

## HEAD AND NECK EXAMINATION

The head and neck examination are usually the first part of the physical examination. The basic examination methods we use are inspection and palpation. At the first glance, we look for signs of asymmetry, swelling, abrasions or signs of trauma (do not forget to look at the hairy part of the head). It is best to proceed from top to bottom during the examination, thanks to this system we are least likely to forget something. We begin by evaluating the shape of the skull, physiologically mesocephalic, and facial expression.

### Deviations from the physiological shape of the skull:

**toricefalia - turret skull**

**dolichocephalia** - elongated in the anteroposterior dimension

**brachycephaly** - shortened in the anteroposterior dimension

**microcephaly** - reduced, due to premature closure of the cranial sutures

**macrocephaly** - increased in hydrocephaly in childhood

**Facial expression** - provides information about the patient's mental state, in addition, some characteristic changes raise suspicion of serious illness.

**facies febrilis** - shiny eyes, reddening of the face, a restless expression (fever)

**facies Hippocratica** - associated with anxiety in the face, sunken face and pointed nose (sudden abdominal events)

**facies nephritis** - pallor, eyelid edema, facial leakage (nephritis)

**facies pletorica** - flushing in the face (polycythemia, upper vena cava syndrome)

### Typical facies in endocrinopathies

**facies acromegalica** - massive eyelid arches, large nose, chin, and tongue

**facies thyrotoxic** - restless facial expression, eye gloss exophthalmos (thyroid hyperfunction)

**facies myxedematosa** - swollen face, reduced facial expressions, laterally sparse to completely missing eyebrows (thyroid hypofunction)

**facies in Cushing's syndrome** - moon face (adrenal cortex hyperfunction, corticoid therapy)



We continue with **the percussion and the palpation of the skull**, which should be painless. Pain can indicate an injury (eg. subarachnoid hemorrhage), which is especially important in the absence of external traces of trauma. We perform the palpation with the belly of our fingers.

• **Examination of cranial nerve outputs trigeminal nerve (n.V.)**

- we examine the function of the nerve V by applying **slight pressure to its outputs**
- palpation of the nerve V outlets is normally painless, and the patient feels the touch on both sides of the face in the same way



• **facial nerve** – provides motor innervation of facial muscles (**n. facialis**)

we ask the patient:

1. **to raise their eyebrows**
2. **close their eyes** (or keep them closed against our pressure),
3. **show their teeth**
4. **puff their cheeks**



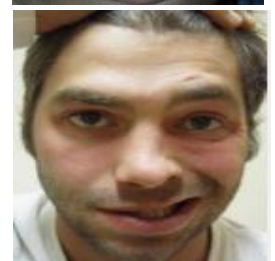
**Facial nerve palsy**

**Central** - only the lower branch of nerve VII is affected. It is characterized by a drooping of the oral corner, smoothing of the nasolabial line and the inability to puff the cheeks (occurs in CMP).



**Peripheral - both branches** of nerve VII are affected.

upper branch: is accompanied by asymmetry of the eye slits and inability to close the eye.



The patient has smoothed wrinkles, is unable to frown or pull eyebrows (inflammation and swelling of the nerve VII during infection, sitting in the draft).



**Bell's symptom** - when trying to close the eyes, the bulb is twisted inwards on the affected side.

### Examination of the ears.

**The external auditory canal** is **without discharge** (bloody discharge - probably traumatic origin, secretion - inflammation of the auditory canal or otitis), **the pressure on the tragus and on the mastoid process are painless** (for pain we consider inflammatory affection in the middle ear or mastoid).

### Examination of the eyes.

**The eyebrows** are symmetrical. *Asymmetry* is present in the innervation disorder n. VII. *Laterally dilated* in hyperthyroidism. *Overdeveloped* in women with hirsutism. *Roughed superciliary arches* are observed during acromegaly.

**The eyelids** are edema free.

- **epicanthus** - skin fold covering the inner corner of both eyes (Down syndrome)
- **ectropion** - turning the lower eyelash away from the surface of the eye, the eye is damaged by drying due to the loss of tear film, leading to infections and inflammation.
- **entropion** - in entropion, the lashes twist inwards so that the lashes face the eye, causing it to be significantly irritated, teared, and reddened.
- **xanthelasma** - yellow deposits of lipids and cholesterol under the skin of the upper eyelids (hyperlipoproteinemia)

**The eye slits** are symmetrical.

- **bilateral narrowing (ptosis)** - caused by blepharospasm (spastic contraction of the eyelids).
- **bilateral enlargement** - observed in **exophthalmos** in a patient with thyrotoxicosis.



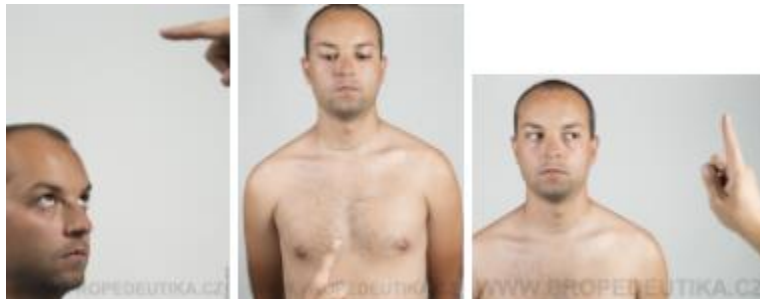
- **asymmetry** - unilateral eyelid ptosis in **Claude-Bernard-Horner syndrome** (ptosis, miosis, enophthalmos)



**The eyeballs** are in the middle position, they are free to move, without nystagmus.

- **exophthalmos** - protrusion of eyeballs (bilateral - Graves-Basedow disease, unilateral - tumorous processes in the retroorbital space)
- **enophthalmos** – displacement of the eyeball backward (most often in the elderly due to loss of retrobulbar fat)

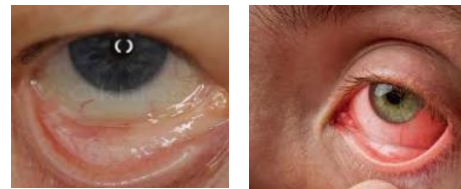
**Mobility of bulbs.** We **examine the flexor muscles with a finger, pen or similar object at a distance of approximately 1 meter from the patient, who is asked to follow the object with his eyes without moving the head.** We move the object in each direction (up, down, right, left, diagonally) and watch development of strabismus / nystagmus.



- **strabismus convergent** - the axes of the bulbs converge
- **divergent strabismus** - the axes of the bulbs diverge
- **nystagmus** - unconscious, rapid oscillation of bulbs (horizontal, vertical, circular type)

**Conjunctiva** is physiologically pink.

- **pale** - in anemia
- **hyperemia** - in conjunctivitis



**Sclera** are physiologically white, anicteric.

- **yellow** - in jaundice
- **redness** - present in conjunctivitis
- **subconjunctival haemorrhage** - accompanies bleeding conditions
- **blue discoloration** - very rare, in osteogenesis imperfecta



**The pupils** are physiologically round, isocoric (the same diameter), responsive to light exposure and convergence.

- **miosis** - narrowing, physiologically in response to exposure, pathologically in iris inflammation, sympathetic disorder, opiate intoxication
- **mydriasis** - enlargement, physiologically in response to darkness, pathologically with parasympathetic damage, in deep unconsciousness, some CNS disorders
- **anisocoria** - unequal pupil size, physiologically present in 20% of the population, pathologically in Horner's syndrome, trauma

#### **Photoreaction examination.**

- **direct** - narrowing of the pupil of the illuminated eye
- **consensual** - narrowing of the pupil of the unlit eye

When examining **the cornea**, we rule out the presence of turbidity, injury, or inflammation.

**Arcus senilis lipoides** *cornae* is a grayish-white ring on the edge of the cornea, which is a relatively common phenomenon in the elderly. **Kayser-Fleischer** is a dark ring around the circumference of the iris, accompanying Wilson's disease.



**The nose** is physiologically adequate in size and shape, symmetrical, free passage, without secretion.

**big nose** - in acromegaly

**rhinophyma** - an enlarged nose on an uneven surface, the appearance of cauliflower, occurs in rosacea

**saddle nose** - in congenital syphilis

**asymmetric** - after trauma

**epistaxis** - nosebleeds, most common in injury, but may be a manifestation of hypocoagulation conditions and hypertension





**The lips** are normally symmetrical, pink, smooth and moist. We observe whether there is a drooping in the oral corner, cyanosis of the lips, or whether they are not dry (in dehydration).

When examining the **oral cavity**, we evaluate:

**Foetor ex ore**

**acetone** - in ketoacidotic coma caused by hyperglycemia in decompensated diabetics

**alcoholic**

**hepatic** - in patients with hepatic failure (sweet, stale, sometimes described as fecaloid odor)

**urinary** - with kidney failure (smell of ammonia)

**uncharacteristic** - in case of gingivitis, food retention in carious teeth, in case of lung abscess (putrid odor)

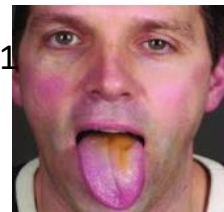
**The mucosa of the oral cavity**, which is physiologically shiny, moist and without pathological changes.

- **pale color** - in **anemia**
- **redness** - in **stomatitis**<sup>1</sup>
- **Koplik's spots**<sup>2</sup> - white spots inside the mouth, typical in **measles**
- **graphite spots**<sup>3</sup> - brown spots on the buccal mucosa, typical of **Addison's disease**<sup>4</sup> (adrenal hypocorticism)
- **candidosis**<sup>5</sup> - white patches on the mucosa caused by a candidosis after treatment with ATBs or in immunodeficient patients



**The tongue** sticks out in the middle line, it is pink and moist.

- **deviation during sticking out**<sup>1</sup> - in strokes, when the healthy side of the tongue pushes the tongue to the affected side, on the contrary, in the oral cavity the tongue goes to the healthy side
- **dry**<sup>2</sup> - **dehydration** (vomiting, diarrhea, febrility)
- **coated**<sup>3</sup> - **diseases of oral cavity, insufficient hygiene**
- **Strawberry**<sup>4</sup> tongue - in **scarlet** fever after separation of coating
- **hunter's glossitis**<sup>5</sup> - **smooth reddened** tongue with **atrophic papillae** - in **pernicious anemia** (vitamin B12 deficiency)
- **leukoplakia**<sup>6</sup> - **blue and white streaks** on the surface of the tongue and buccal mucosa (**precancerosis**)



- **macroglossia**<sup>2,7</sup> – in **acromegaly, myxedema, allergic** reaction



**The gums** are pink, firm and without bleeding. The teeth are fully developed and taken care of. *Carious teeth* indicate poor hygiene. In elderly patients, the teeth are usually *artificial* (prosthesis).

**The pharyngeal arches** are pink.

**Tonsils** are symmetrical, with no signs of inflammation.

- **absent** after tonsillectomy
- **hypertrophic and flushed** in chronic tonsillitis
- **enlarged and reddened** in acute tonsillitis
- **asymmetric** in patients with retrotonsillar abscess or tumor.



### Examination of the neck

**Neck mobility** is free in all directions and the patient should be able to touch the sternum with the chin. Restriction in the range of motion is observed in meningeal irritation (Brudzinski sign - severe neck stiffness causes a patient's hips and knees to flex when the neck is flexed), vertebrogenic algic syndromes, torticollis spastica (tonic contracture of the sternocleidomastoid muscle).

**External carotid artery pulsation** should be present bilaterally.

If the pulsations on the one side are **weakened or disappeared**, we suspect **carotid artery stenosis + murmur**.

Under normal circumstances, murmur is not audible during carotid auscultation (audible in carotid stenosis or in aortic stenosis).

**The filling of the jugular veins** (venae jugulares externae) in a healthy lying person does not exceed the horizontal plane passing through the sternocostal joint by more than 2 cm.

**Increased filling of the jugular veins** is caused by an **increase in pressure in the venous system** and corresponds to blood stasis in front of the right heart (**right heart failure, tricuspid valve defects**).

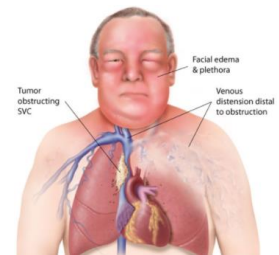


**Hepatojugular reflux** is an **increased filling of the jugular veins throughout the pressure of the hand on the liver** (30-60 seconds). In healthy people, it may appear only for a short time at the beginning of the examination.

**Stokes' collar (upper vena cava syndrome)** - oppression of v. cava superior e.g. **tumor in the mediastinum**, leads to **dilation of venous plexuses with edema of the neck**, possibly also the head and upper limbs.



**The thyroid** gland is located below the thyroid cartilage and **is not normally visible or palpable**. When palpating the thyroid gland, we **stand behind the patient and place the fingertips under the thyroid cartilage**. We evaluate size, surface, palpation sensitivity, consistency (soft, hard, hard). We ask the patient to swallow, which moves the thyroid gland under our fingers.



**The goiter** is any **enlargement of the thyroid gland**, it can be diffuse or nodular.

**Diffuse goiter** - usually bilateral, but in some cases, it can affect only one lobe or only the isthmus.

**Nodular goiter** can contain 1 to more nodules of different sizes (when palpating we find a bumpy surface). Enlargement of the thyroid gland occurs together with its hypofunction - *Hashimoto's goiter*, hyperfunction - *Basedow goiter*, with a physiological function - *nodular goiter*. We also observe goiter in thyroid gland carcinoma.



**Lymph nodes** are **not normally visible or palpable**. When examining lymph nodes, we evaluate **size, consistency, pain, and mobility**.

**Inflammatory (benign) lymph nodes** are **soft, painful, freely movable, with inflammation**.

**Tumor-affected (malignant) lymph nodes** are **hard, painless, and do not move, often** forming the formations we call **packets**.



- **occipital**
- **preauricular**
- **postauricular**
- **submental**
- **submandibular**
- **tonsillar**
- **cervical**
- **along the m. sternocleidomastoideus (in front of and behind).**

