

MOČOVÉ ÚSTROJÍ

Overview

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

LEDVINA

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. prepelvici 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, řasy. 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; vyústění: 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, testosteron !)

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)

PROSTATA

Position, shape, size, function

Parts: basis prostatae, apex prostatae.

Facies: anterior, posterior, laterales

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

Zones: zóna periuretrální, vnitřní, zevní

Structure:

capsula periprostatica

capsula propria

glandulae prostaticae → ductuli prostatici

fibrous tissue, muscles

GLANDULAE BULBOURETHRALES

Position, count, size, function

Ductus glandulae bulbourethralis

SVALOVÉ DNO PÁNEVNÍ

Diaphragma pelvis

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

M. coccygeus

Hiatus urogenitalis

Fascia diaphragmatis pelvis inferior

Diaphragma urogenitale

M. transversus perinei profundus (m. sphincter urethrae); ligamentum transversum perinei

M. transversus perinei superficialis (jen ♀)

Fascia diaphragmatis urogenitalis inferior

Mm. perinei

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

Fascia perinei superficialis

Fasciae pelvis

Fascia pelvis parietalis (fascia obturatoria, fascia diaphragmatis pelvis superior, fascia diaphragmatis urogenitalis superior)

Fascia pelvis visceralis