ABDOMEN

Session I - Anterior abdominal wall - Rectus sheath

Surface landmarks

- Costal margins- right & left
- Pubic symphysis, tubercle
- Anterior superior iliac spine
- Iliac crest
- Umbilicus, linea semilunaris
- Mid-inguinal point &
- Midpoint of inguinal ligament
- Transpyloric & transtubercular planes
- Right & left lateral (vertical) planes
- Nine abdominal regions – right & left hypochondriac, epigastric, right & left lumbar, umbilical, right & left iliac fossae, hypogastric
- Region of external genitalia (tenth region)
- Terms of common usage for regions in the abdomen —

  Abdomen proper, pelvis, perineum, loin, groin, flanks

Bones

- Lumbar vertebrae, sacrum, coccyx

Dissection

- Superficial fascia (fatty layer, membranous layer)
- External oblique muscle
- Superficial inguinal ring
- Linea alba
- Lateral and anterior cutaneous branches of lower intercostal nerves
- Anterior wall of rectus sheath
- Rectus abdominis & pyramidalis
- Superior & inferior epigastric vessels
- Posterior wall, arcuate line
- Internal oblique & transversus abdominis muscles
- Fascia transversalis

Self-study

- Attachments, nerve supply & actions of external oblique, internal oblique, transversus abdominis, rectus abdominis, pyramidalis
- Formation, contents and applied anatomy of rectus sheath
- Nerve supply, blood supply & lymphatic drainage of anterior abdominal wall

Session II - Inguinal Canal

Dissection

- Aponeurosis of external oblique
- Superficial inguinal ring
- Inguinal ligament
- Arching fibres of internal oblique
- Conjoint tendon (falx inguinalis)
- Transversus abdominis
- Fascia transversalis
- Deep inguinal ring
- Spermatic cord (in males) / Round ligament of uterus (in females)
- Cremaster muscle
- Ilioinguinal nerve

Self-study

- Boundaries of inguinal canal
- Contents of inguinal canal (in males and in females)
- Applied anatomy of inguinal canal
- Inguinal hernia -
  - Direct (Hesselbach's triangle)
  - Indirect
  - Mechanisms of inguinal canal to prevent inguinal hernia
- Umbilical hernia

Session III - Male External Genitalia

Dissection

Scrotum

- Dartos muscle
- Spermatic cord
- Ductus deferens
- Coverings

Testis & Epididymis

- Coverings including tunica vaginalis
- Head, body & tail of epididymis
- Sinus of epididymis
- Appendix of testis & epididymis
- Sagittal section of testis
- Septa, Lobules
- Seminiferous tubules
- Rete testis

Penis

- Glans penis
- Prepuce
- Fundiform ligament
- Dorsal vessels & nerves
- T.S. of penis
- Corpora cavernosa
- Corpus spongiosum
- Penile part of urethra

Self-study

- Coverings & contents of spermatic cord
- Morphology, blood supply, lymphatic drainage, nerve supply & development of testis
- Side identification and anatomical position of testis
- Applied anatomy
  - Undescended testis
  - Ectopic testis
  - Varicocoele
  - Hydrocoele
  - Torsion of testis

ABDOMEN

Session IV - Loin

Dissection

- Lumbar triangles -
  superior (renal angle) & inferior (Petit's)
- Thoracolumbar fascia -
  posterior, middle and anterior layers
- Latissimus dorsi
- External oblique
- Erector spinae - parts
- Quadratus lumborum
- Posterior surface of kidney

Self-study

- Attachments & relations of the three layers of thoracolumbar fascia
- Attachments, nerve supply & actions of
  - Erector spinae (with components)
  - Quadratus lumborum

Session V - The Abdominal Cavity - Peritoneum

Layers

- Parietal peritoneum
- Visceral peritoneum

Peritoneal cavity

- Greater sac
- Lesser sac

Compartments

- Supracolic
- Infracolic
- Subhepatic (subphrenic) spaces
  - ➢ Right anterior intraperitoneal
  - ➢ Right posterior intraperitoneal (Hepato-renal pouch of Morrison)
  - ➢ Right extraperitoneal
  - ➢ Left anterior intraperitoneal
  - ➢ Left posterior intraperitoneal (Lesser sac)
  - ➢ Left extraperitoneal

Self-study

- Boundaries & divisions of abdominal cavity
- Divisions of peritoneal cavity
- Boundaries and clinical importance of epiploic foramen
- Boundaries, recesses & clinical importance of omental bursa
- Extent, attachments and contents of various peritoneal ligaments/ mesentery/ mesocolon

General lie of abdominal viscera in situ

Peritoneal reflections

- Greater omentum
- Lesser omentum
- Falciform ligament
- Ligamentum teres of liver
- Superior & inferior leaves of coronary ligament
- Right triangular ligament
- Left triangular ligament
- Gastro-phrenic ligament
- Gastro-splenic ligament
- Lieno-renal ligament
- Phrenico-colic ligament
- Epiploic foramen
- Median & lateral umbilical ligaments
- Structures crossed by root of mesentery
- Mesentery of jejunum and ileum
- Transverse mesocolon
- Sigmoid mesocolon
- Gastro-epiploic vesels in greater omentum
- Hepatic artery, bile duct & portal vein in lesser omentum

Session VI - Abdominal Cavity - Stomach & Spleen

Dissection

- Coeliac trunk
- Left gastric artery
- Splenic artery
- Common hepatic artery

Stomach

- Cardiac & pyloric ends
- Greater & lesser curvatures
- Incisura angularis
- Pyloric sphincter
- Interior - rugae & gastric pits

Spleen

- Borders, surfaces & poles
- Visceral impressions & hilum

Self-study

- Morphology (with anatomical position), relations, blood supply, nerve supply, lymphatic drainage, internal structure, functions and applied anatomy of stomach
- Morphology (with anatomical position), relations, blood supply, internal structure, functions, splenic segments and applied anatomy of spleen
- Origin, relations, branches & distribution of coeliac trunk
- Formation, course, relations, termination, tributaries and applied anatomy of portal vein

Removal of stomach and spleen

Session VII - Mesentery, Small Intestine and Large Intestine

Dissection

- Root of mesentery
- Superior mesenteric vessels
- Inferior pancreatico-duodenal artery
- Jejunal & ileal branches
- Ileocolic artery
- Right colic artery
- Middle colic artery
- **Small intestine**
  - ➢ Duodenum (1st, 2nd, 3rd, 4th parts of duodenum)
  - ➢ Jejunum
  - ➢ Ileum
- Arterial arcades & windows in the mesentery
- **Large intestine**
  - ➢ Caecum & appendix
  - ➢ Ascending colon
  - ➢ Transverse colon
  - ➢ Descending colon
  - ➢ Sigmoid colon
- Taenia coli & appendices epiploicae
- Inferior mesenteric vessels
- Left colic artery
- Sigmoid branches
- Superior rectal artery
- Interior of small and large intestines to be examined
- Exposure of pancreas & duodenum
- Head, neck, body, tail & uncinate process of pancreas
- Interior duodenum - major duodenal papilla
- Hepato-pancreatic duct opening
- Tracing the course of common bile duct

Self-study

- Morphology, relations, blood supply, internal structure development & applied anatomy of duodenum
- Morphology, relations of various parts of the pancreas, its blood supply & applied anatomy
- Attachments of the mesentery of the small intestine — root & free border
- Structures crossed by root of mesentery
- Contents of mesentery
- Differences between small & large intestines
- Differences between jejunum & ileum
- Morphology, relations, blood supply, lymphatic drainage, internal structure & applied anatomy of caecum, ascending colon, transverse colon, descending colon & sigmoid colon
- Morphology (different positions), relations, blood supply, lymphatic drainage, internal structure & applied anatomy of vermiform appendix

Removal of small intestine and large intestine

Removal of duodenum and pancreas

Session VIII : The Abdominal Cavity - Liver, Gall Bladder

Dissection

- Superior mesenteric vein
- Inferior mesenteric vein
- Portal vein
- Bile duct

Liver

- Right lobe (Anatomical and functional)
- Left lobe (Anatomical and functional)
- Caudate lobe
- Quadrate lobe
- Porta hepatis
- Fissure for ligamentum venosum
- Fissure for ligamentum teres
- Gall bladder fossa
- Groove for Inferior vena cava
- Visceral impressions of liver
- Bare areas of liver

Extrahepatic biliary apparatus

- Right & left hepatic ducts
- Common hepatic duct
- Gall bladder
  - Fundus
  - Body
  - Neck
- Cystic duct
- Common bile duct
- Opening of hepato pancreatic duct into 2nd part of duodenum - major duodenal papilla

Self-study

- Portasystemic anastomoses
- Morphology, relations (peritoneal & visceral), blood supply, internal structure, functional lobes of liver
- Sub-phrenic spaces and their importance
- Parts of extra-hepatic biliary system
- Formation, course, relations, applied anatomy, termination of common bile duct
- Morphology, relations, applied anatomy and congenital anomalies of gall bladder
- Hepatic segments

Removal of liver and gall bladder

Session IX - Abdominal Cavity - Kidneys and Suprarenal Glands

Dissection

- Coeliac ganglion
- Right & left suprarenal glands
- Identification of the suprarenal vessels

Removal of the suprarenal glands

- **Right & left kidneys**
  - ➢ Renal vein
  - ➢ Renal artery
  - ➢ Hilum
  - ➢ Renal pelvis & ureter
- **Longitudinal section of kidney**
  - ➢ Cortex
  - ➢ Medulla
  - ➢ Pyramids
  - ➢ Major calyces
  - ➢ Minor calyces
- Subcostal vessels & nerves
- Iliohypogastric nerve
- Ilioinguinal nerve

Removal of Kidneys

Diaphragm

- Right & left crura of diaphragm
- Median, medial & lateral arcuate ligaments
- Central tendon of diaphragm
- IVC opening
- Oesophageal opening
- Aortic opening

Self-study

- Morphology (side identification and anatomical position), relations, blood supply, internal structure, functions and applied anatomy of kidneys
- Coverings of kidney and suprarenal glands
- Renal segments
- Morphology, relations, blood supply, internal structure, functions and applied anatomy of suprarenal glands
- Attachments, relations, nerve supply and actions of diaphragm
- Structural and functional correlation of diaphragm
- Various foramina of diaphragm and structures passing through them
- Divisions of autonomic nervous system, extent & communications of sympathetic trunk and sympathetic ganglia & plexuses of abdomen

Session X - The Posterior Abdominal Wall

Veins

- Inferior vena cava
- Right & left common iliac veins
- Lumbar veins
- Right & left renal veins
- Right & left gonadal veins
- Right & left suprarenal veins

Arteries

- Abdominal aorta
- Coeliac trunk
- Superior mesenteric artery
- Inferior mesenteric artery
- Inferior phrenic artery
- Lumbar arteries
- Suprarenal arteries
- Renal arteries
- Gonadal arteries

Crura of diaphragm

- Right & left sympathetic chains
- Cisterna chyli & commencement of thoracic duct
- Azygos vein & its commencement
- Psoas major
- Iliacus
- Subcostal vessels & nerves

Lumbar plexus

- Iliohypogastric nerve
- Ilioinguinal nerve
- Femoral nerve
- Lateral cutaneous nerve of thigh
- Genitofemoral nerve
- Obturator nerve

  (Accessory obturator nerve)
- Lumbosacral trunk

Self-study

- Origin, course, tributaries & termination of inferior vena cava (IVC)
- Collateral circulation in case of IVC block
- Origin, course, branches & termination of abdominal aorta
- Collateral Circulation
- Formation, relations & branches of lumbar plexus
- Root value & distribution of branches of lumbar plexus
- Attachments, nerve supply & actions of psoas major, iliacus, quadratus lumborum

Session XI - The Perineum: Urogenital & Anal regions

Dissection

- Anal region
- Urogenital region
- Anal opening
- Corrugator cutis ani
- Ischiorectal fossa
- Ischiorectal pad of fat
- Inferior rectal vessels and nerves
- Ischial tuberosity
- Pudendal canal and its contents
- Perineal branch of 4th sacral nerve

Male perineum

- External urethral meatus
- Spongy part of urethra
- Membranous layer of superficial fascia (Colles' fascia)
- Superficial perineal space/pouch
  - Perineal body
  - Ischiocavernosus muscle and crura of penis
  - Bulbospongiosus muscle and bulb of penis
  - Artery of bulb
  - Urethra piercing bulb
  - Superficial transverse perineal muscles
  - Posterior scrotal vessels and nerves
- Perineal membrane
- Deep perineal space/pouch
  - Deep transverse perineal muscles
  - Sphincter urethrae
  - Internal pudendal artery
  - Deep & dorsal arteries and dorsal nerve of penis
- Levator ani / levator prostatae
- Puboprostatic ligaments

Female perineum

- Urethral orifice
- Vaginal introitus
- Clitoris
- Cervix uteri
- External os
- Fornices of vagina
- Membranous layer of superficial fascia (Colles' fascia)
- Superficial perineal space/pouch
  - Superficial transverse perineal muscles
  - Central perineal tendon / perineal body
  - Ischiocavernosus muscles and crura of clitoris
  - Bulbospongiosus muscle and bulbs of vestibule
  - Greater vestibular gland (Bartholin's gland)
  - Artery of the bulb
  - Posterior labial vessels & nerve
  - Perineal membrane
- Deep perineal space/pouch
  - Sphincter urethrae
  - Deep transverse perineal muscles
  - Superior fascia of urogenital diaphragm
- Deep & dorsal arteries of clitoris
- Internal pudendal artery
- Levator ani
- Pubocervical ligaments

Self-study

- Boundaries,contents and applied anatomy of ischiorectal fossa
- Boundaries,contents and applied anatomy of superficial and deep perineal pouches
- Perineal body- muscles attached to it and its applied anatomy

Sessions XII - The Pelvic Viscera: Urogenital

Dissection

- Pelvic peritoneum
- Median umbilical ligament and fold
- Medial umbilical ligaments and folds
- Lateral umbilical fold
- Retropubic space
- Urinary bladder — surfaces

Male Cadavers

- Posterior surface of the urinary bladder
- Ductus deferens and its ampulla
- Seminal vesicles
- Prostate gland, Rectovesical (Denonvillier's) fascia
- Rectovesical pouch

Removal of urinary bladder and prostate gland

Female Cadavers

- Ovaries; ovarian fossa- boundaries
- Fallopian tubes
- Uterus, cervix
- Broad ligaments
- Ligaments of ovary, & round ligaments of uterus
- Uterovesical pouch & rectouterine pouch (pouch of Douglas)

Removal of urinary bladder, uterus and adnexa

Self-study

- Morphology, relations, supports, interior, blood supply, lymphatic drainage, nerve supply, development and applied anatomy of urinary bladder
- Morphology, capsules, lobes, relations, blood supply, lymphatic drainage, development & applied anatomy of prostate gland
- Morphology, supports, relations, blood supply, lymphatic drainage, development and applied anatomy of uterus
- Attachments and contents of broad ligament
- Morphology, relations, blood supply, lymphatic drainage, development & applied anatomy of ovaries

Sessions XIII - The Pelvic Viscera: Alimentary

Dissection

- Rectum and its interior — rectal valves
- Anal canal and its interior
- Anal columns (of Morgagni)
- Anal crypts (of Morgagni)
- Anal valves
- White line of Hilton
- Presacral (Waldeyer's) fascia

Self-study

- Morphology, relations, blood supply, lymphatic drainage, supports, internal structure, development and applied anatomy of rectum & anal canal

Female Cadavers - Hemisected pelvis

- Interior of uterus
- Fornices of vagina

Hemisection of pelvis/
Removal of rectum and anal canal

ABDOMEN

Session XIV - Muscles, Vessels, Nerves & Joints of the Pelvis

Arteries

- Median sacral artery
- Common iliac artery
- External iliac artery
- Inferior epigastric artery
- Deep circumflex iliac artery
- Internal iliac artery

Anterior division

- ➢ Obturator artery
- ➢ Superior vesical artery
- ➢ Inferior vesical artery / Uterine artery
- ➢ Inferior gluteal artery
- ➢ Middle rectal artery
- ➢ Internal pudendal artery

Posterior division

- ➢ Iliolumbar artery
- ➢ Lateral sacral arteries
- ➢ Superior gluteal artery

- Pelvic venous plexus
- External, internal and common iliac veins
- Lumbosacral trunk
- Sacral plexus
- Obturator nerve
- Sympathetic chains, ganglion impar
- Levator ani
- Obturator internus
- Sacroiliac joint
- Pubic symphysis

Self-study

- Origin, course, branches & termination of internal & external iliac arteries
- Formation, relations, root value & distribution of branches of sacral plexus
- Parts of levator ani, attachments, nerve supply & actions of the muscles of pelvic diaphragm
- Type & movements of sacroiliac joint