Gastrointestinal Imaging

This exam content assesses the candidate's knowledge and skills related to the clinical practice of gastrointestinal imaging. The domain encompasses fluoroscopy and radiography, CT, MRI, and ultrasound. The domain also includes testing of knowledge pertaining to percutaneous abdominal interventions and management in patients with gastrointestinal abnormalities on imaging.

Included in this document:

Domain Critical Concepts

1. Identify normal anatomy, normal and abnormal postoperative and other iatrogenic GI tract findings throughout the GI tract
2. Diagnose benign and malignant neoplastic, inflammatory, and infectious bowel disease
3. Recognize motility disorders, hollow viscus obstructions, and etiologies of perforations
4. Identify mesenteric and/or bowel ischemia and gastrointestinal bleeding disorders
5. Diagnose, stage and recommend management for pancreatic cystic and solid tumors, inflammatory conditions and congenital abnormalities
6. Identify hepatic diseases
    a. Liver neoplasms both benign and malignant
    b. Diffuse liver disease including ancillary intra-abdominal findings
7. Recognize common biliary variants and pathology including causes of biliary obstruction, inflammation, and tumors
8. Diagnose common splenic pathologies on imaging
9. Identify normal and abnormal imaging findings of the mesentery and abdominal compartments, including abdominal wall hernias
10. Evaluate abdominal trauma including
    a. Staging
    b. Management
11. Recognize imaging findings in normal and abnormal transplants (non-vascular issues) for the liver and pancreas

Domain Blueprint

1. Pharynx/esophagus: up to 10%
    a. Technique of examination
    b. Normal anatomy, variations and function
    c. Benign diseases
    d. Malignant tumors
    e. Postoperative findings, expected appearance and complications
2. Stomach: up to 10%
    a. Techniques of examination
    b. Normal anatomy, variations and function

    c. Benign disease
    d. Malignant disease, primary and metastatic
    e. Postoperative stomach, expected appearance and complications
3. Duodenum/small bowel: 10-15%
    a. Techniques of examination
    b. Normal anatomy, variations and function
    c. Benign diseases
    d. Malignant diseases
    e. Postoperative findings, expected appearance and complications
4. Colon, appendix: 10%-15%
    a. Techniques of examination
    b. Normal anatomy, variations and function
    c. Benign disease
    d. Malignant disease
    e. Postoperative findings, expected appearance and complications
5. Pancreas: 10-15%
    a. Techniques of examination
    b. Normal anatomy, variations and function
    c. Pancreatitis
    d. Pancreatic neoplasms, benign and malignant
    e. Transplantation
    f. Postoperative findings, expected appearance and complications
6. Liver: 15%-20%
    a. Techniques of examination
    b. Normal anatomy, variations and function
    c. Diffuse diseases of the liver
    d. Focal diseases of the liver, benign and malignant
    e. Transplantation
    f. Postoperative findings, expected appearance and complications
7. Spleen: up to 10%
    a. Techniques of examination
    b. Normal anatomy, variations and function
    c. Splenomegaly
    d. Focal lesions, benign and malignant
8. Gall bladder, biliary: 5%-15%
    a. Techniques of examination
    b. Normal anatomy, variations and function
    c. Congenital abnormalities
    d. Benign Disease
    e. Malignant Disease
    f. Postoperative findings, expected appearance and complications
9. Peritoneum and retroperitoneum: up to 10%
    a. Techniques of examination
    b. Normal anatomy, embryology, variations and function
    c. Fluid collections
    d. Inflammatory diseases
    e. Primary tumors
    f. Metastatic tumors

g. Mesenteries

10. Multisystem: 5%-15%
    a. Techniques of examination
    b. Acute abdomen
    c. Abdominal and GI system trauma
    d. Syndromes involving the gastrointestinal tract
    e. Hernias
    f. Obstruction

Domain Overview

1. Pharynx
    1. Normal anatomy, variations
    2. Benign diseases
        1. Types of diverticula
        2. Foreign bodies
        3. Trauma
        4. Inflammatory conditions
    3. Motility disorders
    4. Malignant tumors
    5. Postoperative findings, expected appearance and complications
2. Esophagus
    1. Benign diseases
        1. Diverticula
        2. Trauma
        3. Esophagitis
            1. Reflux
            2. Infectious
            3. Caustic
            4. Drug-induced
            5. Other inflammatory conditions
        4. Barrett esophagus
        5. Rings, webs, and strictures
        6. Perforations/fistulas
        7. Varices
        8. Benign tumors and tumor-like conditions
        9. Extrinsic processes affecting the esophagus
            1. Pulmonary lesions
            2. Mediastinal structures
    2. Malignant tumors
        1. Squamous
        2. Adenocarcinomas
        3. Other malignant tumors
            1. Lymphoma
            2. Kaposi
            3. Metastases (lymphatic and hematogenous)
    3. Motility disorders
        1. Primary motility disorders

        2. Secondary motility disorders
    4. Postoperative esophagus
        1. Tubes, stents, devices
        2. Post surgical and post endoscopic interventions
3. Stomach
    1. Benign diseases
        1. Hiatal hernia (types and significance)
        2. Diverticula
        3. Gastritis
            1. Erosive
            2. Atrophic
            3. Infectious
            4. Other
        4. Peptic ulcer disease
        5. Hypertrophic gastropathy
        6. Varices
        7. Volvulus
        8. Entrapment after diaphragmatic injury
    2. Malignant diseases
        1. Primary
            1. Adenocarcinoma
            2. Lymphoma
            3. GI stromal tumors
            4. Carcinoid
        2. Metastatic
    3. Postoperative stomach
        1. Expected surgical appearance
            1. Bariatric, including gastric banding
            2. Nissen and other fundoplications
            3. Whipple
            4. Billroth procedures
    4. Complications
4. Duodenum
    1. Benign diseases
        1. Congenital abnormalities
        2. Diverticula and complications
        3. Trauma
        4. Inflammation
            1. Duodenitis
            2. Ulcer disease
            3. Crohn disease
        5. Aortoduodenal fistula
        6. Benign tumors and tumor like conditions
            1. Carcinoid
            2. Ampullary adenoma
            3. Polyps
            4. Pancreatic rest
    2. Malignant diseases

1. Adenocarcinoma
2. Lymphoma
3. Gastrointestinal stromal tumors
4. Carcinoid
5. Metastatic disease

5. Small Intestine
    1. Benign diseases
        1. Congenital disorders
        2. Diverticula
        3. Trauma
        4. Vascular diseases
            1. Intestinal ischemia and infarction
            2. Radiation enteritis
            3. Scleroderma
            4. Vasculitides
                1. Henoch-Schönlein purpura
                2. Polyarteritis nodosa
                3. Systemic lupus erythematosus
            5. Malabsorption
                1. Sprue
                2. Lymphangiectasia
                3. Other
            6. Inflammatory diseases
                1. Crohn disease
                2. Infectious and parasitic diseases
            7. Benign tumors
                1. Sporadic
                2. Associated with polyposis syndromes
                3. Lipomas
            8. Malrotation/Volvulus
            9. Obstruction
                1. Etiologies
                2. Associated complications
            10. Hemorrhage
            11. Other
                1. Etiologies of edema/bowel wall thickening
                2. Status post bone marrow transplant
                3. Drug effects
                    i. NSAID enteritis
                    ii. ACE inhibitors
    2. Malignant tumors
        1. Adenocarcinoma
        2. Lymphoma
        3. Carcinoid
        4. GI stromal tumors
        5. Metastases
    3. Postoperative findings, expected appearance and complications
6. Colon and Appendix

1. Benign disease
    1. Congenital abnormalities
    2. Diverticular disease
    3. Inflammatory diseases
        1. Crohn disease
        2. Ulcerative colitis
        3. Infectious colitis
            1. Pseudomembranous
            2. Viral
            3. Bacterial
            4. Colitis in AIDS
            5. Tuberculosis
        4. Appendicitis
    4. Benign neoplasms
        1. Adenoma
        2. Mesenchymal tumors
        3. Polyposis syndromes
        4. Appendiceal mucocele
        5. Carcinoid
    5. Malrotation/volvulus
    6. Obstruction
        1. Etiologies
        2. Complications
    7. Ischemic colitis
    8. Hemorrhage
2. Malignant diseases
    1. Adenocarcinoma, including mucinous
    2. Other malignant tumors
        1. Lymphoma
        2. Carcinoid
        3. Melanoma
        4. Squamous (anal)
        5. Metastases
    3. Rectal cancer staging
3. Postoperative findings, expected appearance and complications

7. Pancreas
    1. Congenital abnormalities and variants
    2. Pancreatitis, including nomenclature
        1. Acute
        2. Chronic
        3. Complications
        4. Autoimmune
    3. Pancreatic neoplasms
        1. Duct cell adenocarcinoma
        2. Cystic pancreatic neoplasms
            1. Intraductal papillary mucinous neoplasm (IPMN)
            2. Mucinous cystadenomas
            3. Serous cystadenomas

        4. Solid pseudopapillary tumors
    3. Neuroendocrine tumors
    4. Lymphoma
    5. Metastases
4. Other focal pancreatic lesions
    1. Accessory spleen
    2. Cysts
    3. Focal fat infiltration
5. Postoperative and post endoscopic intervention findings, expected appearance and complications

8. Liver
    1. Normal anatomy
    2. Diffuse diseases of the liver
        1. Cirrhosis
        2. Diseases associated with infiltration
            1. Fatty infiltration/nonalcoholic steatohepatitis (NASH)/NAFLD
            2. Hemochromatosis
            3. Storage diseases
        3. Vascular diseases
            1. Portal hypertension
            2. Portal vein occlusion
            3. Hepatic venous hypertension/Budd Chiari syndrome, passive congestion
        4. Inflammatory and infectious conditions
            1. Hepatitis
            2. Microabscesses
            3. Granulomatous disease
            4. Radiation induced
    3. Focal diseases of the liver
        1. Benign
            1. Hematoma
            2. Abscess
            3. Cavernous hemangioma
            4. Liver cell adenoma
            5. Focal nodular hyperplasia
            6. Regenerative nodules
            7. Perfusion defects, portosystemic collaterals
            8. Epithelioid hemangioendothelioma
            9. Hamartoma
            10. Biliary mucinous cystic neoplasm
            11. Cysts
            12. Polycystic disease
        2. Malignant
            1. Hepatocellular carcinoma, including LIRADS
            2. Cholangiocarcinoma
            3. Metastases
            4. lymphoma
            5. Angiosarcoma
            6. Biliary mucinous cystic neoplasm

4. Postoperative and post endoscopic intervention findings, expected appearance and complications
5. Liver transplantation
    1. Surgical candidate work up
    2. Expected postoperative appearance
    3. Complications

9. Spleen
    1. Congenital anomalies
    2. Splenomegaly
    3. Focal lesions
        1. Benign
            1. Hematoma
            2. Cysts
            3. Hemangioma
            4. Infarction
            5. Abscess/microabscesses
            6. Granulomatous disease
        2. Malignant
            1. Metastases
            2. Angiosarcoma
10. Bile Ducts and Gallbladder
    1. Congenital abnormalities and variants
        1. Variant biliary anatomy
        2. Choledochal cysts
        3. Caroli disease
        4. Biliary hamartomas
    2. Inflammatory diseases
        1. Gallbladder
            1. Acute cholecystitis
            2. Emphysematous cholecystitis
            3. Gangrenous cholecystitis
            4. Mirizzi syndrome
            5. Porcelain gallbladder
            6. Stone disease
            7. Adenomyomatosis
        2. Biliary ducts
            1. Primary sclerosing cholangitis
            2. Ascending cholangitis
            3. Recurrent pyogenic cholangitis
            4. AIDS cholangiopathy
            5. Ischemic injury
            6. Stone disease
    3. Tumors
        1. Gallbladder cancer
        2. Cholangiocarcinoma
        3. Metastases
        4. Polyps
    4. Postoperative and post endoscopic intervention findings, expected appearance and

complications

11. Peritoneal Spaces
    1. Normal anatomy
    2. Fluid collections
    3. Diseases of the peritoneum
        1. Hematoma/hemorrhage
        2. Inflammatory diseases
            1. Bacterial peritonitis
            2. Tuberculosis
            3. Sclerosing peritonitis
            4. Other
        3. Primary tumors
        4. Metastatic tumors
    4. Mesenteries
        1. Normal anatomy
        2. Pathologic conditions
            1. Defects
            2. Sclerosing mesenteritis/misty mesentery
            3. Mesenteric fibromatosis
    5. Perforations
    6. Retroperitoneum
        1. Normal anatomy
        2. Retroperitoneal spaces
        3. Benign diseases
            1. hematoma/hemorrhage
            2. Fibrosis
            3. Inflammatory diseases
        4. Malignant tumors
12. Multisystem Disorders
    1. Acute abdomen
    2. Trauma
        1. Hollow organ
            1. Acute findings
            2. Complications
        2. Solid organ
            1. Acute findings
            2. Evolution of injuries
            3. Complications
    3. Syndromes involving the GI tract
    4. Hernias, including internal hernias
    5. Obstruction and complications
    6. Vascular abnormalities/ ischemia/GI bleeding
    7. Benign etiologies of pneumatosis