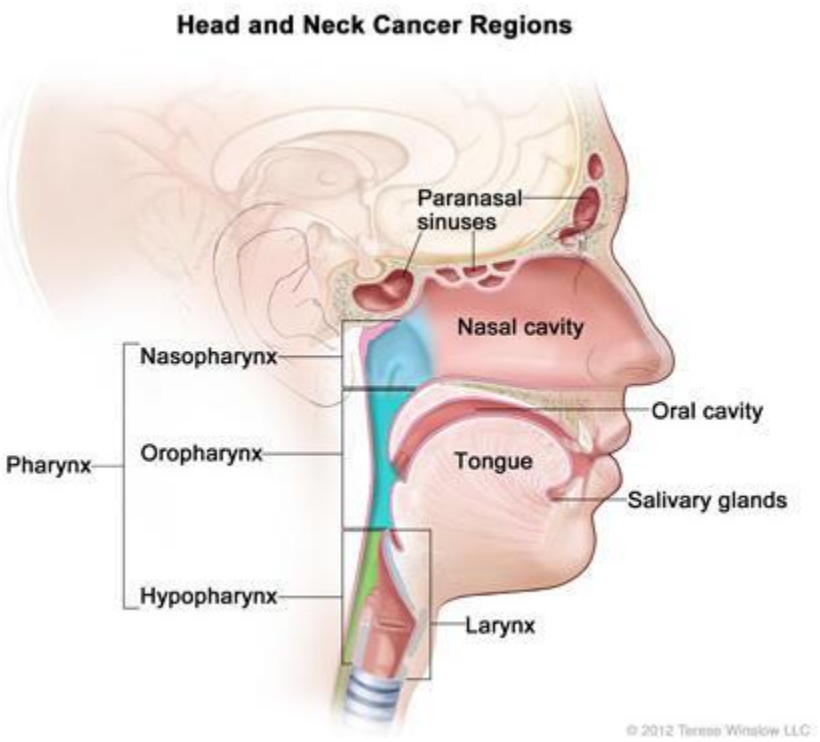
Head and neck tumors

Klinika Neurologii i Pediatrii WUM

HEAD AND NECK TUMORS



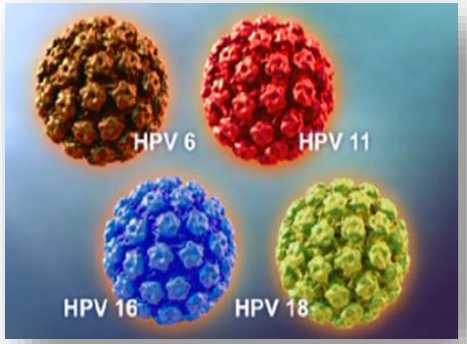
LOCALISATION:

- Nasal and paranasal cavity
- Oral cavity, tongue, palate, lips
- Throat
- Larynx
- Salivary glands
- Ears
- Thyroid

Brain and eyeballs tumors and leukemia are not classified as head and neck tumors.

Head and neck tumors

- Variety – many organs and tissues of different origin and histology
- The majority of H&N tumors in children are inflammatory in nature
- Neoplasm of the H&N account for ~ 5% of childhood malignancies
  - 14% of head and neck tumors are of mesenchymal origin
  - Epithelial tumours e.g carcinoma planoepitheliale are very rare
- Role of **Human papilloma virus (HPV) infection in the etiology** of many head and neck tumors



HEAD AND NECK TUMORS

Stomatologist may be the first doctor to recognize any pathological changes in the head or neck region and refer patient for further diagnosis!

Any abnormal structures, abnormal coloring, visible or palpable tumor should be diagnosed to exclude neoplasm.

Each suspected, abnormal structure should be examined by ultrasound examination!

To diagnose pathological changes:

usg, CT, MR, laryngoscopy can also be used.

HEAD AND NECK TUMORS - SYMPTOMS

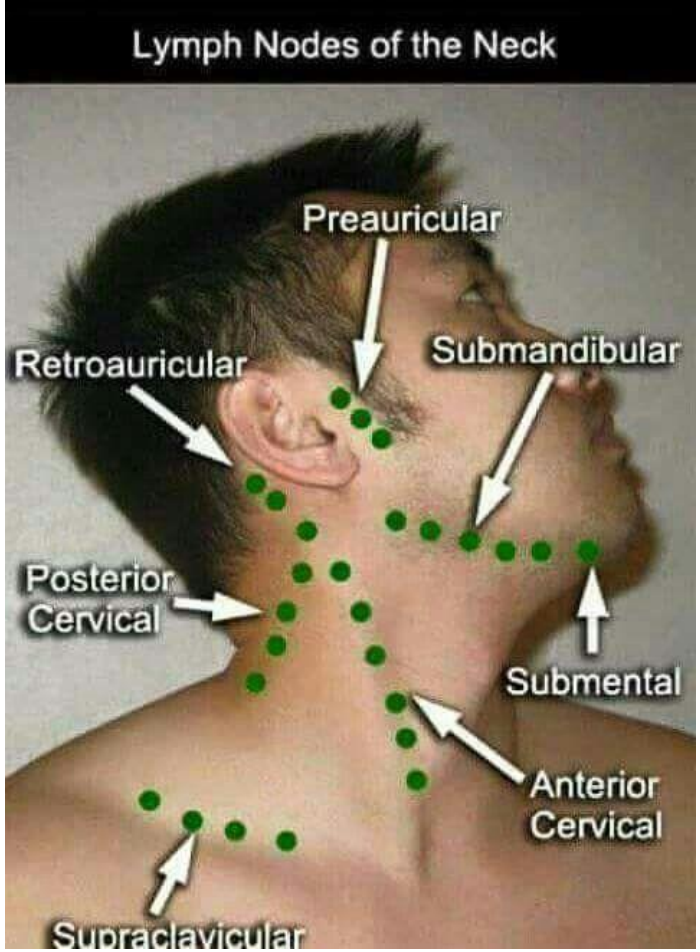
Depending on localization, e.g.:

- Visable tumor
- Lymph nodes enlargement with other alarming features
- Pain
- Destruction of surrounding tissues – deformation
- Airway obstruction, difficulties in breathing
- Bleeding
- Recurrent sinusitis, ear infections
- Strabismus
- Leak of the fluid from nasal cavity or ear

In malignant tumors also general symptoms like:
fatigue, weight loss, fever

Suspected lymph nodes:

- Persistent enlargement
- Localization especially in posteriori triangle or supraventricular space
- Painless
- Firm
- Not mobile
- Single dominant node persisting for more than 6 weeks



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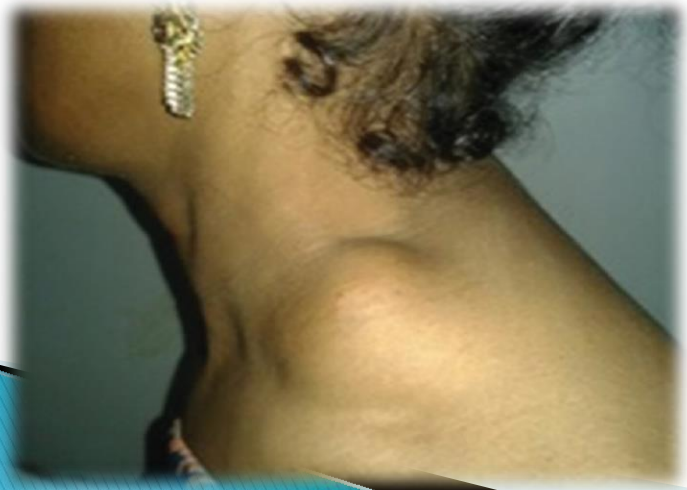
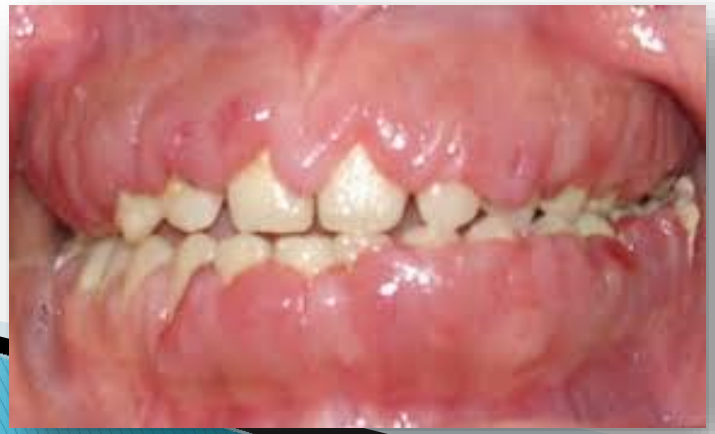
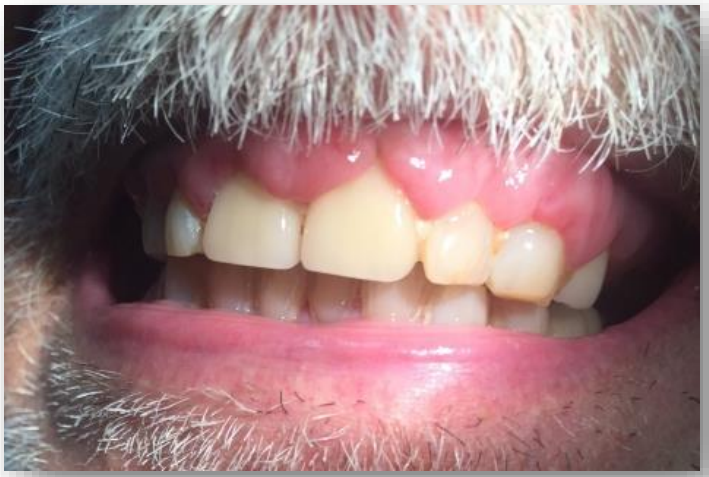


Leukemia - pathological changes in the mouth

- pallor of the mucous
- **gingival hyperplasia**
- bleeding gums
- painful sores on the lips, gums, tongue and tonsils
- oportunistic infections: mycotic (candidiasis, aspergillosis) or/and viral (herpes simplex, CMV, EBV)





NOSE AND PARANASAL SINUSES TUMORS

- Very rare in children
- wide variety in histology
- Divided into tumors with epithelial and non-epithelial orign (mesenchymal)

- **Epithelial origin:**

- Very rare,
- **Benign:** papillomas or adenomas
- **Malignant**: squamous cell carcinoma, adenocarcinoma, adenoid – cystic carcinoma, mucoepidermoid carcinoma

- **Non-epithelial origin (mesenchymal):**

- **Benig tumors:**
  - FIBROMAS: very rare in chilldren (more common in tuberous sclerosis complex), pedunculated, single
  - CHONDROMAS: ethmoid sinuses, maxillary sinuses, nasal sinuses and septum
  - OSTEOMAS: quite often, localization: frontal and maxillary, grow slowly, symptoms appear when the size is quite large

NOSE AND PARANASAL SINUSES TUMORS

- **Non - epithelial origin benign tumors**
  - LIPOMAS: nasal cavity, paranasal sinuses
  - MYXOMAS: come from embryonical mucosal tissue, rare
  - HEMANGIOMAS: frequent tumor of the nose, the mucosa of the mouth and the maxillary sinuses in children, capillary hemangioma, cavernous
  - NEUROECTODERMAL TUMORS: mainly concerns children, develops from ectopic glial tissue withinthe base of the nose, are divided into the outside of the nasal (detected shortly after birth) and inside the nasal cavity
  - ADAMANTINOMAS: tumor of embryonic origin, located in the jaw, locally malignant
  - ANGIOFIBROMAS JUVENILE

NOSE AND PARANASAL SINUSES TUMORS

- **NON- EPITHELIAL ORIGIN MALIGNANT TUMORS:**
  - **SARCOMAS from muscle tissue**
    - rhabdomyosarcoma – derived from striated muscle, a common tumor in the nose, maxillary sinus and neck, very quickly give metastasis to the bones, lymph nodes, lungs, 3-year survival rate in children is approx. 52-75% of patients
    - leyomiosarcoma – from smooth muscles, very rare
  - **SARCOMAS from connective tissue:** fibrosarcoma, chondrosarcoma osteosarcoma
  - **SARCOMAS from the vascular tissue:** angiosarcoma, hemangiopericytoma, Kaposi's sarcoma

NASOPHARYNGEAL TUMORS

- BENIGN TUMORS (benign neoplasms) are more common then malignant: papillomas, fibromas, lipomas, hemangiomas, lymphatic hemangiomas, neuroma-fibroid tumors, neuroblastomas, gliomas

- **Angiofibroma juvenile:**
  locally malignant, primary site of development is the nasopharynx , through the pressure it causes destruction of the bones, occurs only in boys mostly in the age of puberty, symptoms- nose obstructon and epistaxis

- MALIGNANT TUMORS: lymphomas, epithelioma with low stage of differentiation, rhabdomyosarcoma

TUMORS OF LARYNX

- Very rare in children
- Causing the typical symptoms of airway obstruction: stridor, dyspnea, hoarseness

- BENIGN TUMORS: hemangioma, fibroma,chondroma, neurofibroma, schwannoma

- MALIGNANT TUMORS: in children sarcomas are the most common, especially rhabdomyosarcoma

SALIVARY GLANDS TUMORS

- Branchial cleft cyst
- Cysts associated with salivary calculi

- BENIGN TUMORS
  - common hemangiomas - tend to spontaneously regress, in most children are disclosed in the first year of life

- MALIGNANT TUMORS
  - almost no existenting in children

BENIGN TUMORS OF THE OUTER EAR

- CAPILLARY HAEMANGIOMAS: affects the outer ear and its surroundings, are congenital tumors, usually grow to 3 - 5 years of age, then spontaneously regress
- OSTEOMAS: usually bilateral, may be the result of chronic irritation of the ear canal
- ADENOMAS: very rare

BENIGN TUMORS OF THE MIDDLE EAR

- **GLOMUS TUMOR**: in the case of tumor growth in the tympanic cavity or bulb of the juglar vein they may cause some symptoms:
  - pulsating noise in the ear
  - conductive or mixed hearing loss
  - dizziness
  - periodic bleeding from the ear
  - facial nerve palsy

- **CHOLESTEATOMA:**
  - develops in pyramid of the temporal bone and destroys the structure of the middle and inner ear
    - sensorial hearing loss
    - balance disturbances
    - facial nerve palsy

BENIGN TUMORS OF THE MIDDLE EAR

- Meningiomas of the posterior and the middle cranial fossa
- HISTIOCYTOSIS X: Langerhans cel hyperplasia. In children occurs as eosinophilic granuloma of middle ear. The sumptoms grow slowly:
  - subfebrile state, weakness,
  - leakage from the middle ear,
  - swelling of the external ear
- Neurofibroma in Recklinghausen disease can grow into the temporal bone

MALIGNANT TUMORS OF THE EAR

- **rhabdomiosarcoma:** small children, boys more often then girls

- Non-Hodgkin lymphoma (NHL)

NECK TUMORS

- In childhood the neck tumors are mostly represented by enlarged lymph nodes (infection, leukemia)
- Warning: enlarged neck lymph nodes in adolescents (Hodgkin's disease)
- Other tumors are usually benign tumors:
  - Neck cysts – lateral and central
  - Haemangiomas and lymphomas

NECK TUMORS

DEVELOPMENTAL TUMORS:

- Central neck cysts: develop from remnants of the thyrolingual duct
- Cysts and lateral fistulas of the neck: origin from the developmental abnormalities of branchial arches, have typical constant anatomical position
- Dermoid cysts and teratomas: are very rare, usually are located in the vicinity of the median body line, smooth, soft, they have a capsule, lie superficially
- Cysts of the larynx
- Diverticula of the posterior part of the esophagus

EMBRYONIC TISSUES CANCERS:

- Chordoma
- Branchial cleft carcinoma

NECK TUMORS

- **TUMORS OF GLANDULAR ORIGIN:**
  - tumors of the thyroid gland: neonatal goitre, juvenile goiter, purulent inflammation of the thyroid gland, thyroid tumors
  - parathyroid tumors

- **TUMORS OF NERVOUS ORIGIN:** Schwannoma, carotid body tumor

- **TUMORS OF VASCULAR ORIGIN:** hemangioma, lympangioma, carotid artery aneurysm

Ultrasound examination is very useful in the diagnosis of neck tumors !

BRAIN TUMORS

- The second most common tumors in children (after leukemia)
- They constitute approx. 20-25% of cancers occurring in children under 14 yr
- the average at diagnosis is 7 years and 10 months
- M:F = 1,2: 1
- Tumors CNS are a diverse group in terms of histopathology, location, growth

BRAIN TUMORS ETIOLOGY

- Usually unknown
- Environmental factors: electromagnetic radiation, pesticides, exposure to ionizing radiation
- Primary and secondary immunodeficiency (tumors of lymphoid origin)

- Primary brain tumors develop in some hereditary diseases:
  - NF1 : optic or hypothalamic tract glioma, meningioma, neurofibroma
  - NF2 : schwannoma , ependymoma
  - TSC: subependymal giant cell astrocytoma

BRAIN TUMORS CLASSIFICATION

- **Supratentorial** - develop in brain hemisheres, and midbrain (diencephalon, mesencephalon): gliomas, ependymomas, PNETs and so-called midbrain tumors growing in hypopyseal, pineal regions are most common

- **Infratentorial** (more common localization, 45 – 60%) – brainstem and cerebellar tumors: medulloblastoma and gliomas are the most common

Clinical symptoms of brain tumors

Factors influencing brain tumors symptomatology:

- tumor's grow rate (malignant and rapidly growing tumors give acute symptoms; they rarely produce seizures as presenting signs)
- presence of hydrocephalus
- extent brain oedema – mostly in malignant tumors
- Tumor localization
- Patient's age – in infants typical symptoms of increased intracranial pressure may not be observed

Clinical symptoms of brain tumors

Brainstem tumors:

- Focal signs: diplopia, dysarthria, dysphagia, ataxia, other
- Anisocoria
- In younger children: atypical head and neck position, sometimes resembling torticollis

Cerebellum tumors: ataxia, gait and coordination disturbances

Supratentorial tumors:

- Focal signs: most typically hemiparesis or sensory disturbances
- Seizures
- Behavioral changes

Midline Tumors :

- Blurred vision, visual field restriction, bitemporal hemianopsia
- Hormonal disturbances (diabetes insipidus, growth disturbances, weight gain)

SYMPTOMS OF INCREASED INTRACRANIAL PRESSURE

INFANCY:

- Cranial suture stretch, elevated, strained, pulsating fontanel
- Increase of head circuit
- Sign of the setting sun
- Vomiting
- Tilting the head to one side
- Developmental delay

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SYMPTOMS OF INCREASED INTRACRANIAL PRESSURE

CHILDREN AND YOUTH

- Headache, especially in the morning
- Behavioural changes
- Vomiting typically in the morning !!!!
- Blurry vision
- Oedema of the optic disc
- Triad of Cushing: bradycardia, increased blood pressure, breathing disturbances

DIAGNOSTICS OF BRAIN TUMOR

- History data
- Neurological examination
- Neuroimaging: CT, MRI, spectroscopy, PET
- Tumor markers : alfa-fetoproteina, beta-hCG
- Pituitary hormones
- Cytometry of cerebrospinal fluid (e.g in the diagnosis of lymphomas)
- Histopathology (biopsy, resection of tumor)

BRAIN TUMOR TREATMENT

- Surgery:
  - resection of the tumor , biopsy
  - treatment of the hydrocephalus
- Chemiotherapy
- Radiotherapy
- Gamma knife