

BODY IMAGING CORE LECTURE CURRICULUM

LECTURE TITLE

Presenter

INTRODUCTORY (5 lectures)

INTRODUCTION TO FLUOROSCOPY	Chertoff
INTRODUCTIONS TO ABDOMINAL PLAIN FILMS	Chertoff
INTRODUCTION TO CT Scanners MDCT Technique & dose adjustment Contrast enhancement dynamics Phases of imaging	McNulty
INTRODUCTION TO MRI Scanners Technique & sequences used in body MRI, MRA, MRCP, MR urography Contrast enhancement dynamics *Eovist Contraindications and safety (non-contrast related)	Tsapakos
CT AND MRI CONTRAST AGENTS & REACTIONS Oral agents Iv agents Iodinated Gadolinium Allergies and Contraindications Renal insufficiency, GFR NSF Metformin use Contrast infiltration Contrast reaction algorithms	Silas

LIVER (5 lectures)

LIVER 1**Tsapakos**

- Normal anatomy, including blood supply, lymphatic drainage and variants
- Imaging methods and protocols
- Diffuse disease-fatty infiltration, hepatitis, infections, hemochromatosis, infarction, storage diseases

LIVER 2**Tsapakos**

- Focal benign masses-hemangioma, cysts, focal nodular hyperplasia, adenoma, abscess, dysplastic & regenerating nodules
- Focal malignant masses-hepatocellular carcinoma, metastases, fibrolamellar hepatocellular carcinoma, lymphoma, biliary neoplasms
- Cirrhosis

LIVER 3**McNulty**

- Vascular-THAD, AV shunting, Budd Chiari, cavernous transformation PV, HHT, hepatic infarction

LIVER 4**McNulty**

- Trauma (liver)
- Include bowel trauma too-its no where else in curriculum

LIVER 5**McNulty**

- Post intervention interpretation: RFA, TACE, bland embo
- Post transplant (though ? covered in US)

GALLBLADDER & BILIARY (2 lectures)**BILIARY 1****McNulty**

- Normal anatomy, including blood supply, lymphatic drainage and variants
- Congenital abnormalities-choledochal cysts, Caroli's disease
- Diffuse disease-sclerosing cholangitis, PBC, AIDS cholangiopathy, ischemic bile duct strictures, traumatic and post surgical injury

BILIARY 2**Tsapakos**

- Imaging methods and protocols
- ERCP/MRCP correlation
- * Infections, cholangitis, parasites
- * Neoplasms-GB, cholangiocarcinoma
- Stone disease

SPLEEN (1 lecture)

Yen

- Normal anatomy, lymphatic drainage
- Imaging methods and protocols
- Splenomegaly
- Asplenia, polysplenia, splenules, splenosis
- Focal lesions-cyst, hamartoma, hemangioma, lymphangioma, abscess, neoplasm (primary and metastatic)
- Vascular- splenic infarcts & aneurysms
- Trauma
- Infections/inflammatory-bacterial, fungal, sarcoidosis, AIDS

PANCREAS (2 lectures)

PANCREAS 1

McNulty

- Normal anatomy including blood supply & lymphatic drainage, and variants-divisum, annular pancreas, fatty replacement
- Imaging methods and protocols
- Trauma

PANCREAS 2

Tsapakos

- Pancreatitis-acute, chronic, complications and sequelae
- Neoplasm-adenocarcinoma, cystic neoplasms, IPMT, islet cell tumors, solid epithelial stromal tumor, cysts, VHL

PERITONEUM, MESENTERY

(1 lecture)

McNulty

- Normal anatomy-compartments and spaces
- Ascites, hemoperitoneum, pneumoperitoneum
- Inflammatory processes-peritonitis, fibrosing mesenteritis, mesenteric panniculitis, sclerosing peritonitis, TB
- Omentum-infarcts, carcinomatosis
- Neoplasm-mesothelioma, carcinoid, metastases, pseudomyxoma peritonei
- Hernias-types and names, incarcerated, causing SBO (petra has a spigelian)

LYMPHATICS & ABDOMINAL WALL

McNulty

- Normal anatomy abdominal wall
- Lymphatics
 - Anatomy
 - Metastatic spread patterns
 - Cisterna chili
- Hernias-direct, indirect, ventral, incarceration, strangulation

VASCULAR SYSTEM (AORTA, IVC, and BRANCH VESSELS)
(2 lectures)

VASCULAR 1

McNulty

- Normal anatomy and variants
- Imaging methods and protocols CTA, CTV, MRA, MRV
- AAS, intramural hematoma, ulcerating plaque, dissection

VASCULAR 2

McNulty

- AAAs-inflamm, mycotic, standard
- Vascular grafts-endografts, follow up and endoleaks
- Renal & Mesenteric artery and vein thrombosis

ADRENAL GLANDS (2 lectures)

ADRENAL GLANDS 1

Yen

- Normal anatomy, including blood supply & lymphatic drainage, and function
- Imaging methods and protocols
- Hyperplasia
- Infections, inflammatory disease & hemorrhage

ADRENAL GLANDS 2 & RETROPERITONEUM

Yen

- Adrenal: Benign and malignant neoplasms
- Retroperitoneum
 - Normal anatomy & subcompartments
 - Retroperitoneal and extraperitoneal spaces and spread of disease
 - Inflammatory disease-fibrosis, psoas abscess
 - Neoplasms-primary (sarcomas) and metastatic

KIDNEYS (3 lectures)

KIDNEYS 1

Silas

- Normal anatomy, lymphatic drainage, embryology and variants-cross fused ectopia, horseshoe kidney
- Imaging methods and protocols-renal mass protocol
- Inflammatory/infectious conditions-pyelonephritis, pyonephrosis, abscess, xanthogranulomatous pyelonephritis

KIDNEYS 2

Silas

- Cystic disease-ADPCK, MCD, MLCN, simple and complex cysts, Bosniak

- Benign and malignant masses & syndromes

KIDNEYS 3

Yen

- Infection
- Vascular-MRA, CTA renal arteries, infarcts, RV thrombosis
RA aneurysms, stenosis
- Renal transplant-evaluation with MR, MRA and US

RENAL COLLECTING SYSTEM, URETERS, AND BLADDER

(2 lectures)

CS,U,B 1

Silas

- Normal anatomy, embryology and congenital variants
- Imaging methods and protocols – CTU, renal stone
- Stones & nephrocalcinosis
- Other benign processes-cystitis, pseudodiverticulosis, ureteritis cystica, atony, neurogenic bladder, diverticulae

CS,U,B 2

Silas

- Neoplasms, benign and malignant, and malakoplakia
- Infections, leukoplakia
- IVPs

GU SYSTEM TRAUMA, URETHRA (1 lecture)

Silas

- RUG, trauma and strictures
- Female urethra
- Kidney trauma
- Collecting system trauma
- Bladder trauma-intra/extrap rupture

PROSTATE & DEFECOGRAPHY

(1 lecture)

Tsapakos

- Normal anatomy and variants
- Imaging methods and protocols
- Prostate:
 - Benign prostate hypertrophy
 - Prostate cancer-staging with MRI
 - Infections/Abscess
- Defecography

UTERUS AND FALLOPIAN TUBES (1 lectures)

MR UTERUS & VAGINA

Lee

- Normal anatomy
- Imaging methods and protocols
- Embryology and uterine anomalies
- Benign & malignant uterine conditions
 - fibroids, adenomyosis, leiomyosarcoma
- Benign and malignant endometrial disease
 - hyperplasia and carcinoma, endometriosis
- Cervical malignancy
- Vag/perineal glands (Skene's, Bartholin's)

MRI OVARIES & FALLOPIAN TUBES (1 lecture)

Lee

- Normal anatomy
- Imaging methods and protocols
- Benign & malignant ovarian masses and cysts
- ? Pelvic congestion
- PID, tuboovarian abscesses

FETAL MRI (1 lecture)

Tsapakos

- All

GASTROINTESTINAL TRACT

PHARYNX (1 lecture)

Austin-Str

- Normal anatomy & normal swallow mechanism
- Methods of imaging and protocols
- Webs, diverticula, foreign bodies
- Congenital disorders
- Motility disorders-oral phase, epiglottic inversion, etc
- Post-op laryngectomies

ESOPHAGUS (1 lecture)

Chertoff

- Normal anatomy & embryology, normal variants
- Methods of imaging and protocols
- Inflammatory and infectious disease
- Benign masses-leiomyoma, lipoma, duplication cysts
- Malignancy-barrets, adeno, squamous
- Webs, rings, diverticula, polyps, hernias and reflux
- Motility disorders, achalasia
- Trauma, post-op, Emergency

STOMACH (1 lecture)

- Normal anatomy and embryology
- Methods of imaging and protocols
- Ulcer, gastritis, Inflammatory and infectious disease
- Diverticula
- Malignant neoplasms-adeno, lymphoma, GIST, carcinoid, linitis plastica
- Benign masses-leiomyoma, lipoma
- Ischemia, volvulus

BARIATRIC STOMACH

Chertoff

- Post-op
- Bariatric

SMALL BOWEL (1 lecture)

Chertoff

- Normal anatomy and embryology
- Methods of imaging and protocols, fluoro and *CT enterography
- Anatomic variants-malrotation, diverticular disease, Meckel's diverticulum, duplications
- Ulcers, infectious diseases
- Benign neoplasms including polyposis syndromes
- Malignant neoplasms-adeno, carcinoid, lymphoma, mets, GIST
- Ileus and bowel obstruction (some of this will have been covered in intro to abd plain film lecture)

LARGE BOWEL (1 lecture)

Chertoff

- Normal anatomy and embryology
- Methods of imaging and protocols
- Infectious/inflamm diseases- Cdiff, diverticulitis
- Bowel obstruction & volvulus
- Appendix-mucocele, appendicitis
- Trauma
- Polyps, benign and malignant neoplasms
- Virtual colonoscopy

INFLAMMATORY BOWEL DISEASE (1 lecture)

Chertoff