

## DIGESTIVE SYSTEM

**overview:** oral cavity (cavum oris), pharynx, oesophagus, stomach (ventriculus, gaster, stomachus), small intestine (intestinum tenue), large intestine (intestinum crassum)

**Glands of digestive system:** intramural, extramural

### **Common structure of gastrointestinal tube:**

1. tunica mucosa: lamina epithelialis, lamina propria mucosae, lamina muscularis mucosae (papillae, plicae, villi)
2. tela submucosa (plexus submucosus)
3. tunica muscularis: stratum circulare, stratum longitudinale (plexus myentericus)
4. adventitia/serosa

## CAVUM ORIS

### **Rima oris**

**Vestibulum oris:** shape, boundaries

Labium superius et inferius: anguli oris, philtrum, tuberculum labii sup., sulcus nasolabialis, sulcus mentolabialis. Structure: skin, subcutaneous tissue kůže, podkožní vazivo, m. orbicularis oris, submucous tissue (glandulae labiales). transitional zone – red of the lips.

Buccae: Structure: skin, subcutaneous tissue, m. buccinator, submucous tissue (glandulae buccales et molares), mucous membrane. Papilla parotidea.

Mucous membrane (lips and cheeks) → fornix vestibuli sup. et inf. (frenulum labii sup. et inf.) → mucogingival border → gingiva (processus alveolares): attached, free (differences, boundaries – paramarginal groove). Papillae interdentes.

Tremata, trigonum retromolare.

**Cavum oris proprium:** boundaries

Palatum durum: Hard palate (bony palate) (1. semestr), papilla incisiva, plicae palatinae transversae, torus palatinus. Structure: mucous membrane + periosteum of hard palate = mukoperiosteum. Only small portion of subcutaneous tissue (glandulae palatinae, taste buds).

Palatum molle: 2 parts (horizontal and dorsocaudal). Structure: mucous membrane, aponeurosis palatina (aponeurotic insertion for muscles of soft palate: m. palatoglossus, palatopharyngeus, m. tensor veli palatini, m. levator veli palatini, m. uvulae). Uvula.

Diaphragma oris: Structure: mucous membrane, m. geniohyoideus, mylohyoideus, venter anterior m. digastrici. Frenulum linguae, plica sublingualis, caruncula sublingualis.

**Isthmus faucium:** boundaries

Arcus palatoglossus et palatopharyngeus. Sinus tonsillaris, plica semilunaris. Tonsilla palatina: mucous membrane: fossulae et cryptae tonsillares, lymphatic tissue. Capsula tonsillaris.

**Lingua (glossa):**

Radix linguae: plica glossoepiglottica mediana, plicae glossoepiglotticae laterales, valleculae epiglotticae. Tonsilla lingualis.

Corpus linguae: dorsum, sulcus terminalis, foramen caecum, papillae linguales, facies inferior, plicae fimbriatae, margines linguae;

Apex linguae: glandulae linguales, aponeurosis linguae, septum linguae, intraglossal and extraglossal muscles

Facies a) dorsalis: sulcus medianus linguae, sulcus terminalis, foramen caecum linguae, papillae: filiformes, fungiformes, vallatae, foliatae (localization). Caliculi gustatorii.

b) inferior: frenulum linguae, plicae fimbriatae.

Margines linguae

Glandulae linguales: serous (of Ebner), mucinous (of Weber), gl. apicis major.

Structure of tongue: mucous membrane, aponeurosis linguae, muscles (extraglossal muscles: m. genioglossus, m. hyoglossus, m. styloglossus and intraglossal muscles: m. longitudinalis linguae sup. et inf., m. transversus linguae, m. verticalis linguae).

Septum linguae.

## Dentes:

Parts: corona dentis, collum dentis, radix/radices dentis.

Surface: margo incisalis, facies oclusalis (tubercula dentalia, intertubercular grooves), approximalis (mesialis, distalis), vestibularis (labialis, buccalis) et oralis (palatina, lingualis).

Structure: dentinum (crown, neck, root), enamelum(crown), cementum (neck)

Cavity: cavum dentis, canalis radices dentis, foramen apicis dentis. Pulpa dentis.

Fixation of the tooth (gomphosis): periodontal ligaments. Periodontium. Paradontium.

Types of teeth: **dentes incisivi, canini, praemolares et molares** – **description of temporal and permanent tooth**: count in the jaw, shape of the crown, description of surfaces of crown, in the dorsal teeth description of occlusal surface (amount of tubercles, shape of fissural complex), differences in sizes, count and shape of roots, shape of dental cavity, number of root canals.

Dentition: temporary (dentes decidui), permanent (dentes permanentes). Mixed dentition.

Marking of teeth. Dental cross.

a) part of dental cross. Temporary teeth: small letters or roman numbers. Permanent teeth: large numbers or arabian numbers.

b) two-digit code: first digit: number of quadrant (Permanent teeth 1-4, Temporary teeth 5-8; second digit: the tooth)

Eruption of teeth (Temporary teeth: from 6 months to 2.5 year; Permanent teeth: from 6 to 16 years). Order of eruption according to temporary and permanent dentition

**Glandulae salivariae**: division according to the secretion (serous, mucinous, mixed), division according to size (small, large)

gll. salivariae minores: labiales, buccales, molares, palatinae. Localization, frequency, secretion

gll. salivariae majores:

**glandula submandibularis**: position, type, size. Ductus submandibularis (course, opening)

**glandula sublingualis**: position, type, size. Ductus sublingualis major et minor (course, opening)

**glandula parotis**: position, type, size. Ductus parotideus (course, opening). Fascia parotideae

## PHARYNX

Attachment to the basis cranii externa (course)

Parts:

**Nasopharynx:** extent; choanae, fornix pharyngis; tonsilla pharyngea; ostium pharyngeum tubae auditivae, torus tubarius et levatorius, plica salpingopharyngea et salpingopalatina; tonsilla tubaria

**Oropharynx:** extent, isthmus faucium

**Laryngopharynx:** extent. **Aditus laryngis:** plicae aryepiglotticae, incisura (plica) interarytaenoidea. Recessus piriformis

Structure of pharynx: 1. mucous membrane (gll. pharyngeae, lymphatic tissue), 2. submucous tissue (fascia pharyngobasilaris), 3. muscles: a) constrictors: m. constrictor pharyngis superior, medius et inferior (including parts), b) levators: m. stylopharyngeus, m. glossopharyngeus, 4. adventitia

## OESOPHAGUS

Length, extent, division: pars cervicalis, thoracica et abdominalis

Fysiological constrictions

Structure of wall: 1. mucous membrane (folds), 2. submucous tissue 3. musculature (striated, mixed, smooth), adventitia/serous membrane

X-ray examination (oesophagography)

## VENTRICULUS (GASTER)

Basic function. Position. Volume

Parts: pars cardiaca, ostium cardiacum, incisura cardiaca, fundus ventriculi, corpus ventriculi, incisura angularis, pars pylorica, ostium pyloricum (m. sphincter pylori)

Facies anterior et posterior

Curvatura major et minor

Structure of wall: 1. Mucous membrane (sulcus salivarius and irregular folds, areae gastricae, foveolae gastricae, glandulae gastricae); 2. submucous tissue 3. musculature (stratum longitudinale, stratum circulare, fibrae obliquae), 4. serous membrane

X-ray examination (gastrography)

## INTESTINUM TENUE

Basic function. Length. Position. Beginning, end

**Duodenum:**

Position. Beginning, end

Parts: pars superior (bulbus duodeni, lig. hepatoduodenale), flexura duodeni sup., pars descendens (pars supramesocolica et inframesocolica), flexura duodeni inf., pars horizontalis (crossing of radix mesocoli), pars ascendens, flexura duodenojejunalis

Structure of wall: 1. Mucous membrane: villi intestinales, plicae circulares, plica longitudinalis duodeni, papilla duodeni major et minor; glandulae intestinales – production of isotonic fluid, 2. submucous tissue: glandulae duodenales – correction of pH 3. musculature, 4. serous membrane (in whole extent of pars superior, other parts secondarily retroperitoneally)

**Jejunum et ileum:**

Begginig, end. Radix mesenterii, ansae intestinales. Differences between jejunum and ileum (length, localization, color, width, thickness of wall, types of plicae, course of blood supply, lymphatic tissue).

Structure of wall: 1. Mucous membrane (villi intestinales, plicae circulares; glandulae intestinales, lymphatická tkáň), 2. submucous tissue, 3. musculature, 4. serous membrane

## **INTESTINUM CRASSUM**

Basic function. Length. Position. Taeniae, haustra, appendices epiploicae

### Structure of wall

1. mucous membrane (plicae semilunares)
2. submucous tissue
3. musculature (circular, longitudinal– s.c. taeniae)
4. serous membrane

### **1. Caecum:**

length, position, ostium ileocaecale, valva ileocaecalis. Appendix vermiformis (ostium appendicis vermiformis, valva appendicis vermiformis, lymphatic tissue, s.c. tonsilla abdominalis), positions of appendix: positio pelvina, retrocaecalis, praecaecalis, ileocaecalis, lateralis

### **2. Colon:**

- **colon ascendens:** beginning, end (flexura coli dextra), length, position according to the peritoneum
- **colon transversum:** beginning, end (flexura coli sinistra), length, position according to the peritoneal cavity, mesocolon transversum
- **colon descendens:** beginning, end, length, position according to the peritoneal cavity
- **colon sigmoideum:** beginning, parts (pars iliaca, pars pelvina), end, length, position according to the peritoneal cavity. Mesosigmoideum

### **3. Rectum:**

beginning, opening (crena ani, anus), length.

Parts: pars pelvina et canalis analis.

Curvatures: in sagittal plane (flexura sacralis, flexura perinealis)  
in frontal plane (plicae transversales recti)

### Structure of wall in rectum:

1. mucous membrane: in **ampulla recti:** plicae transversales (middle, right, s.c. plica of Kohlrusch), in **canalis analis** a) *zona hemorroidalis* (columnae anales; sinus anales, valvulae anales), b) *zona intermedia* (as transitional zone of lip) a c) *zona cutanea*
2. submucous tissue (thin- possible prolaps; venous plexuses- v zona hemorroidalis)
3. musculature: circular (m. sphincter ani int. et ext.) and longitudinal
4. serous membrane/adventitia

X ray examination: irigography, DCBE

## HEPAR

Basic functions, position, color, weight

Surfaces: **facies diaphragmatica:** pars superior et anterior

**facies visceralis:** fissura ligamenti teretis, fissura ligamenti venosi, fossa vesicae biliaris, fossa venae cavae inf.; porta hepatis (a. hepatica propria, v. portae, ductus hepaticus communis, plexus hepaticus)

Lobes: lobus dexter, sinister, quadratus et caudatus. Segments of liver.

Structure: capsula fibrosa, liver parenchyme + tissue

Morfological unit: lobulus hepatis

Functional unit: lobulus v. interlobularis

Excretory ducts: ductus hepaticus: dx., sin., ductus hepaticus communis

Blood supply: **nutritive** (a. hepatica propria)

**functional** (v. portae → ramus. dx. et sin. → vv. interlobulares → sinusoidy → v. centralis → sběrné žíly → vv. hepaticae → v. cava inf.)

## VESICA FELLEA (BILIARIS)

Basic functions, position, length, volume

Parts: fundus, corpus, infundibulum, collum (plica spiralis)

Excretory duct: ductus cysticus. Ductus choledochus

Structure of wall: mucous membrane (folds), musculature, serous membrane

X-ray examination: cholecystography

### Excretory bile ducts

Production of bile by hepatic cells → intralobular bile duct → interlobular → segmental → ductus hepaticus communis + ductus cysticus → ductus choledochus → papilla duodeni major (m. sphincter ampullae hepatopancreaticae, Oddi). If a foof is not present in duodenum, bile flows back to the gall bladder (Není-li potrava ve dvanáctníku, žluč se vrací zpět do žlučníku (for thickening)

## PANCREAS

Basic functions, position, length

Parts: caput (incisura pancreatis, processus uncinatus), corpus (tuber omentale), cauda.

Surfaces: facies ant., post.

Borders: margo sup. et inf.

Excretory duct: **ductus pancreaticus major** (ampula hepatopancreatica) et **ductus pancreaticus minor** (papilla duodeni minor)

Structure: lobuli pancreatis (succus pancreaticus); Isles of Langerhans (inzuline, glukagon)

## LIEN

Basic functions, position, length, color

Surfaces: **facies diaphragmatica**, **facies visceralis** (hilus: av. lienalis, plexus lienalis)

Extremitas post. et ant.

Margo sup. et inf.

Structure: tunica fibrosa (capsula lienis), trabeculae lienis, pulpa lienis, folliculi lymphatici lienales

## **PERITONEUM**

Structure: layer of flat endothelial cells, subserous tissue

Peritoneum parietale. Peritoneum viscerale. Mesenteria

Cavitas peritonealis: **pars supramesocolica, pars inframesocolica** (organs, blood supply).

Position of organs according to the peritoneal cavity: intraperitoneal, secondarily retroperitoneal, retroperitoneal, extraperitoneal

Peritoneal folds: plica umbilicalis mediana, plicae umbilicales mediales, plicae umbilicales lat.; fossae: supravesicales, inguinales mediales, inguinales lat.

Peritoneal folds bound with organs: lig. falciforme hepatis (lig. teres hepatis), ligg. triangularia, omentum minus (lig. hepatoduodenale et hepatogastricum), omentum majus, lig. gastrocolicum, lig. gastrolienale, lig. pancreaticolienale, lig. phrenicolienale, lig. phrenicocolicum, mesenterium (line of attachment), mesocolon transversum (line of attachment), mesoappendix, mesosigmoideum.

Recessus peritonei: duodenales, ileocaecales, paracolici, intersigmoideus. Bursa omentalis (boundaries, entrance)

## **RESPIRATORY SYSTEM**

### **Overview**

- Upper respiratory tract: external nose (nasus externus), nasal cavity(cavum nasi), paranasal sinuses (sinus paranasales)
- Lower respiratory tract: larynx, wind pipe (trachea), bronchi
- Lungs (pulmones)

### **NASUS EXTERNUS**

Basic functions, shape, boundaries

Parts: radix nasi, dorsum nasi, apex nasi, alae nasi, nares

Structure: **skin** (muscles)

**ossa nasalia, maxilla** (see 1. semester)

**cartilagine nasales**: cartilago septi nasi, cartilago nasi lateralis, cartilago alaris major (crus mediale et laterale), cartilago alaris minor, cartilagine nasales accessoriae

### **CAVITAS NASALIS**

Basic functions

Entrance, nares (boundaries), exit, choanae (boundaries)

Mucous memb.: **regio respiratoria** – lokalization

**regio olfactoria** (lokalization)

Parts:

**vestibulum nasi**: limen nasi, vibrissae, recessus apicis nasi

**cavum nasi proprium**:

*septum nasi*: pars ossea (see 1. semester); pars cartilaginea; pars membranacea

*walls*: cranial, caudal, medial, lateral (see 1. semester)

Meatus nasi: superius, medius, inferius, communis, nasopharyngeus

Plexus cavernosi concharum – epistaxis

### **Sinus paranasales**

Evolution, basic function, localization, volume, openings

Sinus frontalis (septum)

Cellulae ethmoidales – ant., medii (bulla ethmoidalis), post.

Sinus sphenoidalis – wall: cranial, lateral, ventral (apertura sinus sphenoidalis)

Sinus maxillaris – wall: ventral, dorsal, cranial, medial (1. semester). Hiatus sinus maxillaris, infundibulum ethmoidale. Recessus sinus maxillaris

Examination: diaphanoskophy - obsolent, contrast X ray - obsolent, semiaxial projection.

## **LARYNX**

Position, shape

Basic structure:

**mucous membrane** (plicae ventriculares, plicae vocales)

**subcutaneous tissue**: very thin (oedema!), thick (membrana fibroelastica laryngis: membrana quadrangularis + conus elasticus)

**cartiliges** (joints)

**muscles**

Cartilagine laryngis:

**Cartilago thyroidea**: lamina dx. et sin. (linea obliqua); incisura thyroidea sup. et inf.; cornu sup. et inf. (facies art. cricoidea)

**Cartilago cricoidea**: arcus; lamina (facies articularis arytaenoidea, facies art. thyroidea).

**Cartilago arytaenoidea**: apex; basis (facies art. cricoidea, processus vocalis et muscularis); facies: anterolateralis, post., medialis

**Cartilago epiglottica**: petiolus, lamina

**Cartilago corniculata et cuneiformis**

Articulationes laryngis: articulatio cricothyroidea et cricoarytaenoidea (movements)

Syndesmoses laryngis: membrana thyrohyoidea; lig. cricotracheale; lig. thyroepiglotticum, lig. hyoepiglotticum; membrana quadrangularis (ligg. ventricularia), 2. conus elasticus (ligg. vocalia)

Musculi laryngis: division considering localization ( anterior, posterior and lateral group – origin and attachment); division according to the function. Musculus: thyroepiglotticus, aryepiglotticus, cricoarytaenoideus post., cricoarytaenoideus lat., arytaenoideus, cricothyroideus, thyroarytaenoideus, vocalis

Cavitas laryngis:

**Vestibulum laryngis**: boundaries; plicae vestibulares (structure, color), rima vestibuli.

**Glottis**: boundaries; ventriculus laryngis; plicae vocales, rima glottidis - pars intermembranacea et intercartilaginea

**Cavitas infraglottica**: extetnt

Examination: direct and indirect laryngoscopy, laryngoscopical image – position of vocal cords in fonatition and respiration

## TRACHEA

Localization, extent (C6 - cca Th4), length

Structure of wall (cartilagineae tracheales; ligg. anularia; paries membranaceus; m. trachealis)

Parts: pars cervicalis et thoracica

Bifurcatio tracheae; carina tracheae

## BRONCHI

Localization

Structure of wall

Bronchus principalis dexter et sinister (differences in diameter and course)

Arbor bronchialis: bronchi lobares, bronchi segmentales... → bronchioli ... → alveoli pulmonis

## PULMO

Localization, shape, color, function. Basic structure

Basis pulmonis, apex pulmonis

Surfaces, facies: diaphragmatica, costalis et mediastinalis (hilum pulmonis)

Margins, margines: inf., ant. (incisura cardiaca pulmonis sin.), post.

Lobes:

**pulmo sinister**: lobus sup. et inf. (lingula pulmonis sin.)

**pulmo dexter**: lobus sup., medius, inf.

Fissurae interlobares: fissura obliqua, fissura horizontalis pulmonis dextri.

Bronchopulmonal segments (count)

Nutritional and functional circulation

## PLEURA

**Pleura visceralis** (lig. pulmonale)

**Pleura parietalis**: cupula (localization); parts of pleura (according to the adjacent structures): pleura costalis, diaphragmatica et mediastinalis

Recessus pleurales: costodiaphragmaticus, costomediastinalis et phrenicomediastinalis

Cavitas pleurales

## GLANDULA THYROIDEA

Localization, color, basic functions

Lobus dexter et sinister, isthmus, lobus pyramidalis

Structure: capsula fibrosa (capsula externa + capsula propria → lobuli, folliculi)

## GLANDULA PARATHYROIDEA

Position, count, shape, size, basic functions

## THYMUS

Position, color, shape (base, apex), basic functions

Lobus dexter et sinister



Structure: capsula thymica → lobuli thymi (cortex, medulla)

## CARDIOVASCULAR SYSTEM

### Overview

- Heart (cor)
- System of vessels: arteries (arteriae), veins (venae), capillaries

### COR

Position, size, shape, function.

Axis of a heart, auscultation points of valves - A, B, C, D.

Parts: basis et apex cordis

Facies: sternocostalis, diaphragmatica

Margins: dexter (acutus) et sinister (obtusus)

Surface: sulcus interventricularis ant. et post., sulcus coronarius

Septum cordis (interatriale, interventriculare); septum atrioventriculare

Cavities of a heart:

#### **Atrium dextrum:**

shape, walls: *upper* (ostium venae cavae superioris), *lower* (ostium et valva venae cavae inf., ostium sinus coronarii, valvula sinus coronarii, venae cordis anteriores), *medial* (septum interatriale, fossa ovalis, limbus fossae ovalis), *lateral* (crista terminalis), *anterior* (ostium atrioventriculare dx., valva tricuspidalis: cuspis ant., post., septalis), *posterior* (torus intervenosus); auricula dextra

#### **Ventriculus dexter:**

shape, *inflow part* (pars trabecularis): ostium atrioventriculare dx., valva tricuspidalis, (cuspis ant., post., septalis), chordae tendineae, mm. papillares (ant., post., septalis), crista supraventricularis  
*outflow part* (pars glabra): ostium trunci pulmonalis, valva trunci pulmonalis (valvulae semilunaris ant., dx., sin.).

**Atrium sinister:** fossa ovalis, ostia venarum pulmonalium, auricula sinistra

**Ventriculus sinister:** shape, *inflow part* (pars trabecularis): ostium atrioventriculare sin., valva bicuspidalis (cuspis ant. et post.), chordae tendinae, mm. papillares (ant. et post.) *outflow part* (pars glabra): ostium aortae valva semilunaris aortae (valvula semilunaris post., dx., sin.)

Structure of wall: endocardium, myocardium (working, conductive), epicardium.

Pericard (perikardium): fibrosum, serosum; porta arteriarum et venarum; sinus obliquus et transversus.

Skeleton of heart (anulus fibrosus dx. et sin., anulus aorticus, anulus trunci pulmonalis, trigonum fibrosum dx. et sin., konusová šlacha).

Inervation: **Conductive system of heart:** nodus sinuatrialis et atrioventricularis, fasciculus atrioventricularis, crus dx. et sin. (branches of Tawar), fibres of Purkynje. Accessory connections. Modulation of heart labor: plexus cardiacus superficialis et prof. (sympathetic fibres - nn. cardiaci; parasympathetic fibres- rr. cardiaci)

Nourishment:

**aa. coronariae cordis:** leaving from aorta, position, region of blood supply. A. coronaria cordis sin.: r. interventricularis ant., r. circumflexus; a. coronaria cordis dx.: r. interventricularis post.

Branches from both aa. coronariae: r. coni arteriosi, rr. atriales, rr. ventriculares, rr. septales, rr. marginales, rr. nodi sinuatriales/atrioventriculares

**venae cordis:** localization, place of inflow, tributary regions. Sinus coronarius (vena cordis magna, media et parva); vv. cordis anteriores; vv. cordis minimae

Lymphatic vessels: lymphatic plexuses, truncus lymphaticus anterior dx. et sin.

X-ray:

- native X-ray of a thorax (posteroanterior projection, describe and show right and left border of a heart shade)
- contrast examination of coronary arteries - coronarography - PTCA

## ARTERIAE

Basic structure of wall: tunica intima, media, externa

In each artery briefly course and region of nourishment

### **Aorta ascendens**

Borders, bulbus aortae, sinus aortae

- Aa. coronariae cordis

### **Arcus aortae**

Borders

- Truncus brachiocephalicus (a. carotis communis dx, a. subclavia dx)
- A. carotis communis sin.
- A. subclavia sin.

### **A. carotis communis**

Course on a neck

### **A. carotis externa**

(detailed knowledge of the course!)

*Anterior branches:*

- A. thyroidea superior (a. laryngea sup.)
- A. lingualis (a. sublingualis, rr. dorsales linguae, a. profunda linguae)
- A. facialis (a. palatina ascendens, r. tonsillaris, a. submentalis, a. labialis sup. et inf., arcus labialis superior et inferior, a. alaris nasi, a. angularis)

*Lateral branches*

- A. sternocleidomastoidea

*Dorsal branches*

- A. occipitalis
- A. auricularis post. (rr. glandulares, r. auricularis, a. stylomastoidea, a. tympanica post.)

*Medial branches*

- A. pharyngea ascendens (a. meningea post., a. tympanica inf.)

*Terminal branches*

- A. temporalis superficialis (rr. parotidei, a. temporalis media, rr. auriculares ant., r. frontalis et parietalis)
- A. maxillaris
  - pars mandibularis (a. meningea media, a. alveolaris inf.)
  - pars pterygoidea (a. masseterica, aa. temporales profundae, rr. pterygoidei, a. buccalis)
  - pars pterygopalatina (a. infraorbitalis, a. palatina descendens, a. sphenopalatina)

### **A. carotis interna**

( 3. semester)

### **A. subclavia**

Boundaries; fissura scalenorum

- A. vertebralis (CNS – 3. semester)
- A. thoracica interna
  - rr. mediastinales
  - a. pericardiacophrenica
  - rr. intercostales ant.
  - a. musculophrenica

- a. epigastrica superior
- Truncus thyrocervicalis
  - a. thyroidea inf. (a. laryngea inf., rr. tracheales, rr. pharyngeales, rr. oesophageales)
  - a. cervicalis ascendens
  - a. cervicalis superficialis
- Truncus costocervicalis (a. cervicalis prof., a. intercostalis suprema)
- A. transversa colli
- A. suprascapularis

### **A. axillaris**

#### Boundaries

- Rr. subscapulares
- A. thoracica suprema
- A. thoracoacromialis
- A. thoracica lateralis
- A. subscapularis (a. circumflexa scapulae, a. thoracodorsalis)
- A. circumflexa humeri ant. et post.

### **A. brachialis**

#### Boundaries, sulcus bicipitalis medialis

- A. profunda brachii - course (a. collateralis media, a. collateralis radialis)
- A. collateralis ulnaris sup. et inf.

### **A. radialis**

#### Relation to canalis carpi

- A. recurrens radialis
- R. carpeus dorsalis (rete carpi dorsale, aa. metacarpeae dorsales, aa. digitales dorsales)
- A. metacarpea dorsalis prima (aa. digitales dorsales)
- A. princeps pollicis (aa. digitales palmares)
- R. palmaris superficialis et profundus

### **A. ulnaris**

#### Relation to canalis carpi

- A. recurrens ulnaris
- A. interossea communis (a. interossea ant. et post.)
- R. carpeus dorsalis (rete carpi dorsale, aa. metacarpeae dorsales, aa. digitales dorsales)
- R. palmaris superficialis et profundus

Rete articulare cubiti (a. brachialis, a. radialis, a. ulnaris)

Arcus palmaris superficialis et profundus (aa. metacarpeae palmares, aa. digitales palmares)

### **Aorta thoracica**

Boundaries, position (posterior mediastinum)

#### *Parietal branches*

- Aa. intercostales post.
- Aa. phrenicae superiores

#### *Visceral branches*

- Rr. bronchiales, oesophagei, pericardiaci

### **Aorta abdominalis**

Boundaries, position (retroperitoneal)

#### *Parietal branches*

- Aa. phrenicae inf. (a. suprarenalis sup.)

- Aa. lumbales

*Visceral branches - paired*

- Aa. suprarenales mediae
- Aa. renales (rr. ureterici, a. suprarenalis inf.)
- Aa. testiculares / aa. ovaricae

*Visceral branches - unpaired*

- Truncus coeliacus
  - a. gastrica sin.
  - a. hepatica communis: hepatica propria (a. cystica), a. gastroduodenalis (a. gastroepiploica dx. et a. pancreaticoduodenalis sup.)
  - a. lienalis (rr. pancreatici, a. gastroepiploica sin., aa. gastricae breves, rr. lienales)
- A. mesenterica sup.
  - a. pancreaticoduodenalis inf.
  - aa. jejunales et ilei
  - a. ileocolica
  - a. colica dextra
  - a. colica media
- A. mesenterica inf.
  - a. colica sin. (ramus ascendens et descendens)
  - aa. sigmoideae
  - a. rectalis sup.

**Arteria iliaca communis**

Boundaries, position (retroperitoneal)

- A. sacralis mediana

**A. iliaca interna**

*Parietal branches*

- A. iliolumbalis
- A. sacralis lateralis
- A. obturatoria
- A. glutea sup. et inf.
- A. pudenda interna (canalis pudendalis)
  - a. rectalis inf.
  - a. perinealis
  - a. penis (a. bulbi penis, a. urethralis, a. dorsalis penis, a. profunda penis) or a. clitoridis (a. bulbi vestibuli, a. dorsalis clitoridis, a. profunda clitoridis)

*Visceral branches*

- A. umbilicalis (a. vesicalis sup.)
- A. vesicalis inf.
- A. rectalis media
- A. uterina - ♀ (r. uretericus, rr. uterini, r. tubarius, r. ovaricus, a. vaginalis) or a. ductus deferentis - ♂

**A. iliaca externa**

Boundaries; lacuna vasorum

- A. epigastrica inf.
- A. circumflexa ilium prof.

**A. femoralis**

Boundaries; fossa iliopectinea, canalis adductorius (lamina vastoadductoria), hiatus adductorius

- A. epigastrica superficialis
- A. circumflexa ilium superficialis
- Aa. pudendae externae
- A. profunda femoris

- a. circumflexa femoris medialis
  - a. circumflexa femoris lateralis (r. ascendens et descendens)
  - aa. perforantes
- A. genus descendens

#### **A. poplitea**

- Aa. surales
- Aa. genus sup., media et inf.

#### **A. tibialis anterior**

- Aa. recurrentes
- A. malleolaris anterior medialis et lateralis
- A. dorsalis pedis:
  - aa. tarseae mediales
  - a. tarsea lateralis (anastomosa s a. arcuata)
  - a. arcuata (aa. metatarsae dorsales, aa. digitales dorsales)
  - a. metatarsa dorsalis prima (aa. digitales dorsales)
  - r. plantaris profundus (napojení na arcus plantaris)

#### **A. tibialis posterior**

- R. circumflexus fibulae
- A. peronea (rr. malleolares laterales, rr. calcanei laterales)
- Rr. malleolares mediales
- Rr. calcanei mediales
- A. plantaris medialis (r. superficialis et prof.)
- A. plantaris lateralis (arcus plantaris, aa. metatarsae plantares, aa. digitales plantares)

Rete articulare genus (a. femoralis, a. poplitea, aa. tibiales)

## VENAE

Basic structure of wall (tunica intima, media, externa). In each vein tributary region, in large veins briefly course.

X-ray of vessels: angiography (arteries– arteriography, veins– phlebography)

**remark: by Origin is meant, from which vessels is formerly mentioned vein actually constituted**

#### **V. cava superior**

Origin, position, tributary region

- v. azygos

#### **Vv. brachiocephalicae**

Origin, position, tributary region, difference between left and right vein

- vv. thyroideae inf.
- v. vertebralis
- v. thoracica interna (v. epigastrica sup. a v. musculophrenica)
- mediastinal organs (vv. thymicae, tracheales, bronchiales, esophageales, pericardiacae)

#### **V. jugularis interna**

Origin, position, bulbus sup. et inf., tributary regions

- *Intracranial inflows:*
  - sinus durae matris
  - vv. cerebri

- vv. diploicae
- vv. meningeae
- vv. emissariae
- vv. ophtalmicae
- *Extracranial inflows:*
  - v. retromandibularis (v. temporalis superf., v. maxillaris, plexus pterygoideus)
  - v. facialis (v. profunda faciei)
  - v. lingualis
  - vv. thyroideae sup.
  - vv. pharyngeae
  - (v. transversa colli, v. suprascapularis)

### **V. jugularis externa**

Origin, position, tributary region

- v. auricularis post.
- v. occipitalis
- vv. jugulares ant. (arcus venosus juguli)

### **V. subclavia**

Origin, position, tributary region

- (v. transversa colli, v. suprascapularis)

### **V. axillaris**

Origin, position, tributary region

- v. thoracoepigastrica
- v. thoracica lateralis
- v. cephalica

### **Veins of upper extremity**

Profound and superficial system, differences

**Profound veins:** vv. digitales, radiales, ulnares, interosseae antebrachii, brachiales

**Superficial veins:** rete venosus dorsale manus, rete venosus palmare manus, vv. intercapitulares, v. basilica, v. cephalica (v. mediana cubiti, v. mediana antebrachii)

### **V. cava inferior**

Origin, position, tributary region

- *Parietal inflows:*
  - vv. iliacae communes
  - vv. lumbales
  - vv. phrenicae inf.
- *Visceral inflows:*
  - vv. testiculares / vv. ovaricae
  - vv. renales
  - vv. suprarenales
  - vv. hepaticae

### **Vv. iliacae communes**

Origin, position, tributary region

- v. sacralis mediana

### **V. iliaca interna**

Origin, position, tributary region

- *Parietal inflows:*

- vv. iliolumbales
- sacrales lat.
- gluteae sup. et inf.
- obturatoriae
- pudendae int.
- *Visceral inflows:*
  - plexus venosus vesicalis
  - plexus venosus prostaticus
  - plexus venosus uterinus, vaginalis
  - plexus venosus rectalis (vv. rectales sup. mediae et inf.)

### V. iliaca externa

Origin, position, tributary region

- v. epigastrica inf.
- v. circumflexa ilium prof.

### Veins of lower extremity

Profound and superficial system, differences, perforators

Profound veins of LE: vv. digitales, metatarsales, vv. tibiales ant. et post., vv. peroneae, v. poplitea, v. femoralis (v. profunda femoris, vv. perforantes, v. circumflexa femoris medialis et lateralis)

Superficial veins of LE: rete venosum dorsale pedis, rete venosum plantare pedis, vv. intercapitulares, v. saphena parva (v. femoropoplitea), v. saphena magna (v. saphena accessoria, epigastrica superficialis, circumflexa ilium superficialis, vv. pudendae externae)

### Outflow of blood from vertebrae

- plexus venosi vertebrales int.
- plexus venosi vertebrales ext.

Position, course of blood flow

### V. portae

Origin, position, tributary region

- v. mesenterica sup.: head of pancreas, duodenum, stomach, small intestine, oral part of large intestine
- v. lienalis: body and tail of pancreas, stomach, spleen
  - v. mesenterica inf. (aboral part of large intestine)
- vv. cysticae

### Portocaval anastomoses and their importance

1. connections between vv. oesophageae (inflow to v. cava sup.) and vv. gastricae (inflow to v. portae)
2. connections around umbilicus: vv. paraumbilicales in lig. teres hepatis directs blood to umbilicus („caput Medusae“). Outflow to v. cava sup.: through v. thoracoepigastrica and v. epigastrica sup. Outflow to v. cava inf.: through v. epigastrica superficialis a v. epigastrica inf.
3. connections around rectum: v. rectalis sup. (inflow to v. portae); v. rectalis media a inf. (inflow to v. cava inf.)

### Cavocaval anastomoses

V. azygos, position, tributary region

- vv. lumbales
- vv. intercostales post.
- v. hemiazygos (v. hemiazygos accessoria)
- vv. phrenicae sup.
- veins for organs of mediastinum (vv. esophageae, bronchiales, pericardicae)

### **Fetal blood circulation**

Oxygenated blood from placenta: umbilical cord, v. umbilicalis, v. cava inf. (through ductus venosus or v. portae), atrium dx., foramen ovale, atrium sin., ventriculus sin., branches of arcus aortae

Deoxygenated blood from fetus:

- **v. cava sup.**, atrium dx., ventriculus dx., truncus pulmonalis, ductus arteriosus, aorta descendens
- **aa. iliacae internae:**
  - v. cava inf., atrium dx....
  - pupeční provazec, placenta

Condition after birth and interruption of umbilical cord:

V. umbilicalis = lig.teres hepatis, ductus venosus = lig. venosum, aa. umbilicales = ligg.umbilicalia medialis (+ non-obliterated aa.vesicales sup.), foramen ovale = septum secundum (fossa ovalis), ductus arteriosus = lig. arteriosum.

## **LYMPHATIC SYSTEM**

### **Overview**

- Lymph (lymph)
- lymphatic vessels (vasa lymphatica), lymphatic stems (truncus lymphaticus dx., ductus thoracicus),
- Lymphatic follicles, lymphatic nodes (nodi lymphatici), tonsiles (tonsilae), spleen (lien), thymus (thymus)

Function of lymphatic system

X-ray exam.: lymphography

### **Lymph**

Formation, amount, qualities, daily production, circulation

### **Lymphatic vessels**

profound and superficial; structure; valves; tissues without lymphatic vessels

### **Trunci lymphatici**

- **Ductus thoracicus:** drained region, length, place of formation, parts (truncus lumbalis dx. et sin., truncus intestinalis; cisterna chyli). Pars: abdominalis, thoracica, cervicalis. Inflows: truncus jugularis sin., truncus subclavius sin., truncus bronchomediastinalis sin.
- **Ductus lymphaticus dexter:** drained region, place of formation, parts (truncus jugularis dx., truncus subclavius dx., truncus bronchomediastinalis dx.)

### **Lymphatic follicles**

Localization, function

### **Tonsillae**

Localization, function. Tonsilla: palatina, tubaria, lingualis, pharyngea, abdominalis

### **Nodi lymphatici**

Shape, size, color, function (filtration, imunobiological), regional lymph nodes.

Structure: capsula, trabeculae, cortex, medulla, sinuses, vasa afferentia, vas efferens, hilus

**In each group of lymph nodes is necessary to know: tributary region (drained region) and outflow to more distant lymph nodes!**



### **Lymph nodes of head**

Nodi lymphatici: occipitales, retroauriculares, parotidei, submandibulares, submentales, retropharyngei.  
More forwarded lymph nodes (nll. faciales).

### **Lymph nodes of neck**

Nodi lymphatici cervicales superficiales: localization, concomitant veins

Nodi lymphatici cervicales profundi: localization, concomitant structures. Nodus jugulodigastricus, juguloomoioideus, tonsillaris (lymph node of Wood)

### **Lymph nodes and vessels of upper extremity**

Superficial lymph vessels: lateral, medial and anterior collectors

Profound vessels

Nodi lymphatici:

- cubitales: superficiales et profundi
- axillares: laterales, subscapulares, pectorales, interpectorales, centrales, apicales (infraclaviculares)

### **Lymph nodes of thorax**

Visceral – nodi lymphatici: pulmonales, bronchopulmonales, bronchiales, tracheobronchiales, paratracheales, mediastinales ant. et post.

Parietal – nodi lymphatici: phrenici sup., parasternales, intercostales

### **Lymph nodes of abdomen and pelvis**

- Nodi lymphatici coeliaci (stomach, liver, pancreas, duodenum, spleen, small and large intestine)  
→ **truncus intestinalis**
  
- Nodi lymphatici:
  - iliaci externi
  - iliaci interni (paravesicales, paravaginales, parauterini, pararectales)
  - iliaci communes
  - lumbales
  - sacrales→ **trunci lumbales**

### **Lymph nodes and vessels of lower extremity**

Superficial vessels (lateral, medial and posterior collectors)

Profound vessels

Nodi lymphatici:

- poplitei superficialis et profundi
- inguinales superficiales et profundi

### **Lien**

Position, shape, size, function

Margo: superius et inferius

Facies: diaphragmatica et visceralis

Extremitas: ant. et post.

Hilus lienis

Structure: tunica fibrosa, trabeculae lienis, pulpa lienis alba et rubra.

Blood supply: a. et v. lienalis

### **Thymus**

Size, color, position, function, involution

Lobus: dexter et sinister

Structure: capsula thymi, septa, lobuli, cortex, medulla thymi, reticulum thymi

Blood supply: branches of a. subclavia, inflow to vv. brachiocephalicae

## URINARY SYSTEM

### Overview

- Kidney (ren)
- Excretory urinary pathway: renal calyces (calices renales), pelvis of kidney (pelvis renalis), ureter, urinary bladder (vesica urinaria), urethra

### REN

Position, shape, size, color, function. Basic topographical relations.

Facies: anterior et posterior

Extremitas: superior et inferior

Margo: lateralis et medialis (hilum renale, sinus renalis)

Coverings of kidney: fascia renalis (lamina praerenalis et retrorenalis, capsula adiposa), corpus adiposum pararenale

Structure of kidney:

**capsula fibrosa**

**cortex renalis**: columnae renales, pars radiata corticis

**medulla renalis**: pyramides renales, papillae renales, foramina papillaria (area cribrosa)

Lobi renales

Blood supply: arteria renalis (rr. prepelvicici et r. retropelvicus) → aa. lobares → aa. interlobares → arcuatae: rr. capsulares (surface of kidney), aa. rectae (medulla), aa. interlobulares (cortex): vas afferens-vas efferens, peritubular plexuses → aa. rectae (medulla).

Aa. renales accessoriae

**Nefron** (location, count, function)

- Malpighian corpuscle= glomerulus + capsula glomeruli
- tubuli: proximalis → Loop of Henle → distalis (→ colligentes → ductus papillaris)

Production of urine (anatomical background):

- **inner layer of capsula glomeruli** - glomerular filtration (primary urine 180 l)
- **peritubular plexuses** - tubular resorption and secretion (secondary urine 1,5 l)

### CALICES RENALES, PELVIS RENALIS

**Calices renales minores et majores**: position, count, structure

**Pelvis renalis**: position, shape capacity, type

### URETER

Position, length, function

Parts: pars abdominalis, pelvina et intramuralis (ostium ureteris)

Physiological constrictions of ureter: exit from pelvis renalis, crossing with vasa iliaca, pars intramuralis

Structure of wall: tunica mucosa (type of epithelium, folds)  
tunica muscularis (layers)  
adventicia

X-ray examination: ascending pyelography; IVU-intravenous urography

## VESICA URINARIA

Position, basic topographic relations (ligg. pubovesicalia, ligg. puboprostatica (♀); ligg. vesicouterina (♂). Fascia vesicoumbilicalis (lig. umbilicale medianum, ligg. umbilicalia medialis). Excavatio: rectovesicalis (♀); vesicouterinum (♂)

Shape, function, capacity

Parts: fundus (cervix), corpus, apex

Walls: ventrocaudal, dorsocranial (facies intestinalis).

Structure:

**tunica mucosa**: type of epithelium, folds. Trigonum vesicae: ostia ureterum, plica interureterica, fossa retrotrigonalis, ostium urethrae internum, uvula vesicae; m. trigonalis  
**tela submucosa**

**tunica muscularis** (layers; m. sphincter vesicae, vagina ureterica)

**adventitia** (cranially serous membrane). Paracystium

X-ray exam.: cystography

## URETHRA FEMININA

Position, basic topographic relations, length, function

Beginning: ostium urethrae internum; opening: ostium urethrae externum (papilla urethralis)

Parts: pars intramuralis, pelvina, diaphragmatica (m. sphincter urethrae), perinealis

Structure:

**tunica mucosa**. crista urethralis, lacunae urethrales, glandulae urethrales, ductus paraurethrales

**tela submucosa**

**tunica muscularis**: m. sphincter urethrae internus et externus

**adventitia**

## GLANDULAE SUPRARENALES

Position, shape, color, function

Facies: anterior (hilus, v. suprarenalis), posterior et inferior (renalis)

Structure: cortex, medulla

## FEMALE GENITAL SYSTEM

**Overview:**

- External female genital organs: mons pubis, labia majora et minora pudendi, clitoris, bulbi vestibuli, glandulae bulbourethrales majores et minores, vestibulum vaginae

- Internal female genital organs: ovarium, Fallopian tube (tuba uterina), uterus (hystera, metra), vagina (kolpos)

### **MONS PUBIS**

Position, shape

Structure: skin (hair - pubes), adipose tissue

### **LABIA MAJORA PUDENDI**

Position, length

Commissura labiorum ant. et post. Rima pudendi

Structure: skin  
adipose tissue

### **LABIA MINORA PUDENDI**

Position, size

Praeputium clitoridis (glandulae preputiales, smegma), frenulum clitoridis

Structure: skin  
fibrous tissue + venous plexuses

### **VESTIBULUM VAGINAE**

Position

Papilla urethralis, ostium urethrae externum

Ostium vaginae (hymen, carunculae hymenales)

Glandulae vestibulares minores (position, size, function)

### **CLITORIS**

Position, length

Parts: crura (m. ischiocavernosus), corpus, glans

Corpora cavernosa clitoridis (fascia clitoridis)

Ligamentum suspensorium et fundiforme clitoridis

### **BULBUS VESTIBULI**

Position, size, shape, function. M. bulbospongiosus

Structure: fibrous capsule  
venous plexuses, fibrous tissue, smooth muscles

### **GLANDULAE VESTIBULARES MAJORES**

Position, size, function

### **OVARIUM**

Position, size, shape, function.

Facies: medialis et lateralis

Margo anterior, mesovaricus (mesovarium, hilus ovarii) et margo posterior, liber  
Extremitas: tubaria (lig. suspensorium ovarii) et uterina (lig. ovarii proprium)  
Structure: tunica albuginea; cortex ovarii (primary, secondary follicles, follicle of Graaf);  
medulla ovarii  
Descensus ovarii

### **TUBA UTERINA (SALPINX)**

Position, length, course, function.

Beginnig: ostium abdominale tubae uterinae. End: ostium uterinum tubae uterinae.

Parts: infundibulum (fimbriae tubae, fimbria ovarica), ampulla, isthmus, pars uterina  
Mesosalpinx

Structure: tunica mucosa (plicae tubariae), muscularis et serosa

### **UTERUS (METRA, HYSTERA)**

Position, shape, function, posture (anteversion, anteflexion).

Parts: corpus uteri (fundus, cornua), isthmus uteri, cervix uteri (portio supravaginalis, portio vaginalis – fornix vaginae)

Walls: facies: vesicalis et intestinalis

Margo: dexter et sinister

Cavities: cavitas uteri, canalis isthmi, canalis cervicis (plicae palmatae). Ostium internum canalis cervicis; ostium externum canalis cervicis

Structure:

**tunica mucosa** (endometrium: zona functionalis et basalis; glandulae uterinae, glandulae cervicales)

**tunica muscularis** (myometrium)

**serous membrane** (perimetrium, lig. latum uteri)

Parametrium – ligamentum: cardinale uteri, rectouterinum, sacrouterinum, pubovesicale, teres uteri)

X-ray exam.: hysterosalpingography

### **VAGINA (KOLPOS)**

Position, length, function.

Entrance: ostium vaginae

Paries: anterior et posterior

Structure:

**tunica mucosa** (rugae vaginales - columna rugarum ant. et post.; carina urethralis vaginae)

**tunica muscularis**

**adventitia**

## **MALE GENITAL SYSTEM**

## Overview:

- External male genital organs: scrotum, penis
- Internal male genital organs: testis, epididymis, sperm duct (ductus deferens), funiculus spermaticus, seminal vesicles (vesiculae seminales), prostate (prostata), glandulae bulbourethrales

## SCROTUM

Position, shape, function

Septum scroti, cavitas scroti

Structure:

**skin** (raphe scroti, tunica dartos)

**fascia spermatica ext.** (continuation of fascia abdominalis superficialis)

**m. cremaster** + fascia cremasterica (from m. obliquus internus and m. transversus abdominis)

**fascia spermatica int.** (from fascia transversalis)

**lamina parietalis tunicae vaginalis testis**

## PENIS

Position, length, function.

Suspensory apparatus: ligamentum fundiforme et suspensorium penis

Parts: radix, corpus, glans penis (collum glandis, corona glandis)

Facies: dorsalis et urethralis (raphe penis)

Structure:

**skin** (preputium, frenulum preputii, glandulae preputiales, smegma preputii, tunica dartos)

**fascia penis superficialis et profunda**

**corpus cavernosum**: crura (m. ischiocavernosus, septum penis); **corpus spongiosum**: bulbus (m. bulbospongiosus), corpus, glans (ostium urethrae externum)

Structure of cavernous bodies: tunica albuginea → trabeculae, cavernae.

Erection. Blood supply: a. et v. penis (bulbi penis, urethralis, dorsalis penis, profunda penis – aa. helicinae /vv. cavernosae)

## URETHRA MASCULINA

Position, length, function

Beginning: ostium urethrae int.

Opening: ostium urethrae ext.

Parts:

**pars intramuralis** (m. sphincter vesicae)

**pars prostatica** (crista urethralis, colliculus seminalis, ductuli prostatici, ductuli ejaculatorii)

**pars membranacea** (m. sphincter urethrae ext.)

**pars spongiosa** (glandulae bulbourethrales, fossa navicularis, valvula fossae navicularis, recessus fossae navicularis)

Curves: curvatura subpubica et prepubica

Structure: tunica mucosa (glandulae urethrales, lacunae urethrales, ductus paraurethrales)  
tela submucosa

tunica muscularis (layers)

## TESTIS

Position, shape, size, function (sperms, testosterone!)

Facies: lateralis et medialis

Extremitas: superior et inferior

Margins: margo anterior et posterior (hilum testis)

Structure: **lamina visceralis tunicae vaginalis testis**

**tunica albuginea**: mediastinum testis → septula testis → lobuli testis (tubuli seminiferi contorti → tubuli seminiferi recti → rete testis → ductuli efferentes testis)

## EPIDIDYMIS

Position (sinus epididymidis, lig. epididymidis sup. et inf.), shape, function

Outer description: caput, corpus, cauda, ductus deferens

Structure: **lamina visceralis tunicae vaginalis testis**

**fibrous covering**: lobuli epididymidis, tubuli epididymidis, ductus epididymidis, ductus deferens

## Descent of testes and epididymides

Processus vaginalis peritonei (lamina parietalis, et visceralis) → lig. vaginale; cavum serosum scroti; gubernaculum testis → lig. scrotale

Reason of descent; retention, ectopy

## DUCTUS DEFERENS

Position, length, function

Course: pars epididymica, inguinalis et pelvina

Parts: ductus deferens, ampulla ductus deferentis + ductus excretorius → ductus ejaculatorius

Structure:

**tunica mucosa (folds, diverticles)**

**tunica muscularis (layers)**

**adventitia**

## FUNICULUS SPERMATICUS

Course, function

Components:

**ductus deferens**

**a. ductus deferentis** (+ plexus deferentialis)

**a. testicularis** (+ plexus testicularis)

**plexus pampiniformis**

**lymphatic vessels**

fibrous tissue

Coverings: m. cremaster, fascia spermatica ext. et int.

## VESICULAE SEMINALES

Position, size, shape, function.

Parts: corpus, ductus excretorius

Structure: tubulus: tunica mucosa (folds), muscular layer (layers) et adventitia

Possibilities of examination - ultrasound (transrectal)

## PROSTATATA

Position, shape, size, function

Parts: basis prostatae, apex prostatae.

Facies: anterior, posterior, laterales

Lobus: anterior (isthmus), medius, dexter, sinister, posterior.

Zones: periurethral, internal, external

Structure:

**capsula periprostatica**

**capsula propria**

**glandulae prostaticae → ductuli prostatici**

**fibrous tissue, muscles**

## GLANDULAE BULBOURETHRALES

Position, count, size, function

Ductus glandulae bulbourethralis

## PELVIC FLOOR

### **Diaphragma pelvis**

M. levator ani: pars iliaca (arcus tendineus m. levatoris ani), pars pubica.

M. coccygeus

Hiatus urogenitalis

Fascia diaphragmatis pelvis inferior

### **Diaphragma urogenitale (deep perineal pouch)**

M. transversus perinei profundus (m. sphincter urethrae), (m. compressor urethrae, m. urethrovaginalis only ♀); ligamentum transversum perinei

M. transversus perinei superficialis (only ♀)

Fascia diaphragmatis urogenitalis inferior (perineal membrane)

### **Mm. perinei (superficial perineal pouch)**

M. ischiocavernosus, (function); m. bulbospongiosus (function)

M. sphincter ani externus

Fascia perinei superficialis

### **Fasciae pelvis**

Fascia pelvis parietalis (fascia obturatoria, fascia diaphragmatis pelvis superior et inf., fascia diaphragmatis urogenitalis superior)

Fascia pelvis visceralis