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GOVERNMENT OF JAMMU & KASHMIR
SHER-I-KASHMIR INSTITUTE OF MEDICAL SCIENCES
SOURA SRINAGAR

Syllabus for Assistant Professor Posts of the Department of Surgical Gastroenterology & Liver Transplant Unit,

SKIMS, SOURA.

ANNUXURE 1

Surgical Gastroenterology Syllabus for Assistant Professor

Esophagus:

Embryology: Developmental anatomy informing the structure and function of esophagus, Developmental defects.

Anatomy: structure, relations, arterial supply and venous drainage, lymphatic drainage and lymph node stations, nerve supply and microscopic anatomy

Physiology: Normal function, normal and disordered swallowing, mechanism of gastro esophageal reflux

Special investigative modalities: Esophageal manometry, pH metery, endoscopic ultrasound. brush cytology, vital staining

Congenital disorders: Trachea-esophageal fistulae, diverticula, cysts, webs, and rings

Acquired conditions: GERD, Barret's esophagus, caustic injuries and strictures, esophageal perforations, esophageal trauma, acquired tracheoesophageal fistula, foreign bodies

Neuromuscular disorders: diverticula, achalasia, hypertensive LES, diffuse esophageal spasm, nutcracker esophagus, ineffectual esophageal motility

Benign tumors and cysts: Leiomyomas, fibromas, schwannomas, retention and duplication cysts

Carcinoma of the esophagus: Epidemiology, symptoms, diagnosis, staging, multimodality treatment and follow up

Operative exposure, procedures: Indications, contraindications, preparation, conduct and post-operative care for

a. Cervical, thoracic and abdominal incisions for esophageal exposure
b. Thoracoscopic (VATS), laparoscopic and robotic access
c. Esophagostomy
d. Heller's myotomy
e. Fundoplication
f. Trans-hiatal esophagectomy
g. Esophagectomy with or without lymphadenectomy
h. Esophageal replacement- conduits colon, stomach, small bowel
i. Enucleation of leiomyomas

Post-operative complications and management: Especially chylothorax, conduit delayed conduit emptying, anastomotic leak, RLN palsy

Stomach and duodenum

Embryology: Developmental anatomy informing the structure and function of stomach and duodenum.

Anatomy: Structure, relations, arterial supply and venous drainage, lymphatic drainage and lymph node stations, nerve supply, microscopic anatomy.

Physiology: Normal function, gastric secretions, pharmacologic regulation of acid secretion, gastric peptides, gastric barrier function, gastro-duodenal motility.

Congenital disorders: Pyloric stenosis, congenital diaphragmatic hernias, diverticulum.

Acquired conditions: Peptic ulcer disease and complications, stress gastritis, gastric hemorrhage and perforation, gastric outlet obstruction, Zollinger Ellison syndrome, H. Pylori in gastric diseases, non-ulcer dyspepsia, caustic injuries and strictures, gastric volvulus, diaphragmatic hernias, gastric trauma, foreign bodies and bezoars.

Benign tumors and cysts: Leiomyomas, fibromas, schwannomas, retention and duplication cysts.

Carcinoma of the stomach: Epidemiology, genetics, symptoms, diagnosis, staging, multimodality treatment and follow up

Gastric lymphoma: Epidemiology, symptoms, diagnosis, staging, multimodality treatment

Gastrointestinal stromal tumors: Epidemiology, symptoms, diagnosis, staging, multimodality treatment

Gastric carcinoids: Epidemiology, symptoms, diagnosis, staging, multimodality treatment

Operative procedures: Both open and Minimal access; indications, contraindications, preparation, conduct and post-operative care for

a. Vagotomy
b. Antrectomy
c. Gastrojejunostomy
d. emergency procedures for peptic duodenal and gastric perforations
e. emergency procedures for post-endoscopic/ERCP perforations
f. partial and total gastric resections with or without lymphadenectomy
g. reconstruction after gastric resection
h. sleeve gastrectomy for morbid obesity
i. Bypass surgery for morbid obesity

Post-operative complications and management: especially post-gastrectomy syndromes-dumping, afferent loop syndrome, efferent loop obstruction, metabolic disturbances, alkaling reflux gastritis, gastroparesis, anastomotic leak.

Small Intestine

Embryology-Especially embryological basis of malrotation, embryological basis of vascular supply and drainage.

Anatomy: Structure, relations, arterial supply and venous drainage, lymphatic drainage, nerve supply, microscopic anatomy.

Physiology: Normal function, intestinal secretions, digestion and absorption, intestinal motility, endocrine function, immune function

Congenital disorders: Duodenal webs, stenoses, intestinal malrotation, hernias, diverticulae, Meckel's diverticulum and its complications.

Acquired conditions: intestinal obstruction and strangulation, inflammatory diseases (Crohn's disease, intestinal tuberculosis, typhoid enteritis), diverticular disease, foreign bodies, entero-cutaneous fistula, radiation enteritis, blind loop syndrome, Short bowel syndronic, pucumatosis intcstinalis, short bowel syndrome, acute and chronic mesenteric ischemia.

Benign tumors and cysts: leiomyomas, adenomas, lipomas, hemangiomas, Peutz-Jeghers syndrome, retention and duplication cysts.

Malignant tumors: carcinoids, adenocarcinoma, metastatic neoplasms- symptoms, diagnosis, staging, multimodality treatment and follow up

Intestinal lymphoma: epidemiology, symptoms, diagnosis, staging, multimodality treatment

Gastrointestinal stromal tumors: epidemiology, symptoms, diagnosis, staging. multimodality treatment and follow up

Small bowel transplant: history, current status, indications, contraindications, conduct and post-operative management

Operative procedures: both open and minimal access; indications, contraindications, preparation, conduct and post-operative care for

a. resection and anastomosis- stapled and hand-sewn
b. creation of ileostomy/jejunostomy
c. reversal of ileostomy/colostomy
d. Restoration of bowel continuity.
e. Ladd's procedure for intestinal malrotation.
f. Feeding jejunostomy

Post-operative complications and management: care of ileostomy/jejunostomy, stomal dysfunction, management of high output from stoma, management of short bowel syndrome

Large intestine (colon, appendix, rectum and anal canal)

Embryology- developmental anatomy informing the structure and function of large intenstine.

Anatomy, anatomy of the colon, appendix, rectum (including the mesorectum), anal canal and pelvic floor-structure, relations, arterial supply and venous drainage, lymphatic drainage, nerve supply, microscopic anatomy. Vascular basis of colo-rectal resections.

Physiology: normal function, recycling of nutrients and the role of colonic flora, pre and probiotics; absorptive function, colonic motility, physiology of defecation and mechanism of continence

Congenital disorders: Hirschsprung disease, duplication cysts

Acquired conditions: obstruction, volvulus and strangulation, inflammatory diseases (ulcerative colitis, Crohn's colitis, infective colitis), acute appendicitis, diverticular disease, foreign bodies, entero-cutaneous fistula, radiation enteritis, blind loop syndrome, colonic ischemia. Perianal abscess and fistula, acute and chronic anal fissure; pilonidal disease, pelvic floor disorders and chronic constipation. Fecal incontinence, recto-vaginal fistula, rectal prolapse, internal prolapse and solitary rectal ulcer syndrome (SRUS), rectocele

Special investigations: colon transit studies, anal manometry, balloon expulsion, defecography, pudendal nerve latency

Benign tumors and cysts: leiomyomas, adenomas, lipomas, hemangiomas, duplication cysts

Polyposis syndromes: Familial Adenomatous Polyposis, HNPCC, Turcot's syndrome, Cowden's disease, familial juvenile polyposis etc.- screening, diagnosis, management including counseling of family members

Colo-rectal cancer-epidemiology, genetics, inheritance, symptoms, diagnosis, staging, multimodality treatment, including the management of metastatic disease and follow up

Large Intestinal lymphoma: epidemiology, symptoms, diagnosis, staging, multimodality treatment

Gastrointestinal stromal tumors: epidemiology, symptoms, diagnosis, staging, multimodality treatment

Operative procedures: both open and laparoscopic (MIS), in the elective and emergency setting, indications, contraindications, preparation, conduct and post-operative care for

a. Colectomy-segmental, total, subtotal
b. Appendectomy
c. creation of colostomy
d. reversal of colostomy
e. anterior resection, low anterior resection, ultra-low anterior resection
f. inter-sphincteric resections
g. abdominoperineal resection
h. pelvic eventeration
i. sphincter reconstructions
j. pelvic floor repair
k. restorative proctocolectomy with pouch-anal anastomosis for ulcerative polysis coli
l. rectopexy
m. perineal procedures for rectal prolapse.

n. hemorrhoidectomy- stapled and classical
o. lateral anal sphincterotomy
p. fistulotomy, fistulectomy, seton placement, LIFT,
q. repair of rectovaginal fistula
r. basic principles and conduct of related urologic and gynecological issues like ovarian and uterine malignancies, Internal fistula, neobladder formation, tumors of the kidney, adrenal and IVC

Post-operative complications and management: care of ileostomy/colostomy; LAR syndrome, pouchitis, incontinence

Liver

Embryology-developmental anatomy informing the structure and function of the liver

Anatomy: functional segmental anatomy of the liver, various nomenclatures, relations, arterial supply and venous drainage, lymphatic drainage, nerve supply, microscopic anatomy including hepatic microcirculation. Anatomical basis of liver resections. Important variations in biliary and vascular anatomy

Physiology: normal function in carbohydrate, lipid and protein metabolism; bile formation and enterohepatic circulation; bilirubin metabolism; vitamin metabolism, role of liver in normal coagulation; metabolism of drugs and toxins; liver regeneration:

Investigations: assessment of liver function- liver function tests, ICG, Scoring systems-Child-Pugh's, MELD, PELD etc

Congenital disorders: biliary atresia, Caroli's disease, inborn errors of metabolism

Infective conditions: pyogenic abscess, amoebic abscess, hydatid cyst, tubercular abscess, fungal abscess, recurrent pyogenic cholangitis; viral hepatitis and acute liver failure

Benign tumors and cysts: liver cell adenomas, focal nodular hyperplasia, hemangiomas, simple liver cyst, polycystic liver disease

Primary malignant tumors- (hepatocellular carcinoma including variants and intra hepatle cholangiocarcinoma), intra-ductal papuary mucinous neoplasm (IPMNb) epidemiology, genetics, inheritance, symptoms, diagnosis, staging, multimodality treatment and follow up

Metastatic tumors: epidemiology, symptoms, diagnosis, and multimodality treatment

Portal hypertension (cirrhotic): epidemiology, presentation and management of esophageal and gastric variceal bleeding.

Portal hypertension (non-cirrhotic): Extra-hepatic portal venous obstruction (EHPVO) non-cirrhotic portal fibrosis (NCPF); epidemiology, symptomatology, presentation and management.

Hepatic trauma: principles of surgical and non-surgical management

Preoperative optimization of liver function: volume assessment, portal vein emboli preoperative biliary drainage

Liver transplantation: history, medico-legal considerations, indications and contra-indications, organ preservation, immunologic considerations, deceased donor and living related liver transplant, anesthetic and transfusion considerations, technical considerations, complications, post-operative complications, immunosuppression and follow up

Operative procedures: both open and MIS (laparoscopic/Robotic); indications, contraindications, preparation, conduct and post-operative care for

a. anatomical and non-anatomical, minor and major hepatic resections using various techniques of vascular control, parenchymal transection
b. open and closed pericystectomy for hydatid disease; partial pericystectomy
c. donor hepatectomy
d. recipient hepatectomy
e. liver transplant
f. techniques of microvascular anastomosis
g. Surgery for portal hypertension
    a. Porto-systemic shunts (porto-caval, meso-caval, proximal splenorenal, distal splenorenal)
    b. Splenectomy and devascularization
    c. Devascularization procedures
    d. Rex shunt

Postoperative complications and management: post-hepatectomy liver failure, bile leak, sepsis, bleed; post-transplant complications- acute and chronic rejection, arterial and venous thrombosis, biliary complications, complications of immunosuppression, GVHD

Gallbladder and biliary tract:

Embryology- developmental anatomy informing the structure and function of gallbladder and bile ducts

Anatomy: anatomy of the gallbladder and extrahepatic bile ducts- relations, arterial supply and venous drainage, lymphatic drainage, nerve supply, microscopic anatomy. Variations in bilio-vascular anatomy and their importance in biliary surgery

Physiology: normal function, role in bile metabolism, gall bladder motility

Special investigations: MRI including MRCP, ERCP, HIDA scans, PTC, endoscopic ultrasound

Congenital disorders: choledochal cysts, biliary atresia, Caroli's disease

Acquired conditions: gallstones and complications (acute cholecystitis, gallbladder perforation, empyema, chronic cholecystitis, XGC, adenomyosis, Mirrizzi's syndrome gallstone ileus, CBD stones, cholangitis), intra-hepatic stones, sclerosing cholangitis

Post cholecystectomy bile duct injuries and benign biliary stricture- epidemiolog prevention, presentation and management

Benign tumors: Gall bladder polyps, polyposis

Gallbladder and biliary cancer- epidemiology, genetics, symptoms, diagnosis, staging, multimodality treatment and follow up. Preoperative preparation and optimization of patients with biliary malignancies.

Operative procedures: both open and laparoscopic, in the elective and emergency setting; indications, contraindications, preparation, conduct and post-operative care for

a. cholecystectomy
b. cholecystectomy with CBD exploration and primary closure or T-tube drainage
c. choledochoduodenostomy
d. transduodenal sphincteroplasty
e. hepaticojejunostomy
f. extended cholecystectomy for gallbladder cancer (enbloc cholecystectomy with liver wedge and lymphadenectomy with or without CBD excision)
g. extended resections for gallbladder cancer including hepatic resections, pancreatic resections and colectomy
h. bile duct resection
i. choledochal cyst excision and Roux-en-Y hepaticojejunostomy
j. hepaticojejunostomy for post-cholecystectomy benign biliary stricture
k. hepatic resections with resection of extra-hepatic bile duct for cholangio-carcinoma

Postoperative complications and management: bile leak, sepsis, bleed, post-hepatectomy liver failure

Pancreas

Embryology- developmental anatomy informing the structure and function of pancreas with special reference to pancreas divisum and annular pancreas

Anatomy: anatomy of the pancreas- relations especially to the portal vein and SMA, arterial supply and venous drainage, lymphatic drainage, nerve supply, microscopic anatomy.

Physiology: exocrine and endocrine function and the neurohormonal control of pancreatic secretion

Special investigations: tests of pancreatic function, endoscopic ultrasound, MRCP and ERCP, Octreotide receptor based scans, c-peptide result interpretation

Congenital disorders: pancreas divisum, annular pancreas

Acquired conditions: acute pancreatitis, chronic pancreatitis, autoimmune pancreatitis groove pancreatitis

Cystic tumors of pancreas: serous cystadenoma, mucinous cystadenoma, intra-ductal papillary mucinous neoplasm (IPMN), solid pseudopapillaryneoplasms, cystic neuroendocrine tumors.

Neuroendocrine tumors of pancreas

Pancreatic cancer- epidemiology, genetics, symptoms, diagnosis, staging, multimodality treatment and follow up

Pancreatic trauma: principles of surgical and non-surgical management

Pancreatic transplant : indications, contraindications, procedure, post operative complications, and current status

Operative procedures: both open and MIS (laparoscopic/Robotic), in the elective and emergency setting; indications, contraindications, preparation, conduct and post-operative care

a. Necrosectomy – open and VARD
b. Lateral pancreatojejunostomy
c. Frey's procedure
d. Distal pancreatectomy- with or without spleen preservation
e. Pancreatoduodenectomy – classical and pylorus preserving/pylorus resecting
f. Vascular resections and reconstruction in pancreatoduodenectomy
g. RAMPS in pancreatic cancer

Post-operative complications and management: especially post-pancreatectomy hemorrhage, pancreatic leak and fistula, delayed gastric emptying, bile leak and sepeis.

Spleen:

Embryology: developmental anatomy informing the structure and function of spleen

Anatomy: relations, arterial supply and venous drainage, lymphatic drainage, nerve supply, microscopic anatomy.

Physiology: splenic function relating to hematopoiesis, immune functions, defense and cleansing

Benign cysts and tumors: parasitic and non-parasitic cysts, pseudocysts, splenic abscess

Hematologic indications for splenectomy: ITP, hereditary spherocytosis, hemolytic anemias, sickle cell disease and thalassemia; leukemias

Malignant tumors: lymphomas, hemangiosarcomas, lymphangiosarcomas, metastases

Splenic trauma: principles of surgical and non-surgical management

Operative procedures: both open and MIS (laparoscopic and robotic), in the elective and emergency setting; indications, contraindications, preparation, conduct and post-operative care

a. Splenectomy
b. Partial splenectomy

In addition to the above, candidates should possess comprehensive and in-depth knowledge of diseases and surgical conditions particularly relevant to the region, including hepatobiliary and pancreatic disorders prevalent in Kashmir and adjoining areas. The syllabus should emphasize expertise in the diagnosis, multidisciplinary management, and advanced surgical treatment of conditions such as alveolar hydatid disease, complex biliary pathologies, portal hypertension, and hepatopancreatobiliary malignancies. Candidates are also expected to be well versed with contemporary concepts in liver transplantation, including transplantation in selected non-cirrhotic indications such as hilar cholangiocarcinoma and hepatocellular carcinoma, as well as organ-preserving and function-preserving pancreatic resections, including pancreas-preserving procedures in pancreatic malignancies where appropriately indicated. Familiarity with evolving oncological strategies, minimally invasive approaches, transplant oncology, and region-specific disease burden should form an integral component of the expected competency.

The candidate should be up to date with all landmark trials pertaining to Surgical Gastroenterology and liver transplantation like CROSS Trial-Neoadjuvant chemoradiotherapy for esophageal cancer, MAGIC Trial-Perioperative chemotherapy in gastroesophageal cancer, FLOT4 Trial-FLOT vs ECF/ECX regimen, Dutch D1D2 Trial – Extent of lymphadenectomy, KLASS Trials – Laparoscopic gastric surgery, PRODIGE 7 - HIPEC in colorectal peritoneal metastasis, COLOR II Trial - Laparoscopic rectal surgery, RAPIDO Trial - Total neoadjuvant therapy, PRODIGE 23 Trial, ROLARR Trial – Robotic rectal surgery, SHARP Trial - Sorafenib in HCC, IMbrave 150 Trial - Atezolizumab + Bevacizumab, HIMALAYA Trial - Durvalumab + Tremelimumab, BILCAP Trial - Capecitabine in biliary tract cancer, POISE Trial, PANTER Trail – Step- up approach in necrotizing pancreatitis, PREOPANC Trial – Neoadjuvant therapy in pancreatic cancer, ESPAC – 1 Trial, LEOPARD Trial, SECA I and SECA II – Liver transplant for colorectal liver metastasis.