

Paper II : Technical Subject

1. Esophagus, Stomach, Duodenum, Small Intestine, Appendix, Spleen & Portal hypertension:

1.1 Esophagus:

- 1.1.1 Applied anatomy, physiology & embryology
- 1.1.2 Investigations for different esophageal conditions:
 - 1.1.2.1 Contrast radiological imaging in esophageal disease, endoscopy and EUS, CT, MRI, PET scan, esophageal manometry, esophageal pH monitoring, tests of gastric function & their use in the evaluation of esophageal disease
- 1.1.3 Neoplasm of esophagus – benign & malignant:
 - 1.1.3.1 Benign Tumor and Cysts of Esophagus
 - 1.1.3.2 Esophageal Cancer
 - 1.1.3.3 Esophagogastric Junction tumor
 - 1.1.3.4 Adjuvant and Neoadjuvant Therapy for Ca Esophagus
- 1.1.4 Other Esophageal conditions:
 - 1.1.4.1 Gastro-esophageal reflux disease, Barret's esophagus
 - 1.1.4.2 Esophageal motility disorder and diverticula of esophagus
 - 1.1.4.3 Perforation of the Esophagus
 - 1.1.4.4 Esophageal Caustic Injury
 - 1.1.4.5 Paraesophageal and Other Complex Diaphragmatic Hernias
 - 1.1.4.6 Congenital Disorders of the Esophagus
- 1.1.5 Operative procedures and related complications:
 - 1.1.5.1 Pre-operative evaluation and management in esophageal surgery
 - 1.1.5.2 Techniques of Esophageal Resection, Reconstruction and Complications of Esophagectomy
 - 1.1.5.3 Post-operative management
- 1.1.6 Evidence based practice and Recent advances related to various esophageal conditions and their management

1.2 Stomach, Duodenum, Small Intestine and Appendix:

- 1.2.1 Applied anatomy, physiology & embryology
- 1.2.2 Diagnostic procedures- Barium study, CECT, CT-enteroclysis, MRI, PET scan, Laparoscopy, Diagnostic and Therapeutic Endoscopy of the Stomach and Small Bowel
- 1.2.3 Neoplasm of Stomach, Duodenum, Small bowel and Appendix: Benign and Malignant
 - 1.2.3.1 Benign neoplasm of stomach, duodenum, small intestine and appendix
 - 1.2.3.2 Cancer of stomach: Advanced and Early Gastric Carcinoma
 - 1.2.3.3 Lymphomas
 - 1.2.3.4 Gastrointestinal stromal tumor
 - 1.2.3.5 Carcinoid tumor
 - 1.2.3.6 Other malignant tumors
 - 1.2.3.7 Adjuvant and Neoadjuvant Therapy for malignant conditions
- 1.2.4 Other conditions:
 - 1.2.4.1 Injuries to the Stomach, Duodenum, and Small Bowel
 - 1.2.4.2 Small Bowel Diverticula

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- 1.2.4.3 Peptic Ulcer Disease, Zollinger–Ellison Syndrome
- 1.2.4.4 Motility Disorders of the Stomach and Small Intestine
- 1.2.4.5 Foreign Bodies and Bezoars of the Stomach and Small Intestine
- 1.2.4.6 Small Bowel Obstruction and strangulation, Volvulus of the Stomach and Small Bowel
- 1.2.4.7 Perforation peritonitis
- 1.2.4.8 Appendicitis
- 1.2.4.9 Crohn's Disease
- 1.2.4.10 Tuberculosis of abdomen, peritoneum, small and large bowel
- 1.2.4.11 Surgical Diseases of the Stomach and Duodenum in Infants and Children
- 1.2.4.12 Gastric, Duodenal, and Small Intestinal Fistulas
- 1.2.4.13 Mesenteric Arterial Trauma, Mesenteric Ischemia
- 1.2.4.14 Radiation injury to stomach and intestine
- 1.2.4.15 Short bowel syndrome
- 1.2.4.16 Internal Hernias: Congenital and Acquired
- 1.2.4.17 Enteral and parenteral feeding – NG, feeding gastrostomy/ jejunostomy
- 1.2.5 Operative procedures and related complications:
 - 1.2.5.1 Suturing, Stapling, and Tissue Adhesives
 - 1.2.5.2 Various gastric resections, reconstruction, bypass, gastric conduit
 - 1.2.5.3 Reoperative Surgery of the Stomach and Duodenum
 - 1.2.5.4 Post-gastrectomy, Post-vagotomy syndrome
 - 1.2.5.5 Operations for Morbid Obesity and Metabolic Syndrome
 - 1.2.5.6 Bowel resections, lengthening and transplantation.
 - 1.2.5.7 Ileostomy
- 1.2.6 Evidence based practice and Recent advances related to various surgical conditions of stomach, duodenum and small intestine and their management

1.3 Spleen:

- 1.3.1 Applied anatomy, physiology & embryology of spleen
- 1.3.2 Minimally Invasive Surgical and Image-Guided Interventional Approaches to the Spleen
- 1.3.3 Preoperative evaluation, preparation and complications of splenectomy
- 1.3.4 Management of Splenic Trauma in Adults
- 1.3.5 Management of Splenic Trauma in Children
- 1.3.6 Cysts and Tumors of the Spleen
- 1.3.7 Management of Splenic Abscess
- 1.3.8 Splenectomy for conditions other than trauma

1.4 Portal Hypertension:

- 1.4.1 Applied anatomy & Pathophysiology of portal hypertension, location of Portosystemic Shunting
- 1.4.2 Etiology, clinical presentation, diagnostic work up & management of portal hypertension- cirrhotic & non-cirrhotic
- 1.4.3 Portal Hypertension in Children
- 1.4.4 Management of Ascites in Cirrhosis and Portal Hypertension
- 1.4.5 Medical and Endoscopic Management of Bleeding Varices; Primary and Secondary Prophylaxis

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- 1.4.6 Surgery for Esophageal Varices and portal hypertension: Devascularization and Splenectomy, Different shunt procedures- indications, techniques and outcome
- 1.4.7 Transjugular Intrahepatic Portosystemic Shunting (TIPS): Indications, Technique and complications
- 1.4.8 Budd-Chiari Syndrome and Venocclusive Disease
- 1.4.9 Hepatopulmonary syndrome; Hepatorenal syndrome

2. Liver, Pancreas and Biliary System:

2.1 Embryology, Applied Anatomy, Physiology and Pathology:

- 2.1.1 Embryologic Development of the Liver, Biliary Tract, and Pancreas
- 2.1.2 Surgical and Radiologic Anatomy of the Liver, Biliary Tract, and Pancreas
- 2.1.3 Liver Blood Flow: Physiology, Measurement and Clinical Relevance
- 2.1.4 Liver Regeneration: Mechanisms and Clinical Relevance
- 2.1.5 Bile Secretion and Pathophysiology of Biliary Tract Obstruction
- 2.1.6 Assessment of Hepatic Function: Implications for the Surgical Patient
- 2.1.7 Pancreatic Physiology and Functional Assessment
- 2.1.8 Pancreatic Cancer and Premalignant Tumors: Molecular Aspects
- 2.1.9 Molecular Pathogenesis of Biliary Tract Cancer
- 2.1.10 Molecular Biology of Hepatitis
- 2.1.11 Infections in Liver, Biliary, and Pancreatic Surgery

2.2 Diagnostic Techniques:

- 2.2.1 Clinical Investigation of Hepatopancreaticobiliary Disease
- 2.2.2 Ultrasound of the Liver, Biliary Tract, and Pancreas
- 2.2.3 Endoscopic Ultrasound of the Biliary Tract and Pancreas
- 2.2.4 Nuclear Medicine Techniques in Hepatobiliary and Pancreatic Disease
- 2.2.5 Computed Tomography of the Liver, Biliary Tract and Pancreas
- 2.2.6 Magnetic Resonance Imaging of the Liver, Biliary Tract and Pancreas
- 2.2.7 Direct Cholangiography: Approaches, Techniques and Current status
- 2.2.8 Diagnostic Angiography in Hepatobiliary and Pancreatic Disease: Indications
- 2.2.9 Percutaneous Biopsy
- 2.2.10 Intraoperative Diagnostic Techniques

2.3 Techniques of Biliary Tract Intervention- Radiologic, Endoscopic and Surgical:

- 2.3.1 Interventional Endoscopy: Technical Aspects
- 2.3.2 Radiologic Hepatobiliary Interventions
- 2.3.3 Bile Duct Exploration and Biliary-Enteric Anastomosis

2.4 Gall bladder and Biliary Tract Diseases:

- 2.4.1 Inflammatory, Infective and Congenital:
 - 2.4.1.1 Cholelithiasis and Choledocholithiasis:
 - 2.4.1.1.1 Natural History of Gallstones and Asymptomatic Gallstones
 - 2.4.1.1.2 Acute and Chronic Cholecystitis: Symptoms, Pathophysiology and Management
 - 2.4.1.1.3 Percutaneous Approaches to the Treatment of Gallbladder Disease
 - 2.4.1.1.4 Stones in the Bile Duct: Clinical Features, Endoscopic and Percutaneous Approaches
 - 2.4.1.1.5 Open Cholecystectomy and Choledocholithotomy

- 2.4.1.1.6 Laparoscopic Cholecystectomy and Choledocholithotomy
- 2.4.1.1.7 Postcholecystectomy Problems
- 2.4.1.1.8 Intrahepatic Stones
- 2.4.1.2 Biliary Stricture and Fistula
 - 2.4.1.2.1 Biliary Atresia
 - 2.4.1.2.2 Primary Sclerosing Cholangitis
 - 2.4.1.2.3 Benign Biliary Strictures
 - 2.4.1.2.4 Biliary Fistula
- 2.4.1.3 Biliary Infection and Infestation
 - 2.4.1.3.1 Cholangitis
 - 2.4.1.3.2 Recurrent Pyogenic Cholangitis
 - 2.4.1.3.3 Biliary Parasitic Disease
- 2.4.1.4 Cystic Disease of the Biliary Tree - Bile Duct (choledochal) Cysts in Adults and children
- 2.4.2 Neoplastic:
 - 2.4.2.1 Benign Tumors and Pseudotumors of the Biliary Tract
 - 2.4.2.2 Malignant Tumors
 - 2.4.2.2.1 Cancer of the Gallbladder
 - 2.4.2.2.2 Cancer of the Bile Ducts
 - 2.4.2.2.3 Interventional Techniques in Hilar and intrahepatic Biliary Structures
 - 2.4.2.2.4 Adjuvant and Neoadjuvant Therapy
- 2.5 Pancreatic Disease:**
 - 2.5.1 Inflammatory, Infective and Congenital:
 - 2.5.1.1 Congenital Disorders of the Pancreas: Surgical Consideration
 - 2.5.1.2 Pancreatitis
 - 2.5.1.2.1 Acute & Chronic Pancreatitis: Etiology, Pathophysiology and Clinical Aspect
 - 2.5.1.2.2 Management of Acute Pancreatitis and Complications
 - 2.5.1.2.3 Management of Chronic Pancreatitis: Conservative, Endoscopic and Surgical
 - 2.5.2 Neoplasm:
 - 2.5.2.1 Benign and Premalignant Tumors: Cystic Neoplasms of the Pancreas
 - 2.5.2.2 Neoplastic disease of pancreas: Pancreatic and Periampullary Tumors
 - 2.5.2.3 Pancreatic and Periampullary Cancer: Epidemiology, Clinical Aspects, Assessment and Management; Borderline resectable tumours
 - 2.5.2.4 Duodenal Adenocarcinomas
 - 2.5.2.5 Pancreas as a site of Metastatic Cancer
 - 2.5.2.6 Endocrine Tumors of the Pancreas: Clinical Picture, Diagnosis and Therapy
 - 2.5.3 Operative procedures and their complications:
 - 2.5.3.1 Resectional Techniques: Pancreaticoduodenectomy, Distal Pancreatectomy, Segmental Pancreatectomy, Total Pancreatectomy and Transduodenal Resection of the Papilla of Vater

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- 2.5.3.2 Surgery of the Pancreas: Minimally Invasive Approaches
- 2.5.3.3 Chemotherapy and Radiotherapy for Pancreatic and Periampullary Cancer: Adjuvant, Neoadjuvant and Palliative
- 2.5.3.4 Palliation of Pancreatic and Periampullary Tumors

2.6 Hepatic Disease

2.6.1 Inflammatory, Infective and Congenital:

- 2.6.1.1 Liver Infection and Infestation: Pyogenic Liver Abscess, Amebiasis and Other Parasitic Infections, Hydatid Disease of the Liver
- 2.6.1.2 Simple Cysts and Polycystic Liver Disease
- 2.6.1.3 Hepatitis, Hepatic Cirrhosis, Portal Hypertension, and Hepatic Failure

2.6.2 Neoplastic:

- 2.6.2.1 Tumors of the Liver: Diagnostic & Pathologic Aspects
- 2.6.2.2 Benign and Premalignant
 - 2.6.2.2.1 Benign Liver Lesions
 - 2.6.2.2.2 Cystic Hepatobiliary Neoplasia
- 2.6.2.3 Malignant Tumors
 - 2.6.2.3.1 Hepatocellular Carcinoma
 - 2.6.2.3.2 Metastatic Malignant Liver Tumors: Colorectal Cancer & Neuroendocrine
 - 2.6.2.3.3 Noncolorectal Nonneuroendocrine Metastases
 - 2.6.2.3.4 Hepatic Tumors in Childhood
- 2.6.2.4 Treatment: Nonresectable
 - 2.6.2.4.1 Hepatic Artery Embolization and Chemoembolization for Liver Tumors
 - 2.6.2.4.2 Radioembolization for Liver Tumors
 - 2.6.2.4.3 Percutaneous Methods for Ablating Liver Tumors
 - 2.6.2.4.4 Cryoablation for Liver Tumors
 - 2.6.2.4.5 Radiofrequency Ablation for Liver Tumors
 - 2.6.2.4.6 Microwave Ablation and Emerging Technologies for Liver Tumors
 - 2.6.2.4.7 Regional Chemotherapy for Liver Tumors
 - 2.6.2.4.8 Systemic Chemotherapy for Hepatic Colorectal Cancer: Impact on Surgical Management
 - 2.6.2.4.9 Advances in Systemic Therapy for Hepatocellular Carcinoma
 - 2.6.2.4.10 Isolated Hepatic Perfusion for Extensive Liver Cancer

2.6.3 Operative procedures and their complications:

- 2.6.3.1 Hepatic Resection: General Considerations, Resection for Benign Disease and for Liver and Biliary Tumors
- 2.6.3.2 Extended Hepatic Resections for Biliary Tumors: An Alternative Approach
- 2.6.3.3 Hepatic Resection for Living Donor Transplantation
- 2.6.3.4 Minimally Invasive Techniques in Hepatic Resection
- 2.6.3.5 Liver Resection in Cirrhosis
- 2.6.3.6 Vascular Isolation
- 2.6.3.7 Vascular Reconstruction Techniques
- 2.6.3.8 Segment-Oriented Anatomic Liver Resections

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2.6.3.9 Preoperative Portal Vein Embolization: Rationale, Indications, Technique and Results

2.6.3.10 Adjuncts to Hepatic Resection: Ultrasound and Emerging Guidance Systems

2.7 Liver and Pancreas Transplantation:

2.7.1 Liver Transplantation: Indications and General Considerations

2.7.2 Liver Transplantation: Anesthesia, Perioperative Management, and Postoperative Care

2.7.3 Liver Transplantation in Patients with Fulminant Hepatitis

2.7.4 Liver Transplantation for Hepatocellular Carcinoma

2.7.5 Liver Transplantation for Cholangiocarcinoma and Other Neoplastic Diseases

2.7.6 Techniques:

2.7.6.1 Orthotopic Liver Transplantation

2.7.6.2 Living Donor Liver Transplantation: Open and Laparoscopic

2.7.6.3 Liver Transplantation in Children and Segmental Transplantation

2.7.6.4 Techniques of Liver Replacement

2.7.6.5 Early and Late Complications of Liver Transplantation

2.7.6.6 Whole-Organ Pancreas and Pancreatic Islet Transplantation

2.8 Hepatobiliary Injury and Hemorrhage:

2.8.1 Injuries to the Liver and Biliary Tract

2.8.2 Pancreatic and Duodenal Injuries

2.8.3 Aneurysm and Arteriovenous Fistula of the Liver and Pancreatic Vasculature

2.8.4 Hemobilia and Bilhemia

2.9 Evidence based practice and Recent advances related to management of Hepato-pancreato-biliary diseases and transplantation

3. Colon, Rectum, and Anus:

3.1 Anatomy, Physiology and Diagnosis of Colorectal and Anal Disease:

3.1.1 Applied Anatomy and Embryology of the Colon, Rectum and Anus

3.1.2 Physiology of the Colon and Its Measurement

3.1.3 Diagnostic procedures of Colon, Rectal, and Anal Disease - Barium study, CECT, MRI, PET scan, Laparoscopy, Diagnostic and Therapeutic Colonoscopy, Defecogram, Anal manometry

3.2 Benign Colon, Rectal and Anal Conditions:

3.2.1 Fecal Incontinence, Constipation, Pelvic Floor Dysfunction, Rectal Prolapse

3.2.2 Rectovaginal and Rectourethral Fistulas, Pilonidal Disease

3.2.3 Traumatic Colorectal Injuries, Foreign Bodies, and Anal Wounds

3.2.4 Colonic Intussusception and Volvulus, Bleeding and Ischemia

3.2.5 Diverticular Disease, Hemorrhoids, Fissure / Fistula -in-Ano

3.2.6 Miscellaneous Disorders of the Rectum and Anus

3.2.7 Inflammatory Bowel Diseases- surgery for ulcerative colitis & Crohns disease

3.2.8 Anorectal Anomalies

3.3 Neoplastic Diseases:

3.3.1 Colorectal Polyps and Polyposis Syndromes

3.3.2 Adenocarcinoma of the Colon and Rectum

3.3.3 Local Excision of Rectal Cancer; Transanal Endoscopic Microsurgery

3.3.4 Operations for Colorectal Cancer & Recurrent and Metastatic Colorectal Cancer

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3.3.5 Resection and Ablation of Metastatic Colorectal Cancer to the Liver

3.3.6 Neoplasms of the Anus

3.3.7 Retrorectal Tumors

3.3.8 Rare Colorectal Malignancies

3.3.9 Adjuvant and Neoadjuvant Therapy for Colorectal Cancer

3.3.10 Radiation Injuries to the Rectum

3.4 Colorectal surgeries: Indications, Pre-operative preparation, Techniques and Complications:

3.4.1 Pre-operative preparation, Antibiotics, Approaches, Strategy and Anastomoses

3.4.2 Different colonic and rectal surgeries

3.4.3 Laparoscopic Colorectal Surgery

3.4.4 Colostomy and Ostomy Management

3.4.5 Reoperative Pelvic Surgery

3.5 Evidence based practice and Recent advances related to management of colorectal and anal diseases

4. Peritoneum, mesentery, retroperitoneum and abdominal wall:

4.1 Abdominal Wall:

4.1.1 Surgical Anatomy & physiology

4.1.2 inguinal hernias, ventral hernias & its management : open & laparoscopic

4.1.3 Congenital Abnormalities & Acquired Abnormalities

4.2 Peritoneum & Omentum:

4.2.1 Applied anatomy, physiology and embryology- Recesses, reflection, subdiaphragmatic spaces

4.2.2 Peritonitis – Primary, Secondary & Tertiary

4.2.3 Peritoneal Tuberculosis

4.2.4 Pseudomyxoma peritoni, primary peritoneal tumors

4.2.5 Ascites : Diagnostic investigation and management

4.2.6 Peritoneoscopy

4.2.7 Omental Infarction

4.2.8 Omental Cysts

4.2.9 Omental Neoplasms

4.3 Mesentery:

4.3.1 Applied Anatomy

4.3.2 Sclerosing Mesenteritis

4.3.3 Mesenteric Cysts

4.3.4 Mesenteric Tumors

4.4 Retroperitoneum

4.4.1 Surgical Anatomy

4.4.2 Retroperitoneal Infections

4.4.3 Retroperitoneal Fibrosis

4.4.4 Retroperitoneal tumors

5. Laparoscopic surgery:

5.1 Definition of minimal access surgery, advantage and disadvantage,

5.2 Pre-operative evaluation, indication and contraindication of laparoscopic surgery.

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- 5.3 Creation of pneumoperitoneum - open/ close technique and its complications
- 5.4 Complications of Laparoscopic Surgery and Management
- 5.5 Limitations of laparoscopic surgery
- 5.6 Principles of Electrosurgery during laparoscopic surgery
- 5.7 Intra-abdominal hypertension, Abdominal compartment syndrome
- 5.8 Various Laparoscopic procedures – Lap cholecystectomy, Lap gastrectomy, Lap colorectal surgeries, Lap inguinal and ventral hernia surgeries, Lap liver resections
- 5.9 Recent advances related to laparoscopic surgery

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