagnostic imaging:
  - ultrasound, Doppler technique - provide information about vascular lesions, distinguish between cyst and solid tumor
  - computed tomography - allows greater differentiation : vascular lesion, tumors, cysts - including their position and extent
- biopsy
- cervical lymphography - is of little clinical value when compared with other methods of investigation.
- MRI
- Scintigraphy

# Summary of findings of palpation

- form and **size** in cm,
- **site** (localisation), topographic description
- **consistency** - soft, elastic, fluctuant, firm or hard
- **mobility** - vertically or horizontally, fixed or adherent
- pulsation, **skin** - appearance of the skin, comparison to the surrounding tissues







# „Sentinel lymph node“

---

- First lymph node to which the lymph is coming from primary tumor. If there is no metastasis, the probability of metastatic spread is low.
- Identification –
  - Before surgery – lymphoscintigraphy 1 day before surg.
  - During surgery - peritumoral application of lymphotropic agent (colloid solutions marked with radioactive technetium, stain).



# Utilization rate

---

- *Palpation* - up to 1/3 of cases false negative or false positive.
- **UZ** - sensitivity 94 % a specificity 91 % (depends on experience of interpreter)
- **FNAB fine needle aspiration cytology and biopsy** guided by ultrasound - až 76 % sensitivity a 100 % specificity
- Reliability of **CT scan for metastasis into neck lymph nodes is given about 72 % - 93 %**
- **PET** reveals higher sensitivity, but lower specificity than CT scan.
- **Combination of evaluation methods** shows presence of neck metastasis approx. in 70 % of cases. About 30 % of ill without clinical symptoms of metastasis is threaten with locoregional relapses from micrometastatic disease from micro metastasis in regional lymph nodes.

CT/2778/23  
Axial F->H

A

FN U sv.Anny v Brne

500110/091  
M  
4284-7367/04  
2004/12/6  
13:03:29

# Cancer metastases into neck lymph node

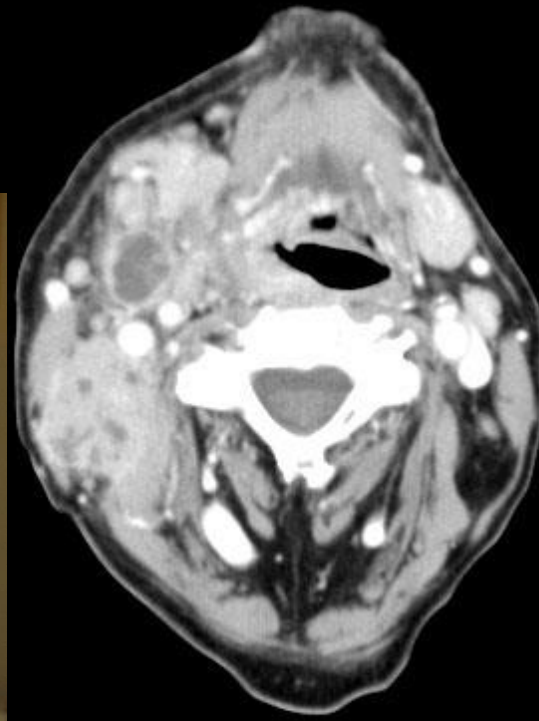


CT/2778/15  
Axial F->H

A

FN U sv.Anny v Brne

500110/091  
M  
4284-7367/04  
2004/12/6  
13:03:29



Pixel size: 0.488 mm  
Position: -715.0 mm  
W: 250 L: 25

DFOV: 25.00 x 25.00cm

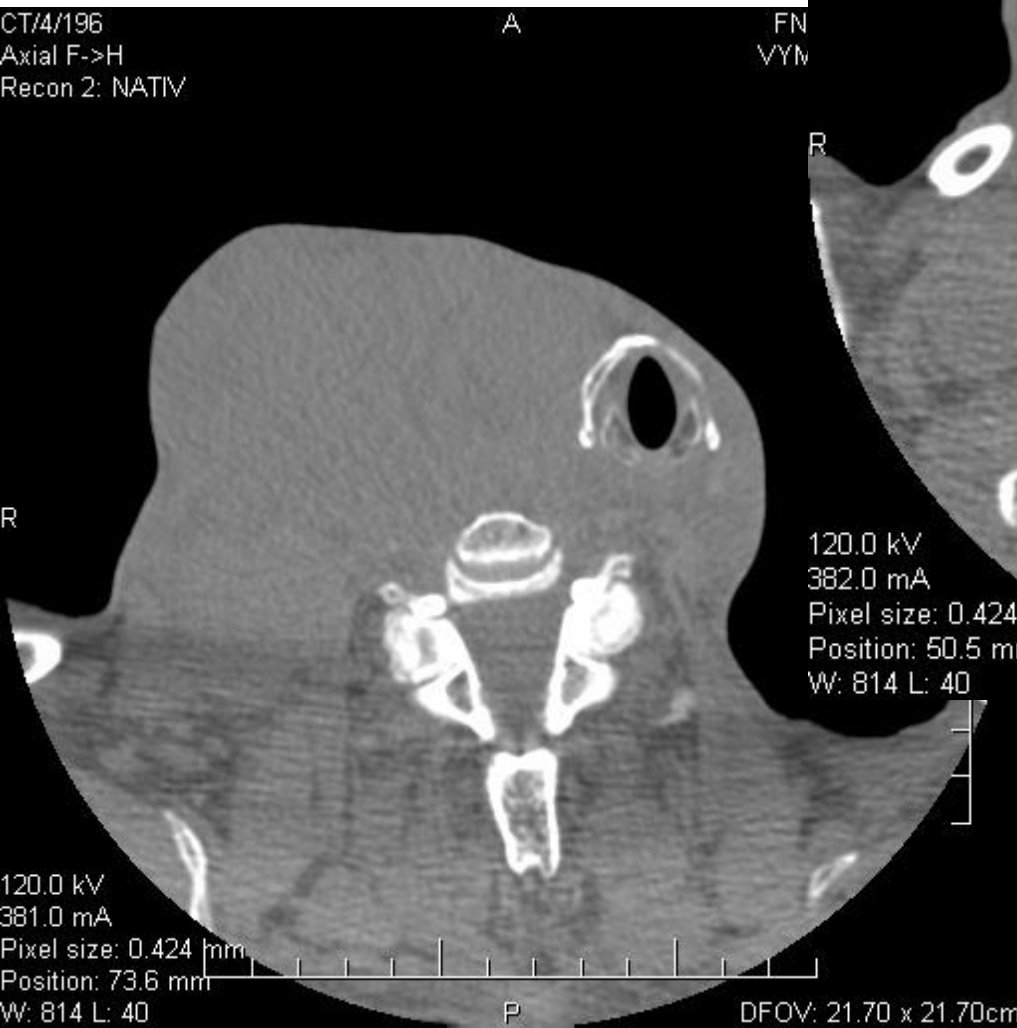


## Cancer of thyroid gland

CT/4/233  
Axial F->H  
Recon 2: NATIV

FN U sv. Anny v Brně  
VYMAZALOVA IRENA  
415115/090  
1941/1/15  
68Y F  
4284-4113/09  
2009/5/20  
11:50:15

CT/4/196  
Axial F->H  
Recon 2: NATIV





A

P

120.0 kV  
299.0 mA  
Pixel size: 0.511 mm  
Position: 19.3 mm  
W: 350 L: 40

191.0 mm (2D)

F

DEFOV: 26.18 x 26.18cm





# *Differential diagnosis of lumps of the neck*

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## **Lymphnodes X Extra lymphnodes**

- **Inflammatory Cervical Lymphadenopathy**
- **Tumors**
- **Congenital Anomalies**



# Inflammatory Cervical Lymphadenopathy

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acute - lymph nodes are painful

## **Chronic non specific lymphadenitis**

shows on repeated infections in the region of pharynx in past. Persistent or recurrent lymph node swellings are not compatible with a diagnosis of nonspecific lymphadenitis.

## **Chronic specific lymphadenitis -**

tuberculosis, sarcoidosis.

Lymphadenitis reticularis abscedens

**Cat Scratch Fever** the pustulous primary focus, which tends to ulcerate, occurs in the skin, . This is followed 1 to 5 weeks later by a regional lymphadenopathy. In one third of cases a fistula forms. Is caused by the cat scratch virus.

Tularemia

## **Lymphadenitis with changes in blood account**

mononucleosis infectiosa, rubeola, adenovirosis, hepatitis epidemica, viral pneumonia, listeriosis, toxoplasmosis, lymphadenitis after hydantoin

## **Rare lymphadenitis**

collagenases, syphilis, mycosis.





# Tumors

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## Benign

hemangiomas, lymphangioma (Cystic Hygroma), paraganglioma, lipomas (Morbus Madelung-benign symmetric lipomatosis of the neck)

## Malignant lymph node tumors

Malignant lymphomas Hodgkin's disease, Non - Hodgkin's lymphoma. Treatment according to oncologist.- actino- and chemotherapy.

## Primary neck cancer

Thyroid gland , tzv. „branchiocarcinoma“ from lateral Branchial Fistulae and Cysts.

## Lymph Node Metastases

treatment - surgery.

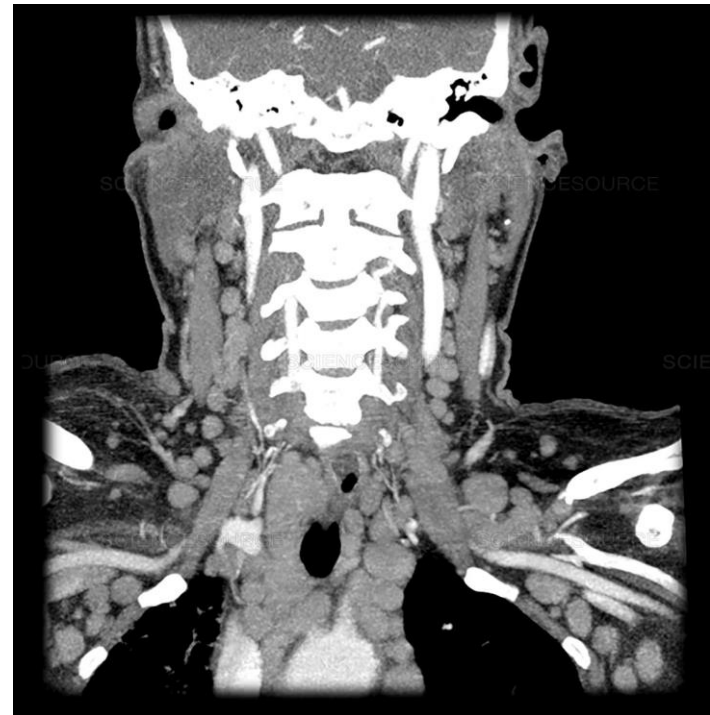
## TNM classification (p16 negative):

- N1 single homolateral less than  $< 3$  cm;
- N2 single homolateral  $> 3$  cm  $< 6$  cm  
more homolateral lymph nodes  $< 6$  cm  
bilateral or contralateral  $< 6$  cm
- N3  $> 6$  cm

## Primary neck cancer

Tumors of lymph nodes **malignant lymphomas**

- **M. Hodgkin**
  - 30 % lymphomas in neck, 75 % male
- **Nonhodgkin lymphomas**
  - number of lymphoreticular malignant tumors, arising from cells of immune system
  - Lymphomas with low and high grade of malignity, chronic lymphatic leukemia
- **Diagnosis:** histology
- **treatment:** conservative oncologic (CHT, RT, combination)



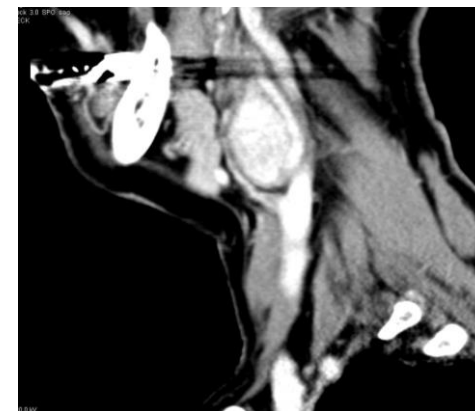
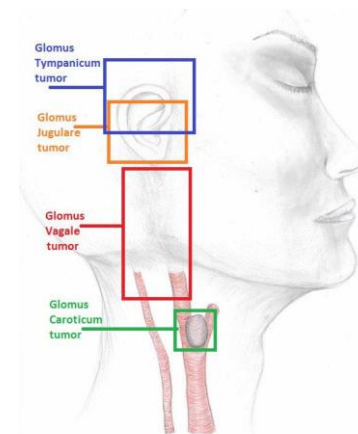
*Zdroj obr.: Fotoarchiv KOCHHK FN u sv. Anny a LF MU*

## Paraganglioma

- rare neuroendocrine tumor arising from neuroectodermal tissue,
  - more than 80 % of this tumors arising from the adrenal medulla
  - 2 bis 4 % arising in the neck

glomus caroticum, (**carotid body tumor**, glomus tympanicum, glomus jugulare)

- 50 to 60 year, 4x frequently in women
- Malignant course in 2 to 10 % cases
- **Clinic features:** „fungal structure“ mass, non painful, pulsating, glomus caroticum – possible movement into side not cranio-caudal direction
- **Diagnosis:** CT/MR angio (CAVE punctum) – „lyra symptom“
- **Therapy:** surgery x radiotherapy x see and wait)



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**Paraganglioma  
glomi carotici  
on the left side**



**Metastases** (primary tumor in tributary region)

**Metastatic tumor of unknown primary (primum ignotum)**

- histologically verified disease without known primary tumor in the time of diagnosis
- In Secondary malignant tumors on the neck is primary tumor approx. in 75–90 % found in head and neck
- more frequent localization: palatine tonsils, base of the tongue, epipharynx and hypopharynx

**Diagnosis:**

- ENT evaluation – follow up once a year
- Imaging methods: ultrasound (+ puncture) CT, MRI, PET-CT
- Pan endoscopy, biopsy, TE

**Therapy:** surgery – neck dissection +- adj. RT/CHT/CHRT



# The methods of surgical treatment of lymph node metastases

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**Surgery** from external approach – in case of primary surgical treatment, combined with Radiotherapy/radio chemotherapy

**Non surgical treatment** – in case of „organ saving protocols“ - Radiotherapy/radio chemotherapy



# The methods of treatment

---

Prescalene node biopsy (**Daniels operation**)

The **radical curative neck dissection** (Resectio venae jugularis interna en bloc sec. Crile 1906) - the upper boundary of the operation is the base of the skull and the lower boundary lies at the level of the clavicle. The sternocleidomastoid muscle, the internal jugular vein are removed.

The goal of neck dissection is complete removal of lymph nodes and vessels between the superficial and deep cervical fascia.

**Functional deck dissection**- the sternocleidomastoid muscle, the internal jugular vein, the accessory nerve are preserved.

An **elective neck dissection** is a neck dissection carried out in the absence of palpable lymph nodes for a primary tumor which experience has shown to have a high metastatic rate - oropharynx, hypopharynx, supraglottic larynx, the base of the tongue. The purpose of this operation is to deal with micro metastases.



# Types of neck dissections (classification according to Ferlito)

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## ND (neck dissection)

**L (left,) or R (right,)** – side of neck dissection

**removed region** lymph nodes, described with Roman numeral to VII, in increasing order

**removed non lymphatic structures**

Examples:

ND (R, I-V, SCM, IJV, CN XI) – Radical neck dissection

ND (L, I-V, SCM, IJV, CN XI, CN XII) - extended Radical neck dissection with removal of n. hypoglossus

ND (I-V, SCM, IJV) – Modified radical dissection with saving n. accessorius (n. XI)

Abbreviations: ND – neck dissection , SCM – m. sternocleidomastoideus, IJV – v. jugularis interna,

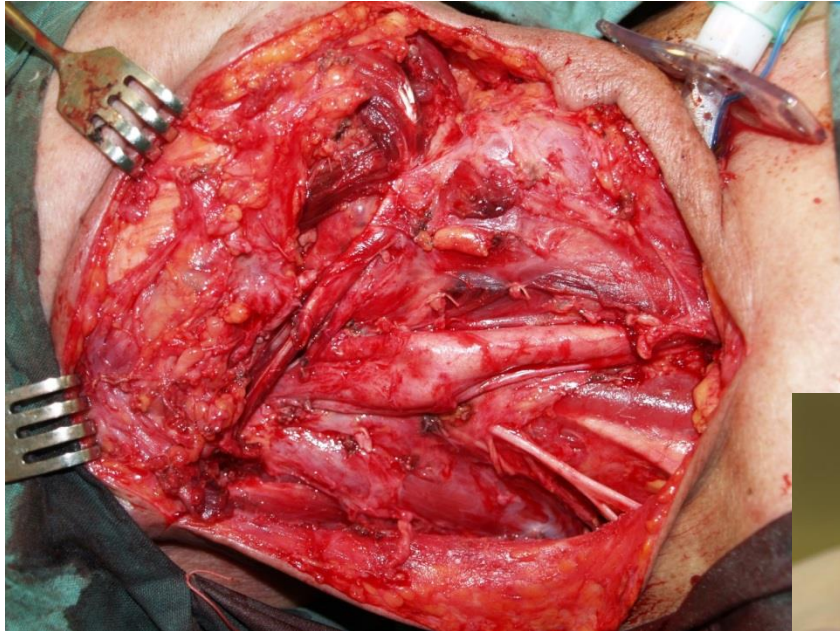
CN XII – n. hypoglossus, CN XI, SAN – n. accesorius (spinal accesory nerve), ECA – a. carotis externa, ICA – a. carotis interna, CCA – a. carotis communis, CN VII – n. facialis,

CN X – n. vagus, SN – neck sympaticus, PN – n. phrenicus, SKN –skin,

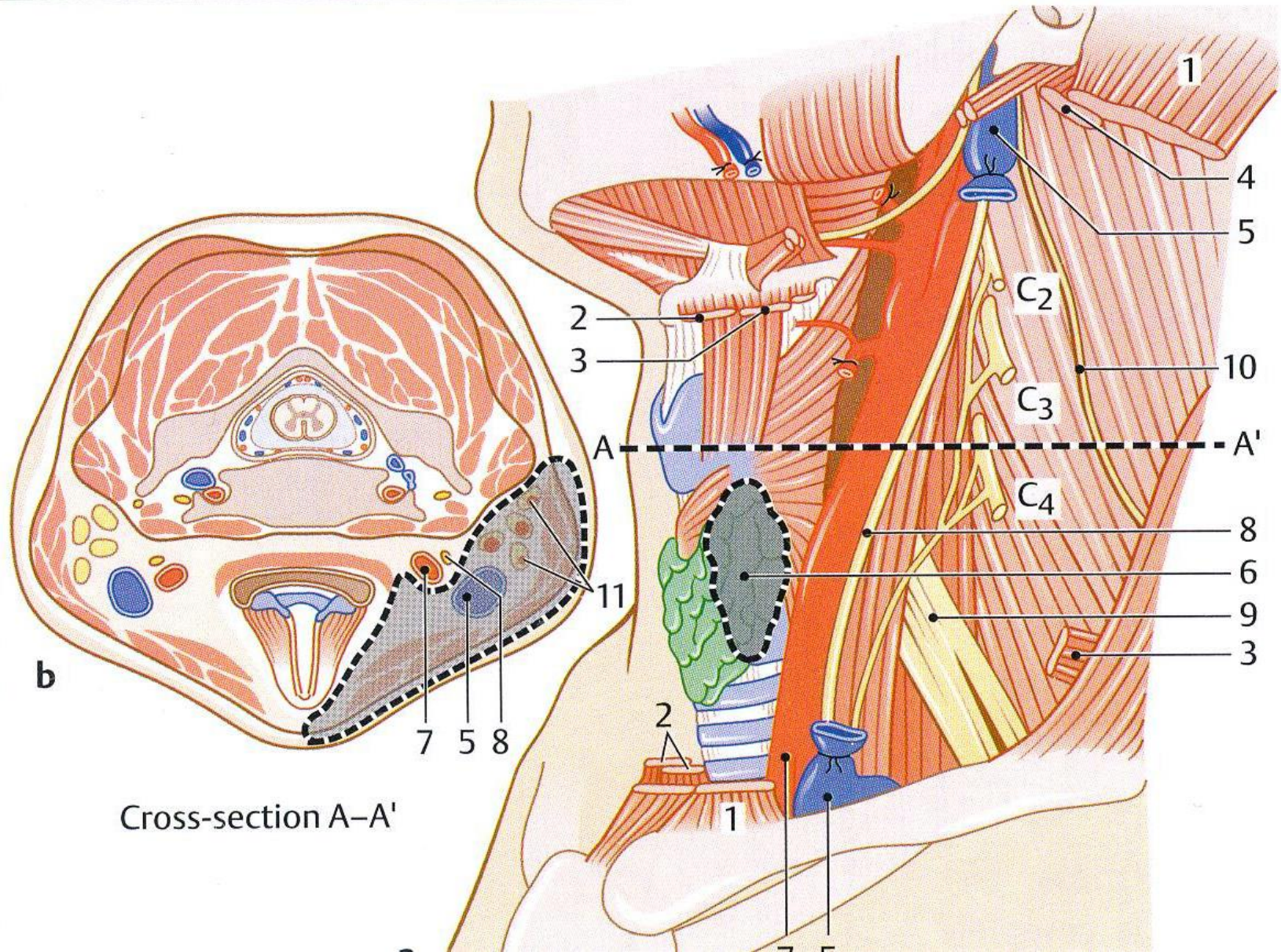
PG – glandula parotis, SG – glandula submandinbularis, DCM – deep cervical muscles



# Radical neck dissection ND (R, I-V, SCM, IJV, CN XI) sec. Crile



# Modified radical dissection with saving n. accessorius(I-V, n.XI saved)

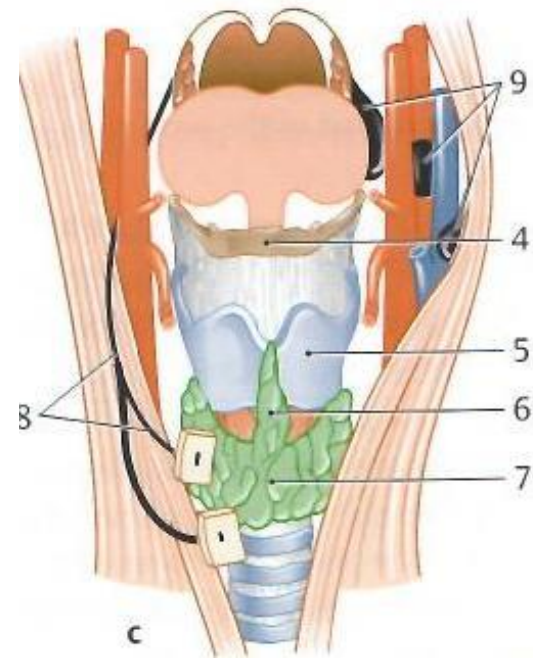
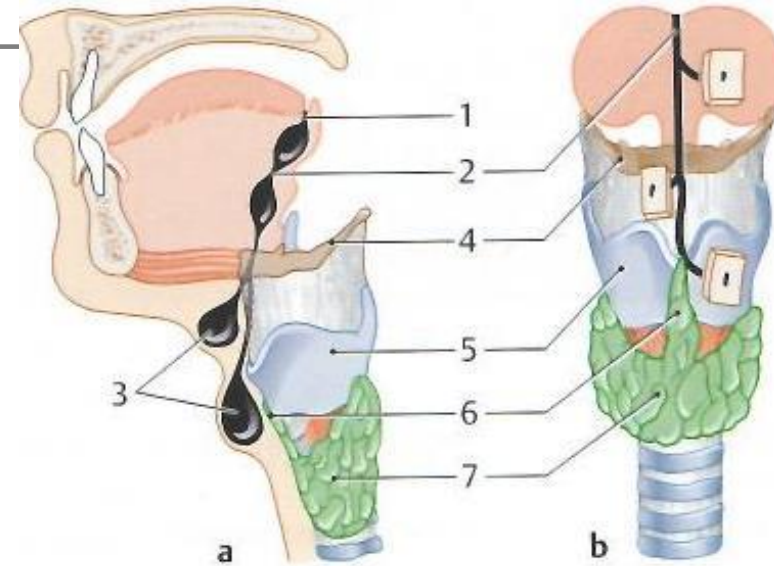


# Congenital Anomalies

- **Lateral** Branchial Fistulae and Cysts
- **Medial** - thyroglossal Duct cysts and fistulae

Typical sites for cervical cysts and ducts

1. Foramen caecum
  2. Thyroglossal duct
  3. Submental and prelaryngeal dystrs
  4. Hyoid bone
- a) Thyroglossal duct cysts  
b) Fistulas  
c) Branchial cleft cysts and fistulas  
9. Lateral cervical cysts





## Cystis colli lateralis l.sin.

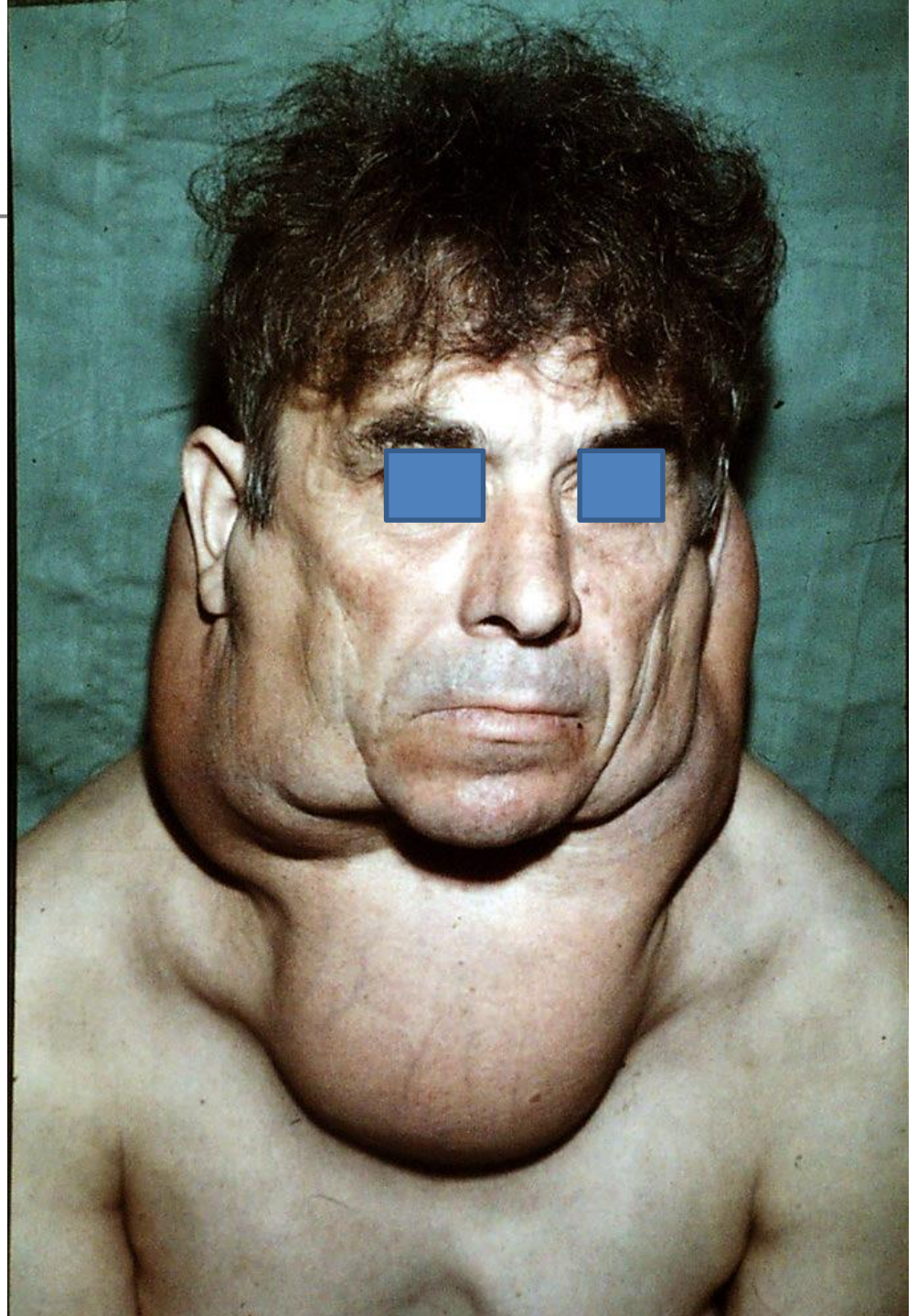


# Inflammatory cervical lymphadenopathy - actinomycosis

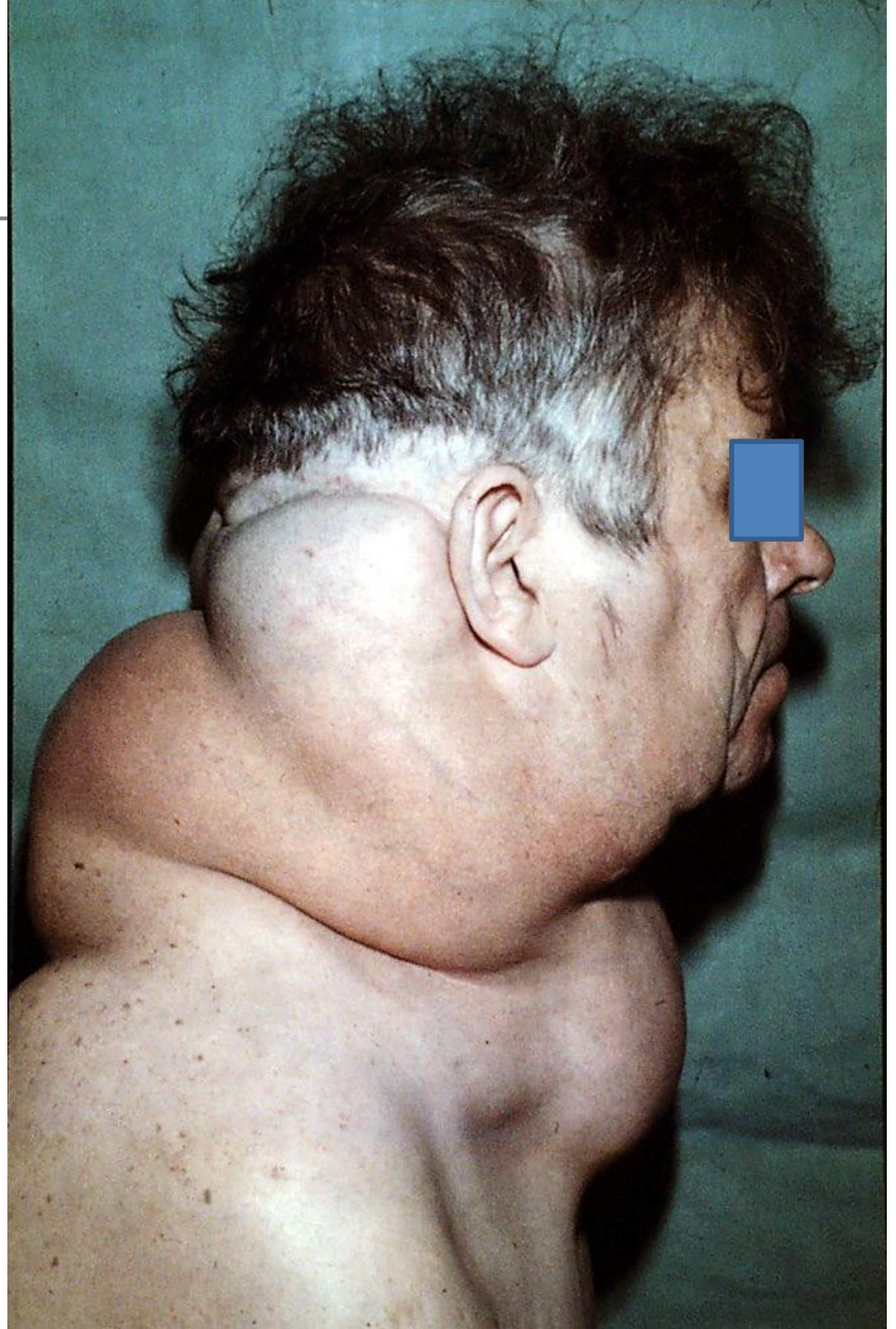


# Morbus Madelung

benign symmetrical neck  
lipomatosis

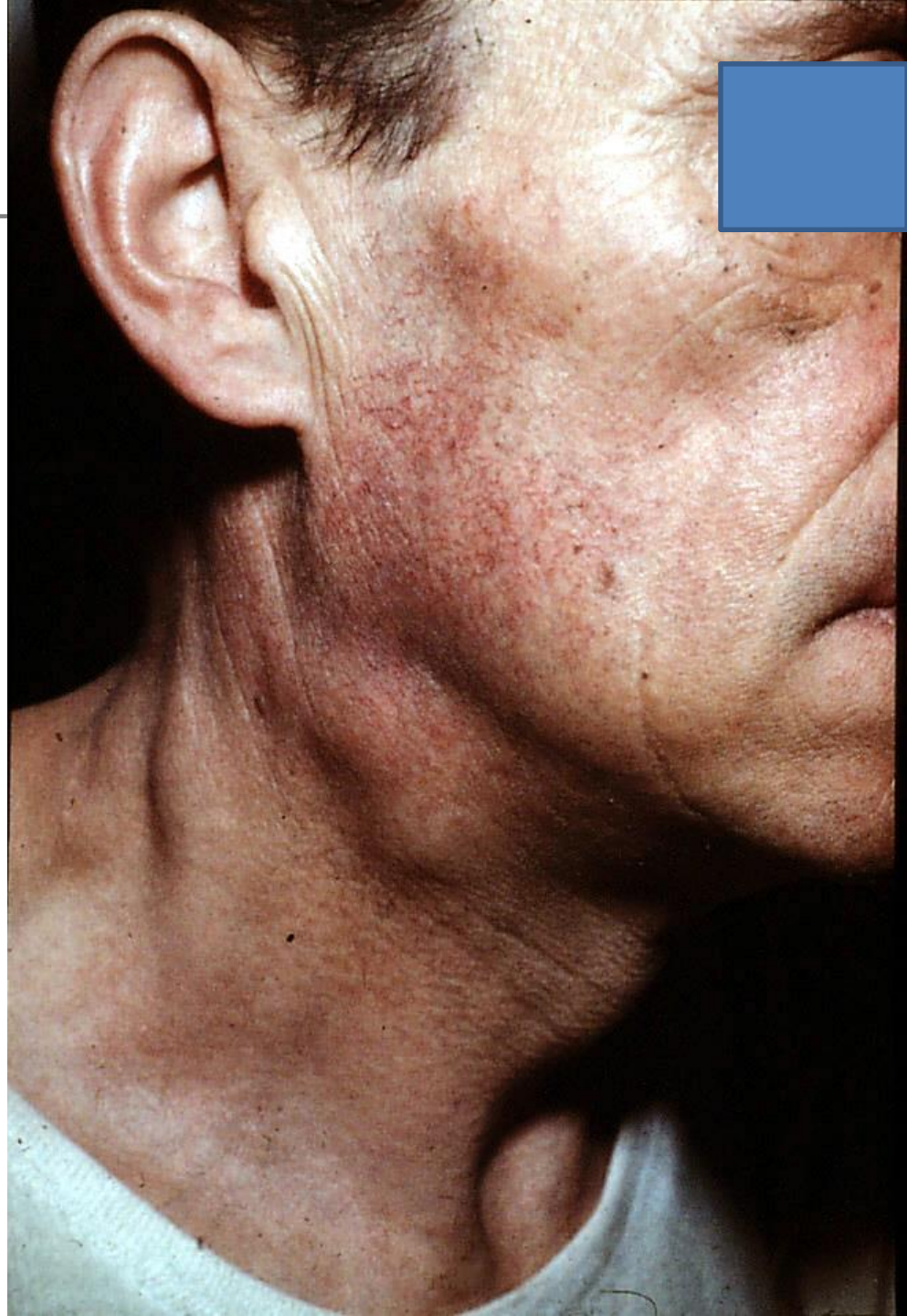


# Morbus Madelung



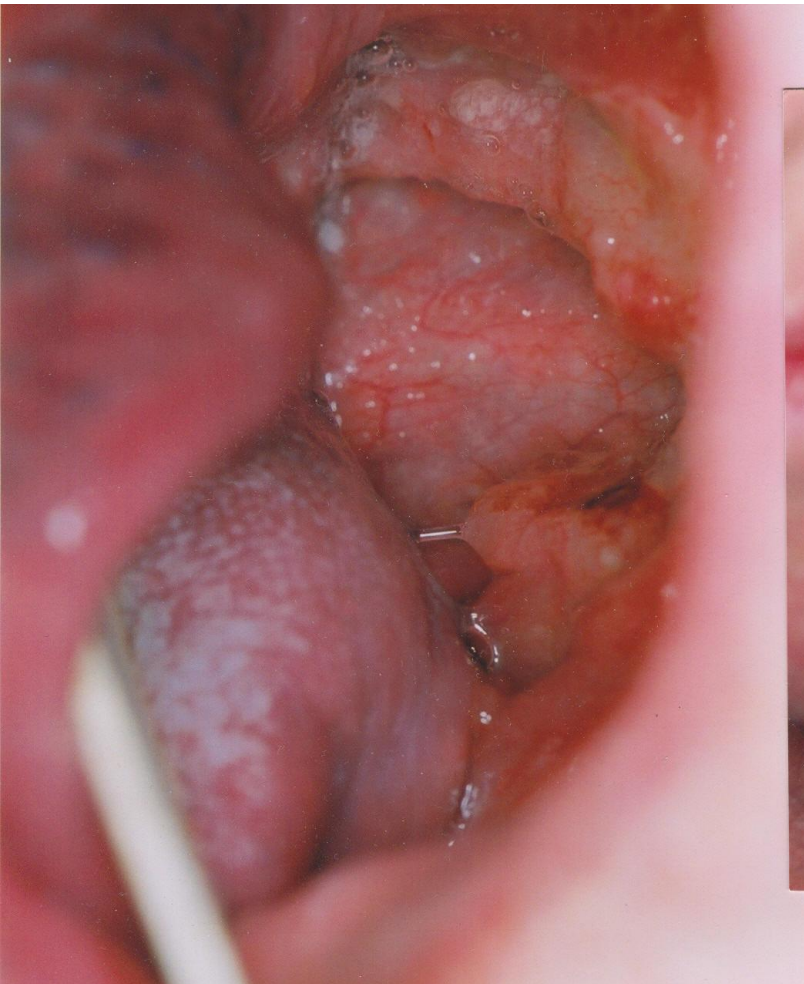


# Metastasis of oropharyngeal cancer

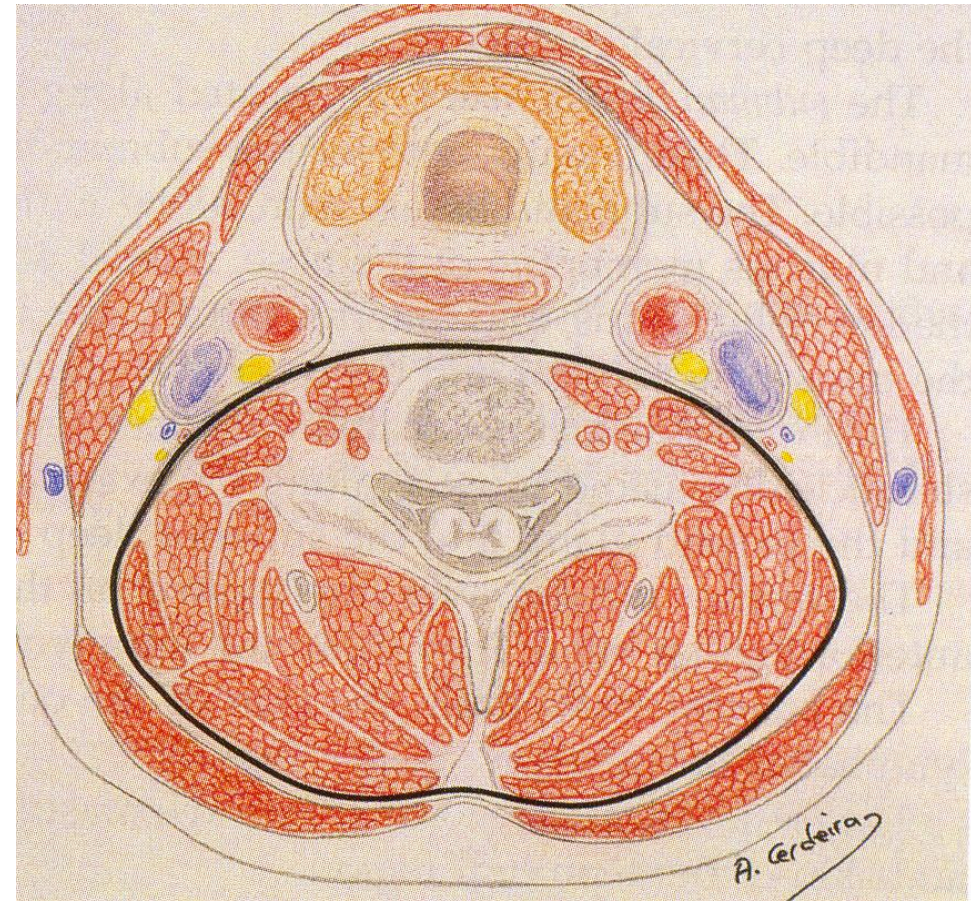
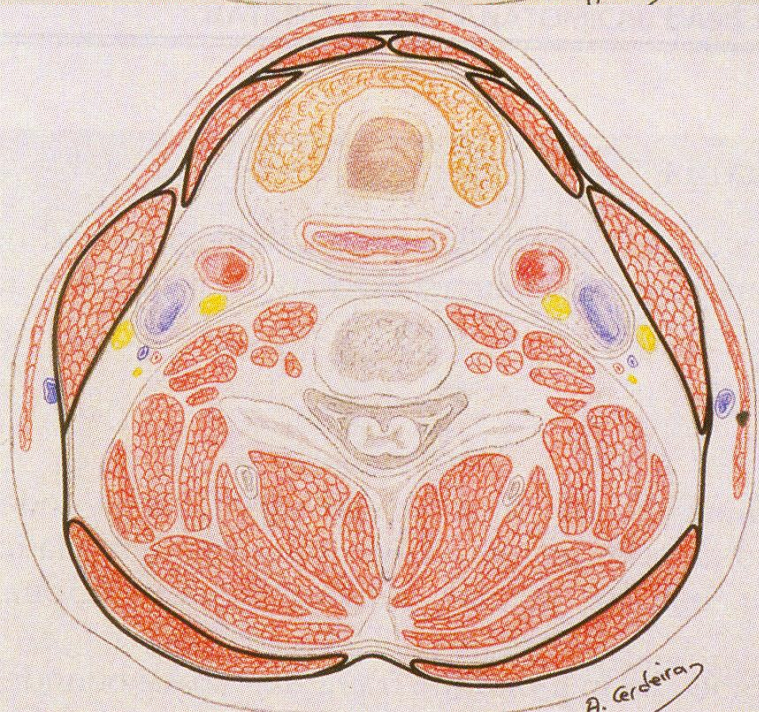
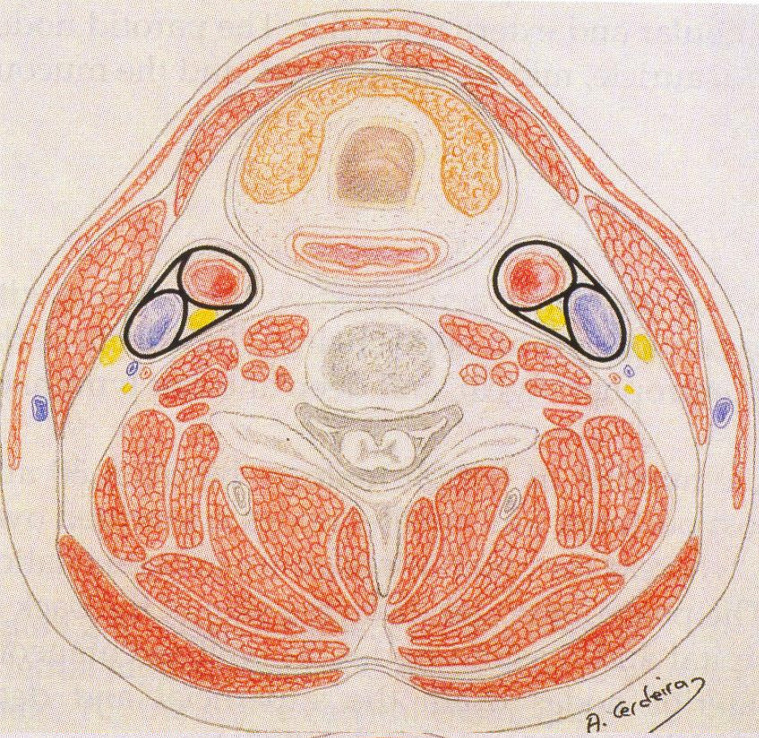


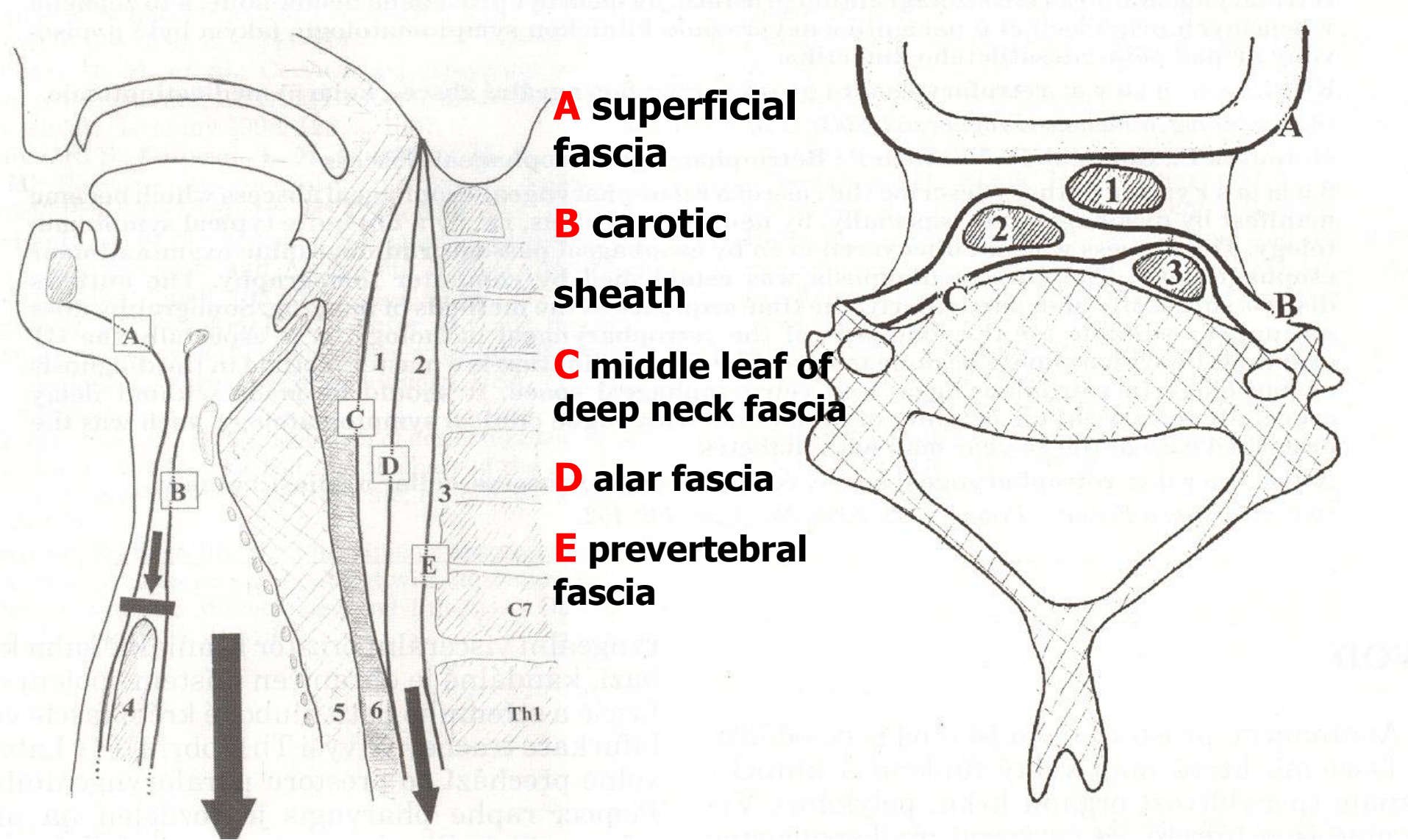
# Oropharyngeal cancer with metastasis on the left neck side

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# Carotid sheath between deep and superficial cervical fascia





## Neck fascial spaces

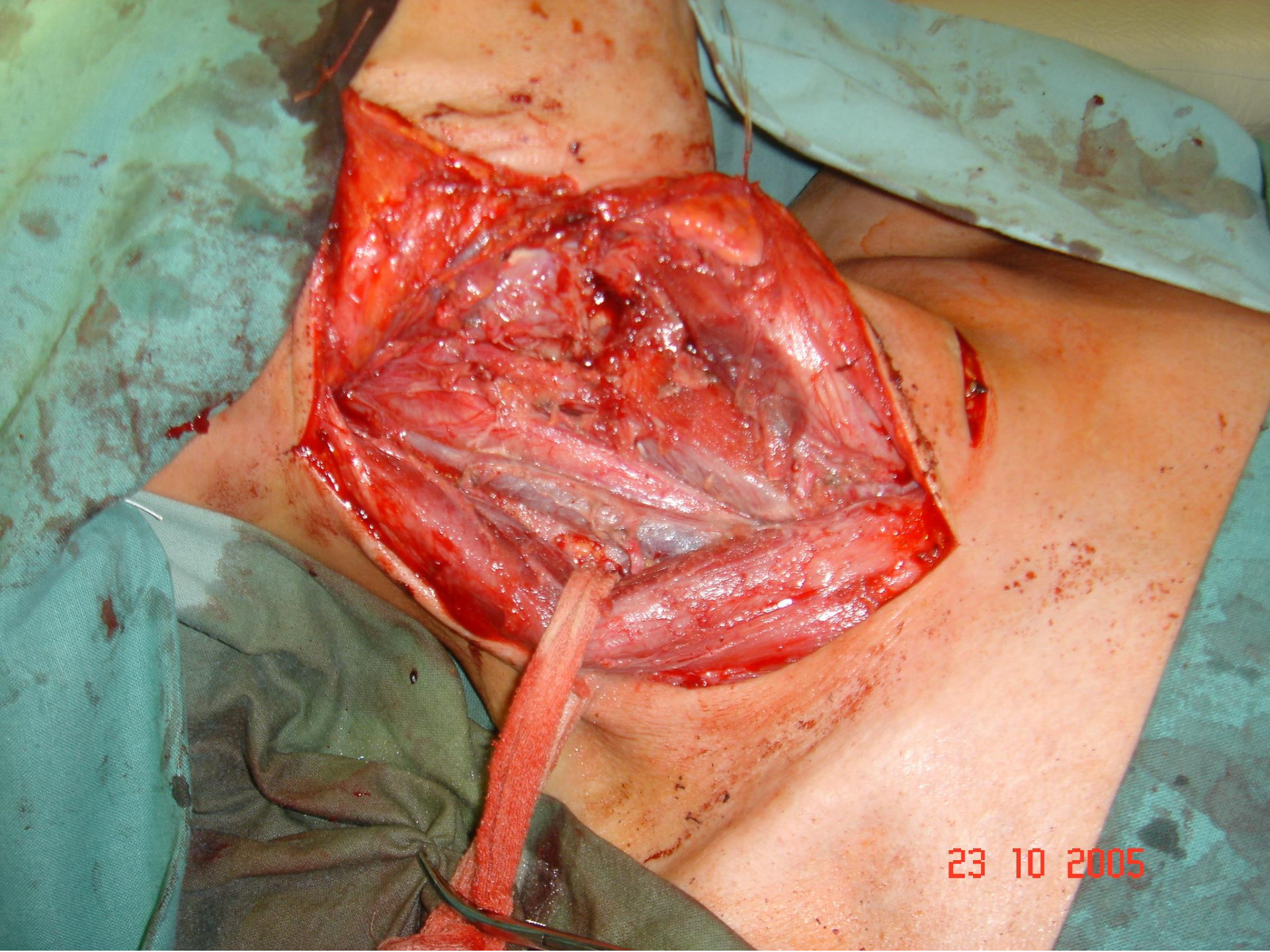
1. abscess in retropharyngeal space, 2. in „dangerous space, 3. in prevertebral space.



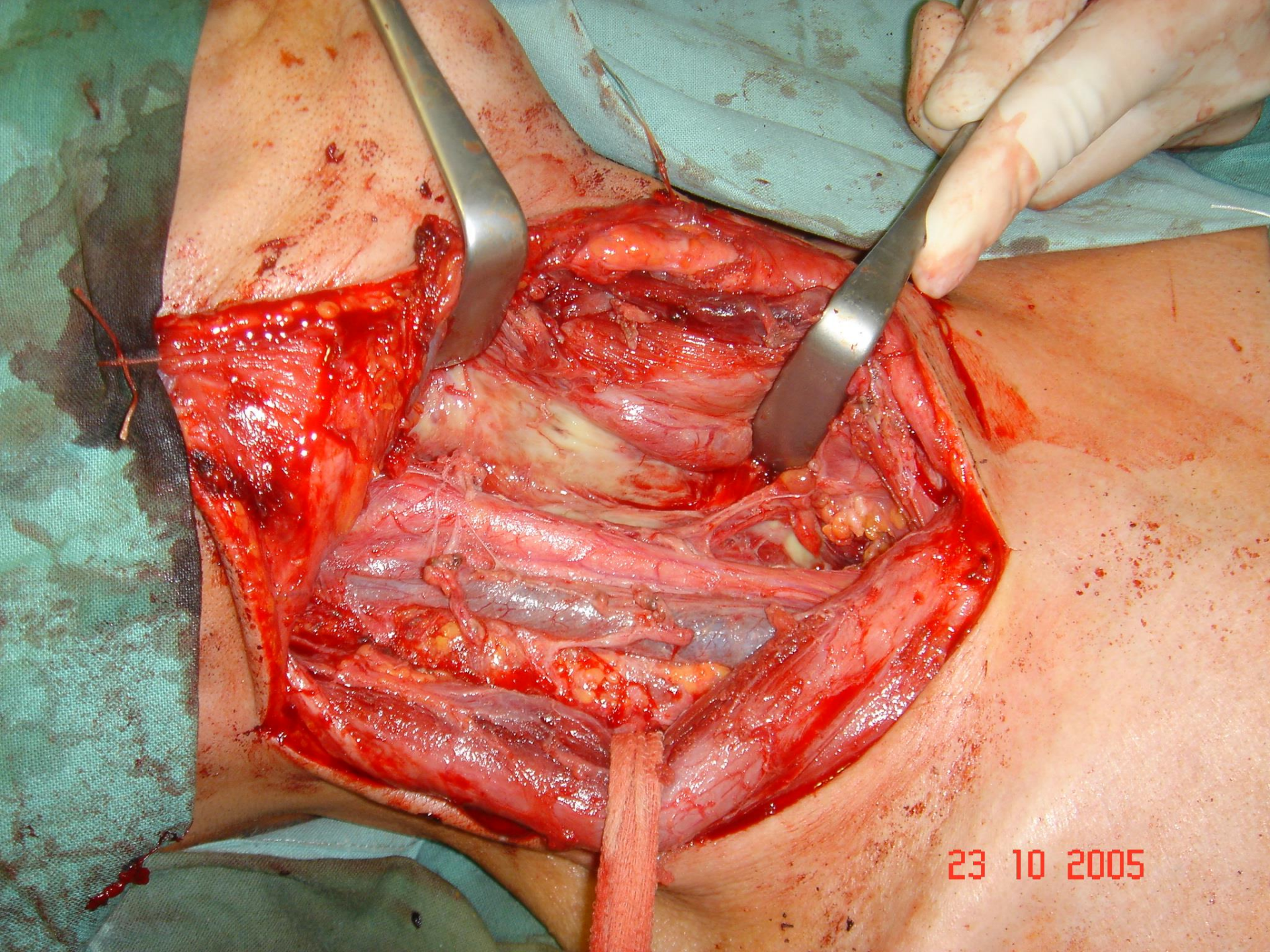
# Phlegmona colli (Inflammation of the Cervical soft tissues), Mediastinitis

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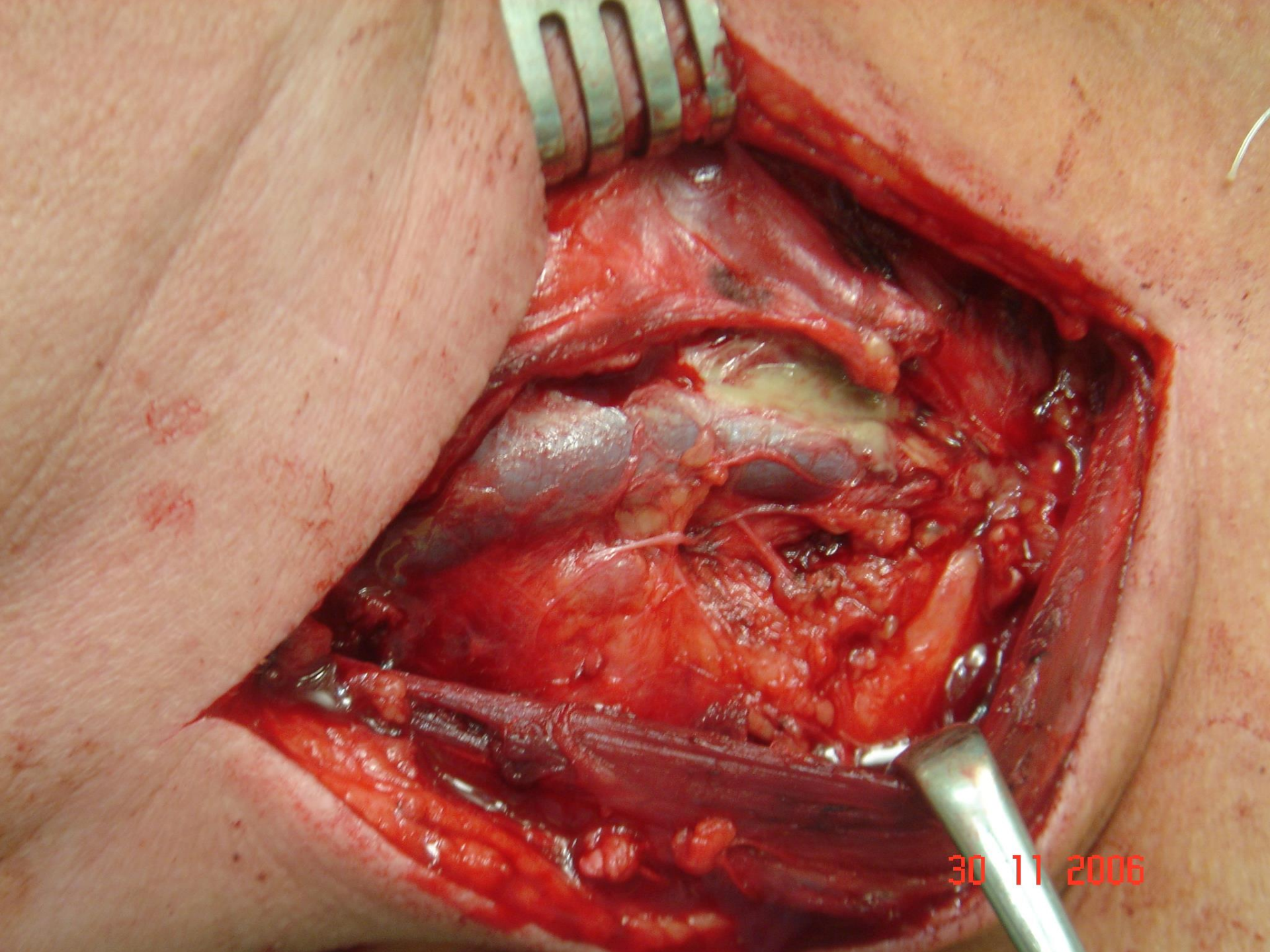
- **Source** –infection of para tonsillar a retromolar region, injury of oral cavity base, pharynx or cervical esophagus. Visceral spaces of the neck have no distal boundary with mediastinum.
- **Clinical picture** – fever, usually septic, dysphagia, pain in the back (intrascapular), retrosternal pain
- Inflammatory infiltration of the neck without boundary, fluctuation, special palpation feeling; by spread into the mediastinum – dysphagia and even dyspnea
- **Treatment** – surgical opening of space surrounding great neck vessels, collateral mediastinotomy, treatment of primary source, general treatment aimed against sepsis, thrombosis, kidney failure etc.
- Bad **prognosis**, high mortality



23 10 2005

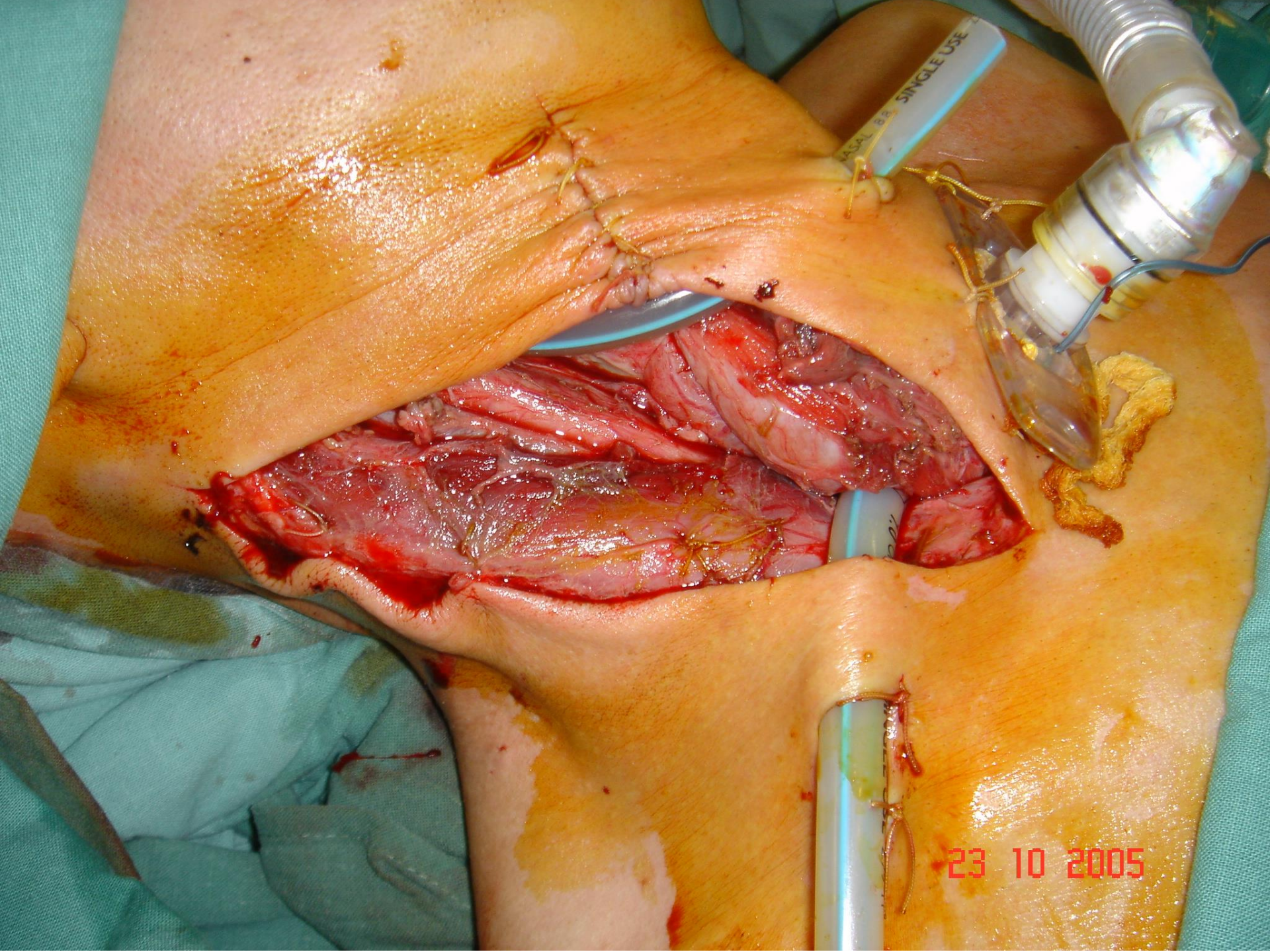


23 10 2005



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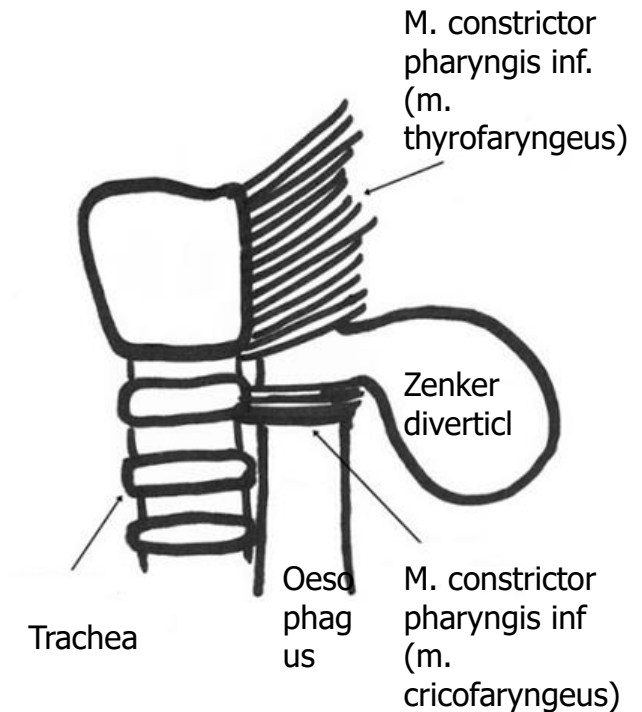
23 10 2005

# Esophagus

## ■ Esophageal wall: tloušťka 2- 5mm

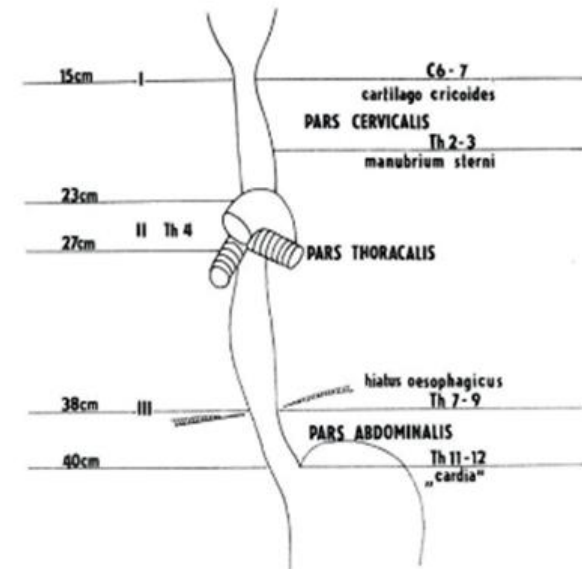
- Mucosa membrane
  - Stratified non keratinizing squamous epithelium
- Submucosal layer
- Muscle layer
  - circular
  - longitudinal
  - Kilian´s triangle -hypopharyngeal diverticulum (Zenkeri)
- Adventitia

## ■ The full length of the esophagus is 20-26 cm in adult person



# The esophagus

- **Esophagus topography**
  - **Cervical part** - C6-Th1
  - **Thoracic part** - the longest, Th1-Th7-8
  - **Abdominal** - the shortest, Th 9-11.
- **Esophagus constrictions:**
  - **The upper constriction** - Killian's sphincter – opening lies 15 cm from the upper incisor
  - **The middle (thoracic) constriction** - aortic arch and left main bronchus – 27 cm from the upper incisor
  - **The lower (diaphragmatic) constriction** - 40 cm from the upper incisor



Zdroj obr.: [online cit. 2.4.2020]. Doi.  
<http://www.travici-potize.cz>

## ■ Innervation

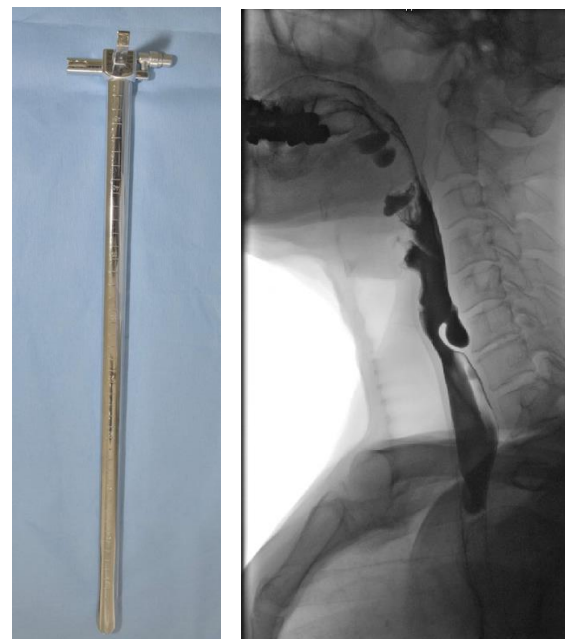
- n.X and cervical and thoracical sympathicus

## ■ Physiology

### – Food intake

- The act of swallowing – pharyngeal and esophageal phases – under autonomic control – swallowing reflex
- Active mobility of the esophagus – food transport

- **Diagnostic imaging**
  - Simple X-ray- diagnosis of RTG contrast foreign bodies
  - Contrast administration
    - **Barium**
    - **Iodium contrast medium (gastrografin)** in suspicion on injury of esophagus, perforation
- **CT, MRI** – suspicion on malignancy
- **Esophagoscopy**
  - rigid – treatment, foreign body extraction
  - Flexible - mainly diagnosis
- **Esophagus manometry**
- **Multichannel intraluminal impedance, two channel manometry (pH metry)**



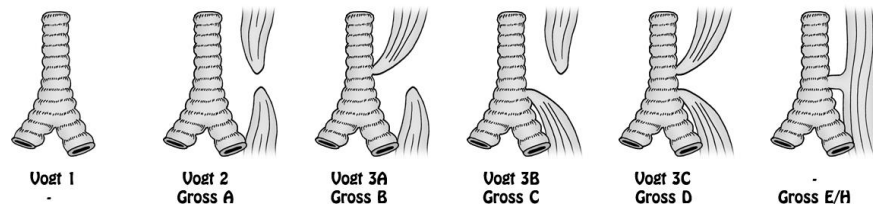
*Zdroj obr.: Fotoarchiv KOCHHK FN u sv. Anny a LF MU*

- **Disorder of recanalization** during development
- **Aplasia**- newborn cannot swallow, coughing, vomiting
- **Strictures** - dysphagia
- **Diagnosis:** diagnostic imaging, CT, MR, esophagoscopy, bronchoscopy
- **Therapy:**
  - Stenosis- dilatation
  - Atresia- surgery



# Tracheoesophageal fistulas

- **Symptoms** – recognized immediately after birth, with choking attacks, dyspnea, cyanosis
- **Diagnosis** – radiography and endoscopy
- **Therapy** - surgery



Zdroj obr.: [online cit. 2.4.2020]. Doi  
[https://www.wikiskripta.eu/w/Atr%C3%A9zie\\_j%C3%ADcn\\_u](https://www.wikiskripta.eu/w/Atr%C3%A9zie_j%C3%ADcn_u)



# Achalasia (cardiospasm)

- Syndrome of nonorganic obstruction of lower esophageal sphincter connected with esophagus hypertrophy and dilatation
- **pathogenesis:** neuromuscular disorder, possibly degeneration of the myenteric plexus (Auerbach).
- **Symptoms** – feeling of retention of food in the esophagus, vomiting
- **Diagnosis** – radiography and endoscopy
- **Therapy** - dilatation, surgery – kardiomyotomy sec. Heller



Zdroj obr.: [online cit. 2.4.2020]. Doi  
<https://www.wikiskripta.eu/w/Achal%C3%A1zie>

# Caustic ingestion of esophagus

Typical **history**, very severe pain in the mouth, pharynx, behind the sternum.

The coagulation necrosis due to acids and colliquative necrosis due to lye's penetrates to varying depths

primary local necrosis

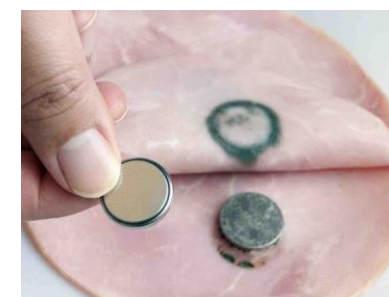
generalized intoxication

acute, subacute and chronic corrosive esophagitis

healing of the esophagitis with scarring or stricture

late complications (restenosis, possibly malignant degeneration).

The scar tissue stenosis begins about the 3rd week.





# Caustic ingestion of esophagus - diagnosis

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- History
- Diagnostic imaging - Contrast administration  
Iodine contrast medium (gastrografin) in suspicion on  
injury of esophagus, perforation
- Esophagoscopy

# Esophagus – caustic ingestion

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- **course:**

- **acute phases:** damage of superficial epithelium with possibly deeper spread with bacterial infiltration until 48 hours. Mucosa membrane is reddened or cyanotic.
- **Reparative phases:** approximately in 5 days – creation of granulations, deposits of fibrin, collagen.
- **Scar phases:** 2.-3. week, in circular injury threatened esophageal strictures.

- **diagnosis:**

- flexible nasopharyngolaryngoscopy, KO, electrolytes, astrup, chest X-ray.
- **Esophagoscopy in time window 12-24 hours after injury.**
- Do not correspondent status of mucosa membrane in mouth and in esophagus.
- Consultation in toxicologic center

# Esophagus – caustic ingestion

## Esophagoscopy

- **Flexible** until first pathological changes
- Time window: **from 12 to 24** hours
- First – diagnostic imaging
- Follow up not earlier than in 6 weeks

## Endoscopic classification in time 12-24/48 hours after injury

Degree	Endoscopic view	Consequences
0	normal	
1	Hyperemia, oedema	
2A	Exudation, bleeding, superficial ulcers	
2B	Deep ulcers	Strictures
3A	Focal necrosis	
3B	Advanced necrosis	Perforations

## Treatment

### – Acute care:

- Transportation to workplace treating this injury

### – First aid in caustic ingestion of esophagus

- Anti shock treatment
- Analgesics gargle of oral cavity with local anesthetic
- **No irrigation of stomach, dilute or neutralization of lye or acids!**

**Intermediary care:** broad-spectrum antibiotics, parenteral nutrition, management of shock, fluid administration, if necessary – tracheotomy, gastrotomy. Nasogastric probe in circular injury 2. stage or in perforation 6 weeks.

- 1st degree: small risk of stenosis, special treatment not necessary, follow up
- 2nd degree – antibiotic treatment 2 weeks, H2 blockers 2-4 weeks, follow up after 3 weeks imaging
- 3rd degree (perforation): surgery - laparotomy, gastrectomy, esophagectomy. Esophagoscopy and extraction of battery in esophagus.

**Late care:** stenosis dilatation under general anesthesia

## Complication

- **early:** perforation and mediastinitis
- **late:** scar esophageal stenosis, malignant tumors as a consequence of ingestion



# Foreign bodies in swallowing ways - causes

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- Bad habit to give objects into mouth
- Bad habits at eating – quick, inattentive, greedy...
- Alcohol abuse, unconscious
- penologic medicine – intention at prisoners
- Old people with teeth prosthesis and with weak swallowing reflex




1364/50  
 1365/50  
 1367/50  
 1368/50  
 1369/50  
 1370/50  
 1371/50  
 1372/50  
 1373/50  
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 1375/50  
 1376/50

Brok v ležem ovin  
 izlozina  
 Mrazik 2/1930

Kraslavac, Marie, 1907  
 Kraslavac, Marie, 1907  
 Kraslavac, Marie, 1907

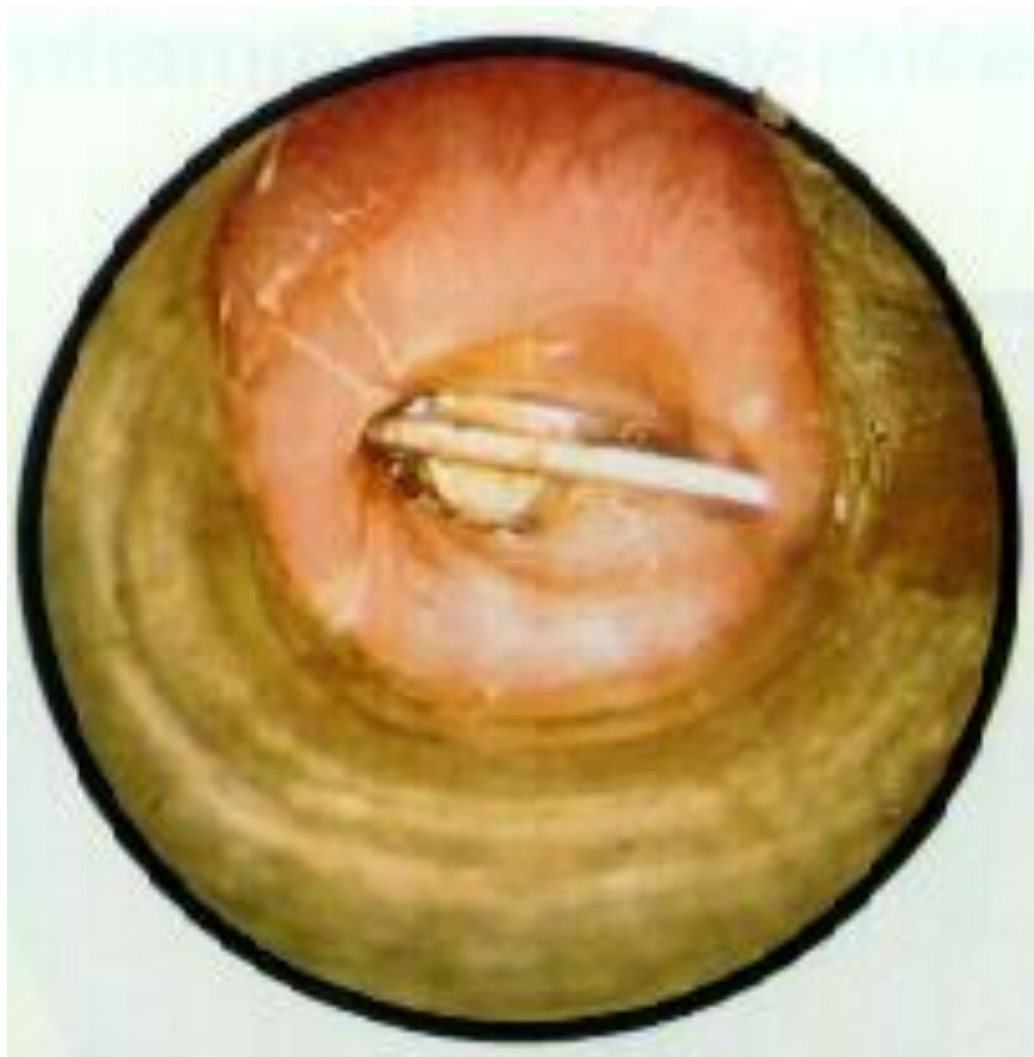
Kupca Jani 1904  
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Kraslavac, Marie, 1907  
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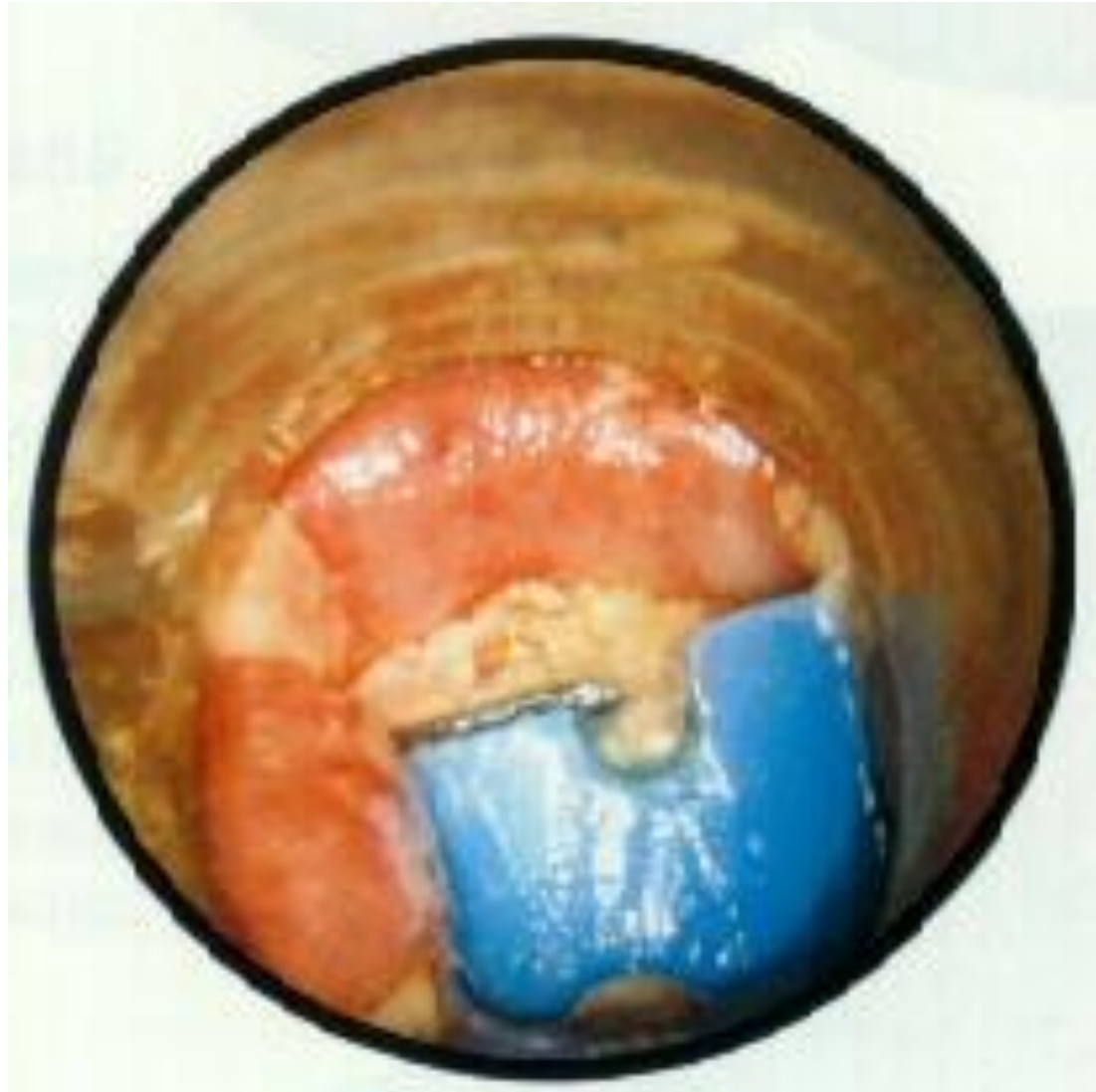
# Foreign body (metal toy) in cervical oesophagus – 2y old children

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# Foreign body (pencil sharper) in cervical oesophagus 19-year-old patient

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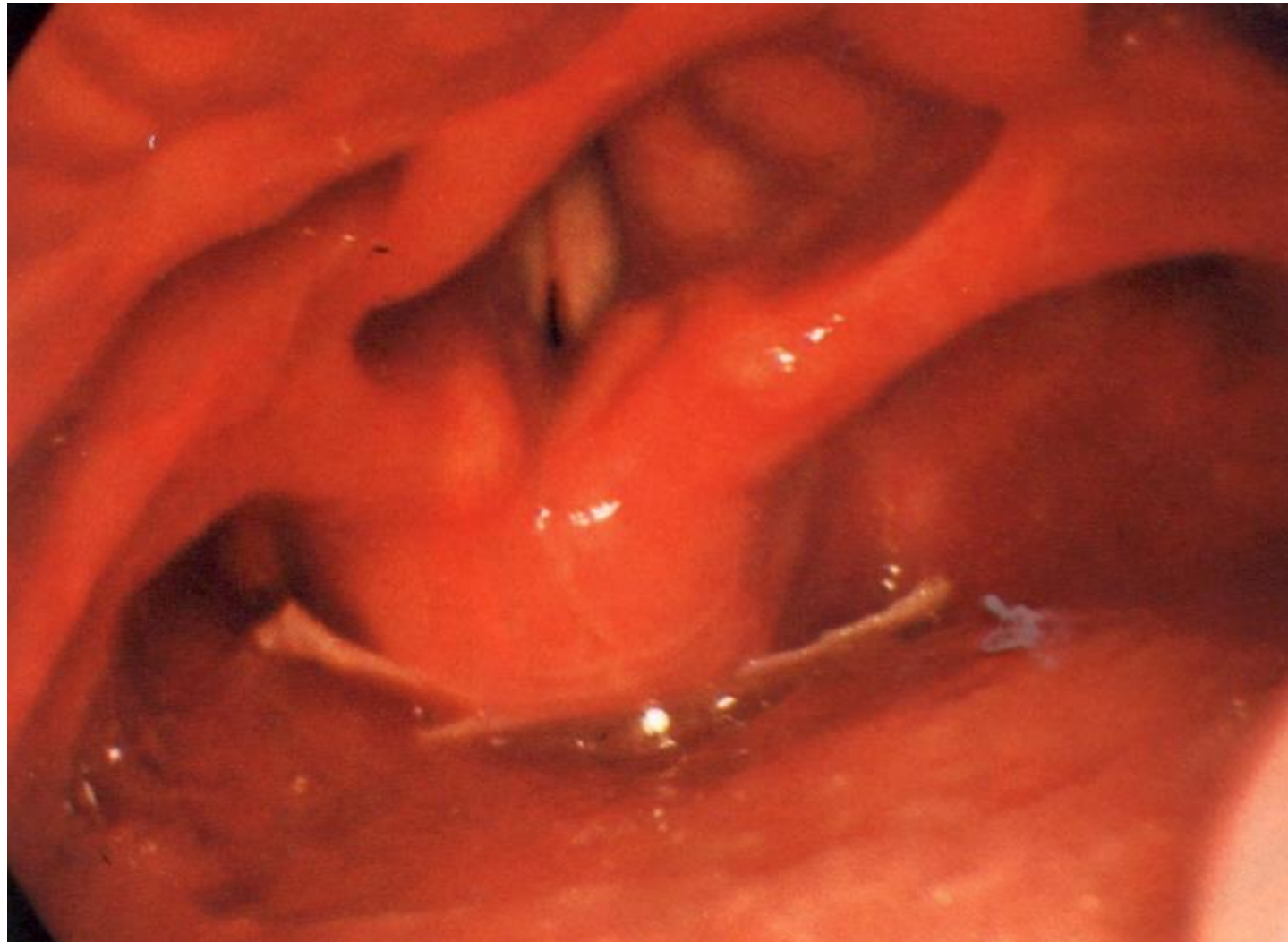
# Foreign bodies in swallowing ways - localisation

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- **hypopharynx, piriform sinus** – bigger size
- **esophagus** – in regions of physiological constriction, usually in Kilian's sphincter, scars, tumors etc.

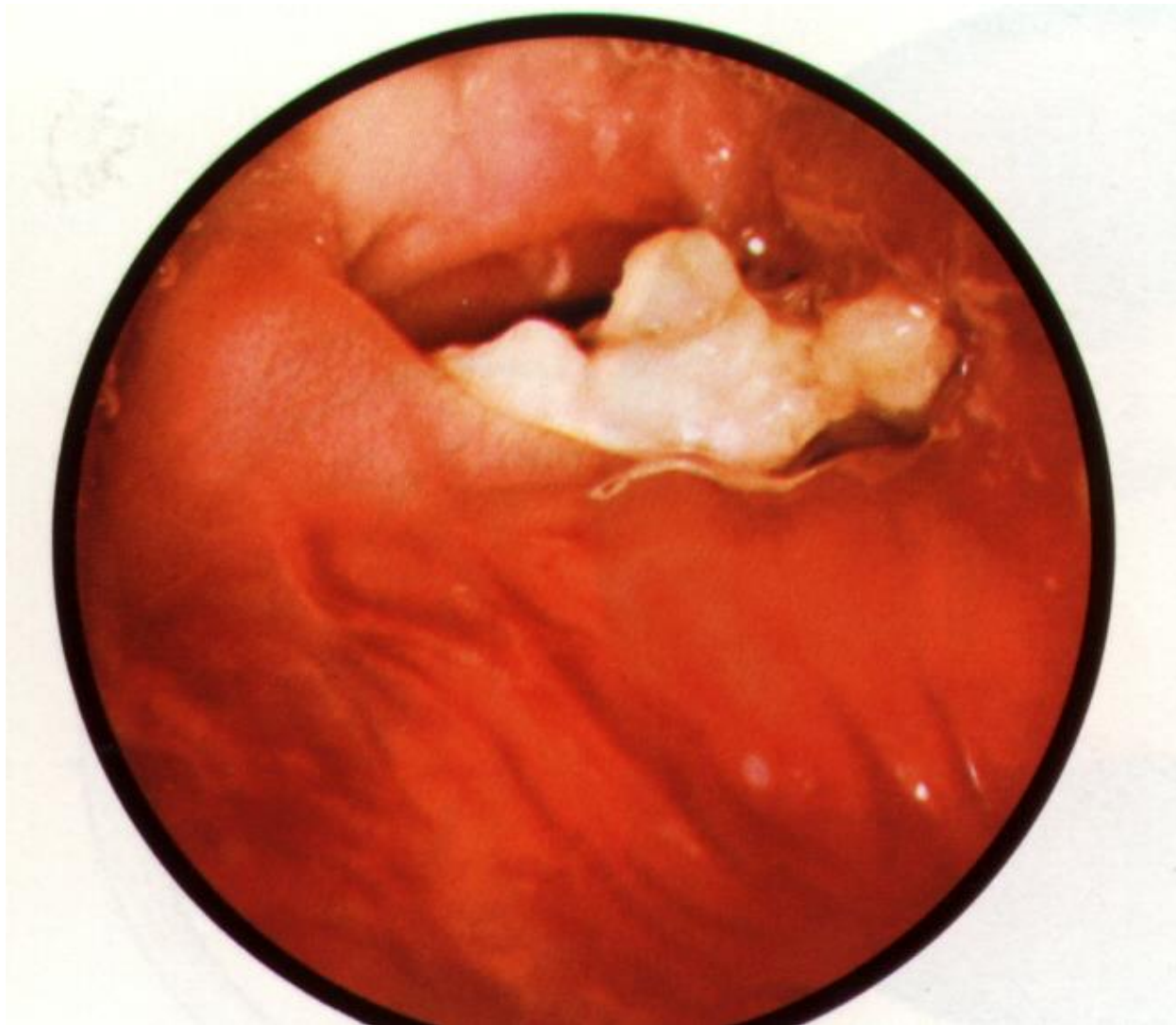
# Foreign body - chicken bone in hypopharynx

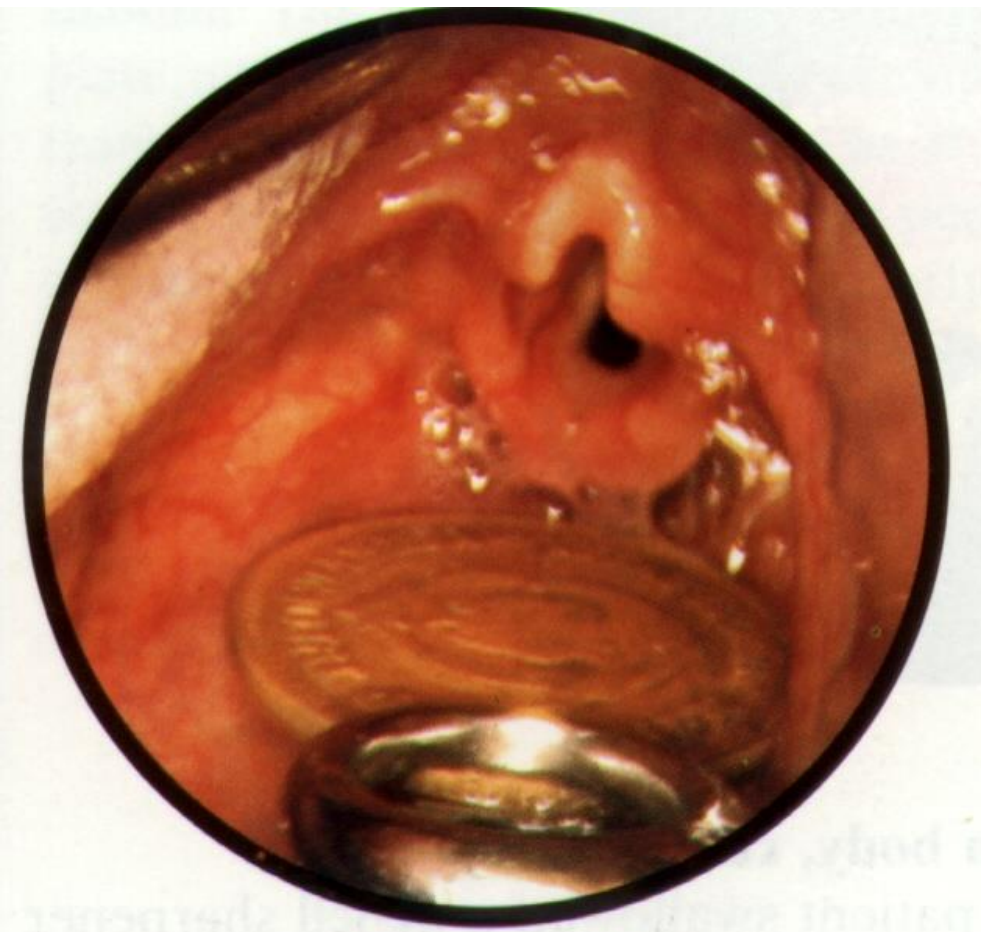
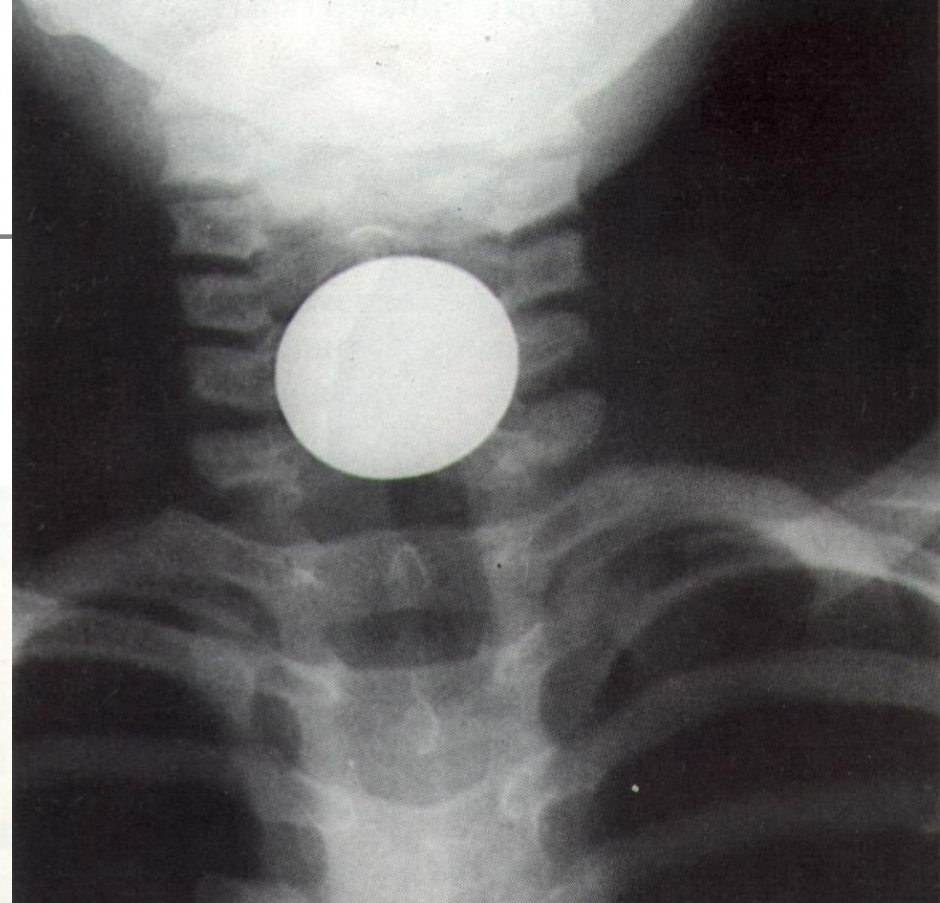
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# Foreign body - chicken bone in cervical oesophagus

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Foreign body- coin in  
cervical oesophagus



# Foreign bodies in swallowing ways - symptoms

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- painful dysphagia
- increased salivation
- dyspnea





# Foreign bodies in swallowing ways - diagnosis

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- history of disease
- indirect laryngoscopy
- X-ray examination native, at non contrast foreign body roll of cotton wool with contrast medium
- Hypo-pharyngoscopy, esophagoscopy

Negative X-ray finding is not cause for avoiding endoscopy! – especially in sharp hard foreign body.



# Foreign bodies in swallowing ways - therapy + complications

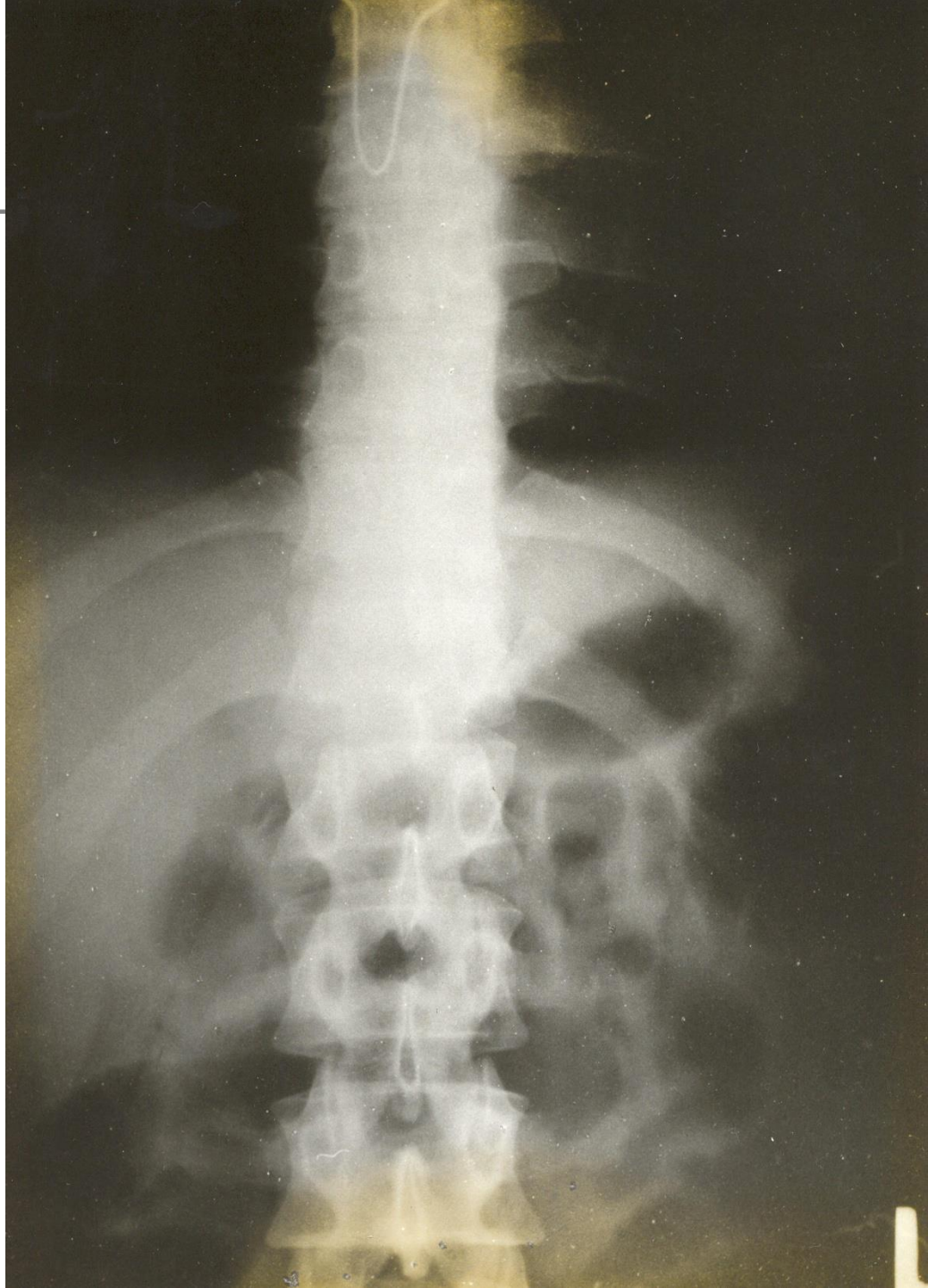
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## Endoskopická extrakce

### Complication

- Injury or perforation of oesophagus
  - Picture of shock, subcutaneous emphysema, mediastinal emphysema. **Miningerod's sign** = presence of air in posterior superior mediastinum. The greatest mistake – physician has suspicion, but he hushed it up.
- Scar stenosis
- Bleeding
- Esophago-tracheal fistulas
- Recurrent palsy

Adapted safety pin  
in oesophagus –  
wanted swallowing  
– by prisoners

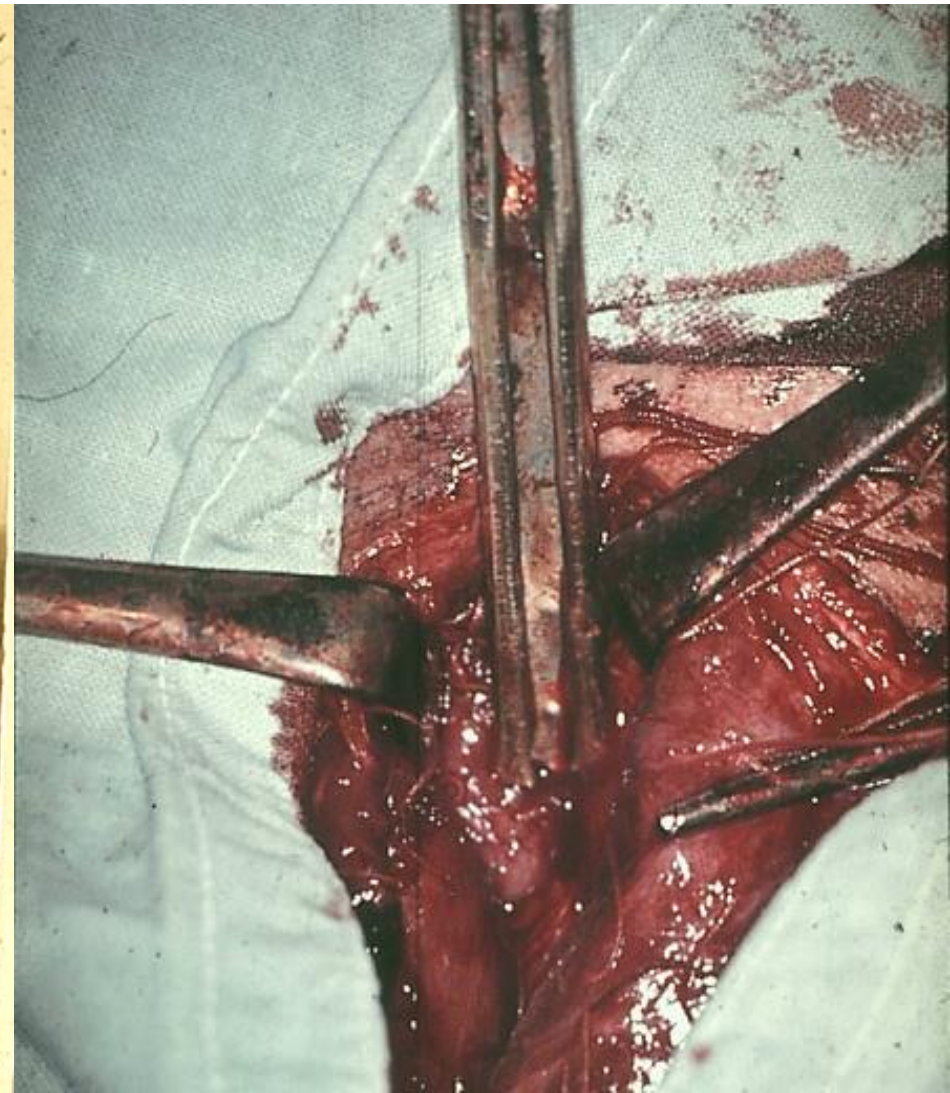
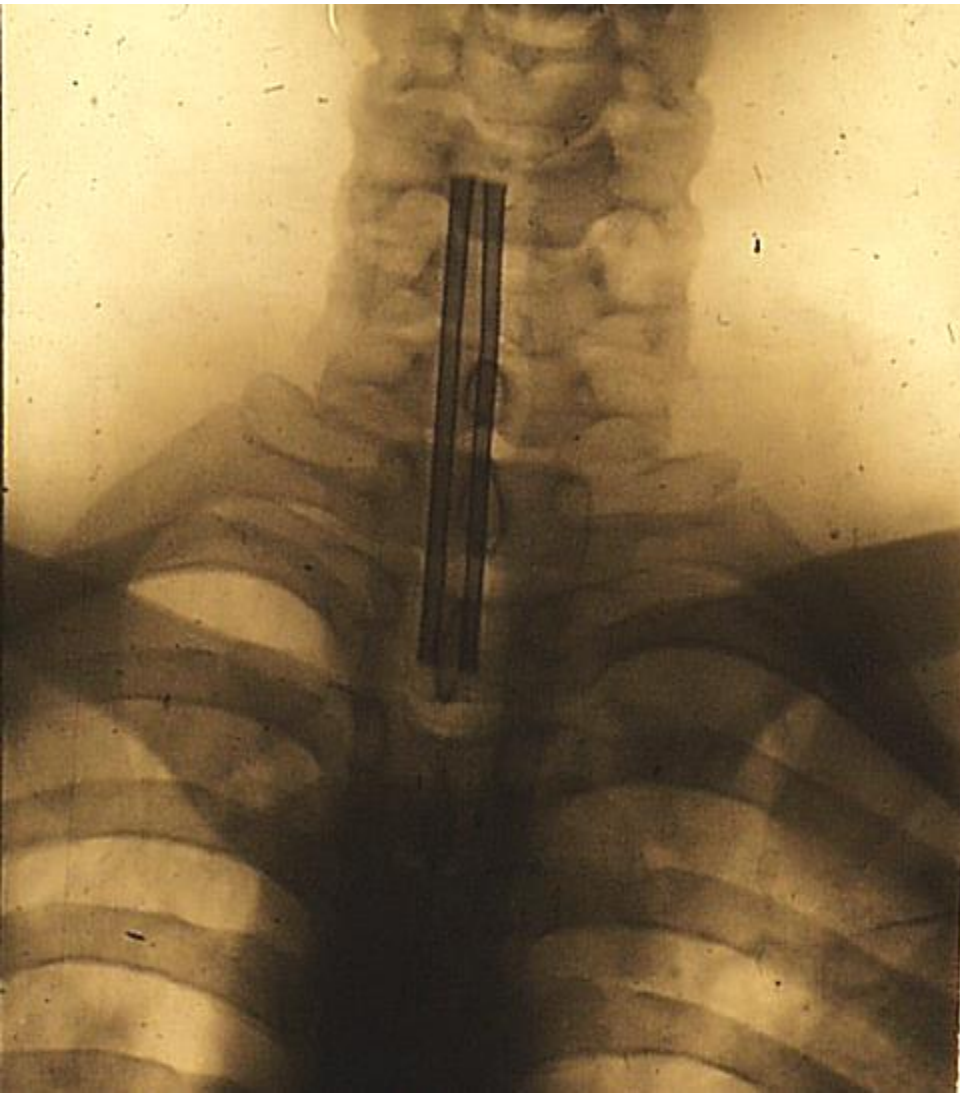




Handwritten labels for the fragments, including: 20/0000, 20/0001, 20/0002, 20/0003, 20/0004, 20/0005, 20/0006, 20/0007, 20/0008, 20/0009, 20/0010, 20/0011, 20/0012, 20/0013, 20/0014, 20/0015, 20/0016, 20/0017, 20/0018, 20/0019, 20/0020, 20/0021, 20/0022, 20/0023, 20/0024, 20/0025, 20/0026, 20/0027, 20/0028, 20/0029, 20/0030, 20/0031, 20/0032, 20/0033, 20/0034, 20/0035, 20/0036, 20/0037, 20/0038, 20/0039, 20/0040, 20/0041, 20/0042, 20/0043, 20/0044, 20/0045, 20/0046, 20/0047, 20/0048, 20/0049, 20/0050, 20/0051, 20/0052, 20/0053, 20/0054, 20/0055, 20/0056, 20/0057, 20/0058, 20/0059, 20/0060, 20/0061, 20/0062, 20/0063, 20/0064, 20/0065, 20/0066, 20/0067, 20/0068, 20/0069, 20/0070, 20/0071, 20/0072, 20/0073, 20/0074, 20/0075, 20/0076, 20/0077, 20/0078, 20/0079, 20/0080, 20/0081, 20/0082, 20/0083, 20/0084, 20/0085, 20/0086, 20/0087, 20/0088, 20/0089, 20/0090, 20/0091, 20/0092, 20/0093, 20/0094, 20/0095, 20/0096, 20/0097, 20/0098, 20/0099, 20/0100.

# Wanted swallowing – handle of spoon – by prisoners

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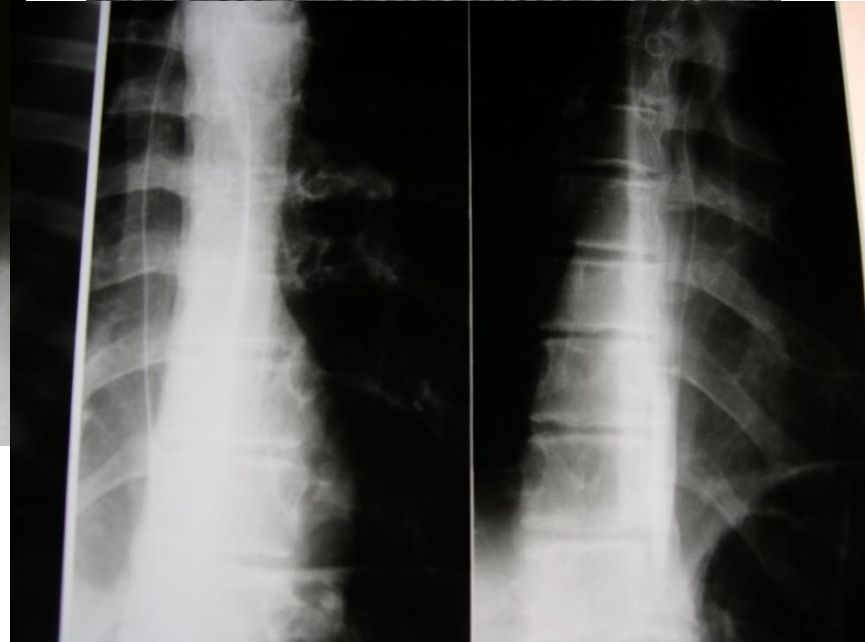
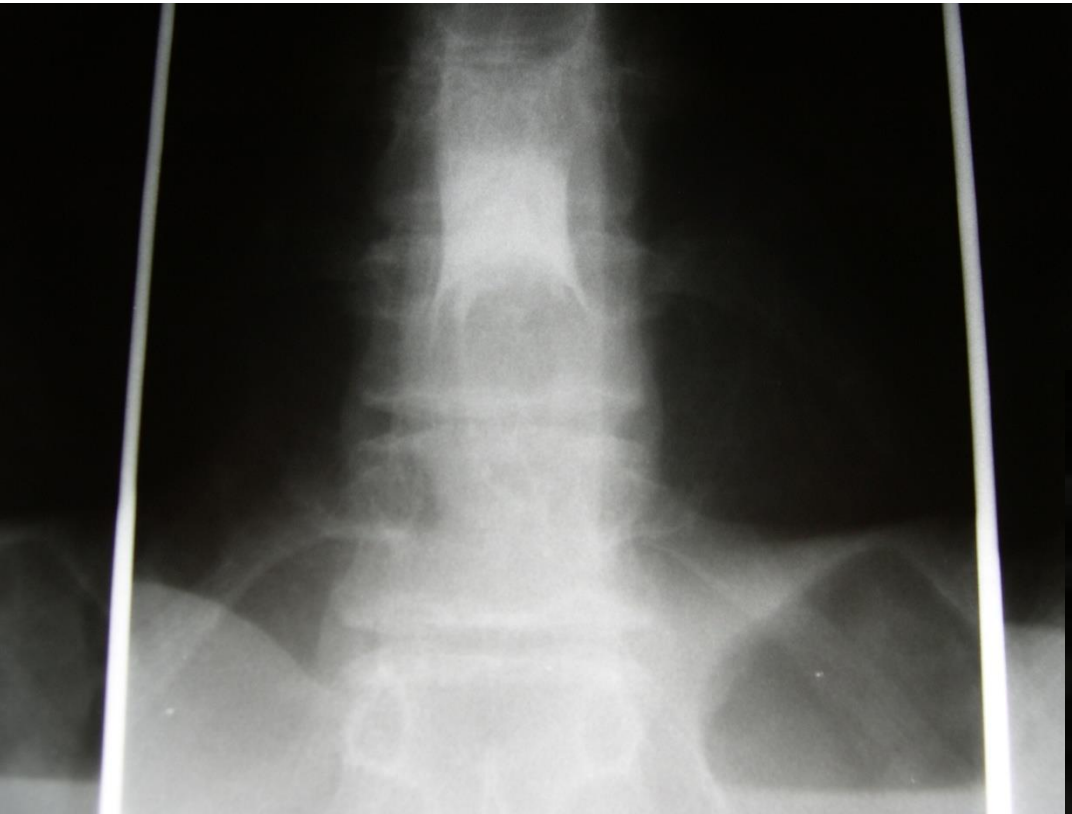


# Wanted swallowing – handle of spoon – by prisoners

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# Stone from nectarine mental retardated boy, 20 yr localisation – 2nd physiologic stenosis



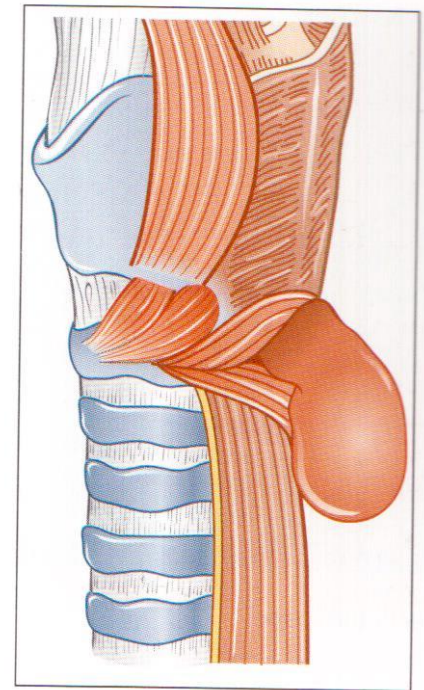
# Esophageal diverticulum

Diverticulum – congenital or acquired protrusion of hollow organ.

- **Pulsatory diverticula**
- **Traction diverticula** – tbc, peri-esophageal lymphadenopathy due to scar contracture

The most common type - cricopharyngeal (false) pulsatory **Zenker** diverticulum.

- pathogenesis – protrusion of mucosa membrane between thyropharyngeal and cricopharyngeal part of inferior pharyngeal constrictor.







## Zenker diverticulum

- **Prevalence** - create 70% of all esophageal diverticula. Disease of higher age, age average 60-65 let, 2:1 male to female
- **Symptoms**
  - Dysphagia, feeling of pressure in jugular region, attacks of coughing
  - Disorder of swallowing especially tough food
  - Return of not digested food, loss of weight
  - In pressure externally on the neck - special sound (**Boyce sign**).
  - Big diverticula's: recurrent nerve palsy, aspiration of food, risk of malignant tumor.

## Zenker diverticulum

- **Diagnosis** – diagnostic imaging
- **Therapy** – surgery
  - External approach – resection of pouch and myotomy m. cricopharyngeus
  - Endoscopic approach – incision of threshold

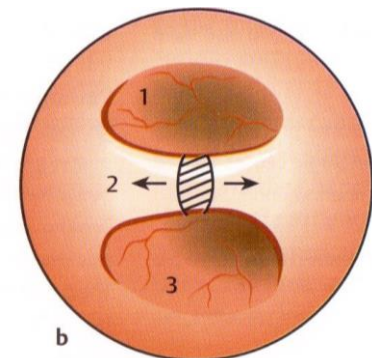
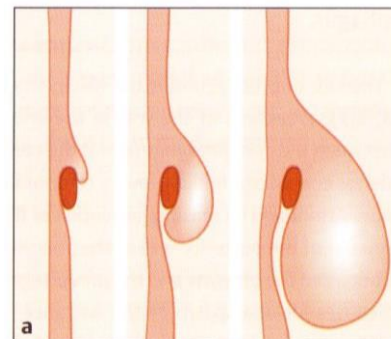
a pathogenesis of diverticulum

b Principle of endoscopic incision

1 esophagus

2 threshold with place of incision

3 diverticulum





# Hematemesis – bleeding from swallowing ways - cause

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- esophageal varices (portal hypertension, portal bloc etc. )
- peptic ulcer of esophagus (Barett)
- corrosive ulcer, esophagitis
- tumors
- diverticulosis
- hernia hiatica



# Hematemesis - symptoms

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- sometime without symptoms
- spitting out fresh or coagulated blood  
(=hematemesis)
- melaena



# Hematemesis - diagnosis

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It is necessary to distinguish between vomiting and only presence of the blood in saliva.

Evaluation :

- ENT examination
- direct hypopharyngoscopy
- flexible esophagoscopy
- X-ray evaluation in negative endoscopy



# Hematemesis - therapy

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- preserve a calm atmosphere
- swallowing small pieces of ice, hem styptic agent (Bismuthum subnitricum in powder)
- small dosage of anti-anxiety drugs
- three-way balloon probe Sengstaken-Blakemore
- sclerotization of varices
- surgery