



King George's

Medical

University U.P

Gandhi Memorial & Associated Hospitals, Lucknow

Department of Surgical Gastroenterology

# **Curriculum for M.Ch. Surgical Gastroenterology**

**(Revised and Approved on Board of Studies meeting of the Department of Surgical Gastroenterology held on 12<sup>th</sup> October 2021)**

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# LEARNING OUTCOMES

## **Program Outcomes**

PO1. Competency, pertaining to gastrointestinal surgery required to be practiced at the secondary and tertiary levels of the health care delivery system

PO2. Awareness about the cotemporary advances and developments in the discipline concerned

PO3: Should have acquired a spirit of scientific enquiry and should be oriented to the principles of research methodology

PO4: Should have acquired the basic skills in teaching of medical and paramedical professionals

## **Program Specific Outcomes**

PSO1: Awareness of the importance of GI surgery as a specialty in the context of health need of community

PSO2: The attitude to practice gastrointestinal surgery ethically

PSO3: Understanding of the basic sciences relevant to gastrointestinal surgery

PSO4: Ability to diagnose and manage majority of the conditions in the specialty concerned on the basis of clinical assessment and appropriate investigations

PSO5: Competency to plan and advice measures for the prevention and rehabilitation of patients from diseases and disabilities pertaining to GI surgery

PSO6: Demonstration of empathy and human approach towards patients and their family

PSO7: Ability to play the assigned role in the implementation of national health programmes effectively and responsibly.

PSO8: The ability to train post graduate students after MS General Surgery or DNB in general surgery, in gastrointestinal surgery, so that they gain expertise in managing the diseases of gastrointestinal tract and acquire skills.

PSO9: Ability to actively participate in research in disorders of GI tract.

PSO10: The attitude to keep them abreast in scientific developments related to gastrointestinal diseases

## **1. GOAL**

The Goal of the M.Ch. (Surgical Gastroenterology) postgraduate course would be to train the candidate to

- i) Recognize the health needs of the community as relevant to the super speciality of Surgical Gastroenterology and carry out professional obligations efficiently and effectively backed by scientific knowledge and skill base.
- ii) Master most of the competencies pertaining to Surgical Gastroenterology, which is required to be practiced at the secondary and tertiary levels of the

- health care delivery system.
- iii) Be aware of the contemporary advances and developments in Surgical Gastroenterology.
  - iv) Show empathy and caring attitude towards patients, relatives and maintain high ethical standards.
  - v) Evince keen interest in continuing surgical education; irrespective of whether working in a teaching institution or being a practicing Surgical Gastroenterologist.
  - vi) Be a motivated teacher-defined as a Surgical Gastroenterologist keen to share knowledge and skills with colleagues, juniors or any learner.

### **COMPONENTS OF THE POSTGRADUATE CURRICULUM (AS PER MCI GUIDELINES):**

The major components of the postgraduate curriculum shall be:

1. Theoretical knowledge
2. Practical and clinical skills
3. Thesis skills.
4. Attitudes including communication skills.
5. Training in research methodology.

# **TRAINING OBJECTIVES IN THE HIGHER SPECIALITY OF SURGICAL GASTROENTEROLOGY**

## **National objectives**

At the end of the course the candidates should be able to-

1. Work in any hospital in India with minimum facilities and should be able to diagnose and treat surgical gastroenterological and related problems efficiently both on an elective and on an emergency basis.
2. Start unit/department of Surgical Gastroenterology effectively.
3. Work effectively with the national programmes and also develop new paradigms for the management of hepato-biliary, pancreatic, colorectal and other general gastroenterological problems

## **International objectives**

1. Should be able to participate in international conferences, workshops and updates to bring honour and fame to our country.
2. Should be able to invite and interact with international visiting Surgical Gastroenterology faculty.

## **Institutional objectives**

The objectives are laid out to be achieved by the time the candidates complete the course. The objectives may be considered under the following subheadings:

1. Knowledge
2. Practical and clinical skills
3. Thesis skills.
4. Training in research methodology.
5. Human values, ethical practices and communication abilities.

# Syllabus

## **a. Oesophagus**

Anatomical details, physiology of swallowing, esophageal manometry, endoscopic ultrasound and other diagnostic techniques, brush cytology, vital staining, contrast imaging and CT scan, congenital lesions (TOF), Zenker's diverticulum, epiphrenic diverticulum, esophageal trauma, rupture-spontaneous or iatrogenic, corrosive burns-detection, evaluation and management, esophageal motility disorders, Gastro esophageal reflux disease, achalasia, Barrett's esophagus, esophageal cancer- adeno & squamous, various esophageal operations-diverticulectomy, excision of leiomyoma, esophagostomy, myotomy, fundoplication, esophageal resection (Ivor Lewis, Mc Keown, Transhiatal), cervical exploration, esophagogastrostomy, gastric pull-up, gastric and colonic bypass, complications of esophagectomy, management of chylothorax.

## **b. Stomach and Duodenum**

Anatomical details, physiology of gastric secretions, gastro-duodenal motility, diaphragmatic hernia (congenital and acquired), volvulus, pyloric stenosis in children and adults, Foreign bodies (bezoars), stomach trauma, H. pylori in gastric diseases, peptic ulcer, Zollinger-Ellison syndrome, NUD, Gastric tumors, gastric surgery-vagotomy and pyloric drainage, gastrojejunostomy, bariatric gastric tube creation, R-en-Y oesophago-jejunal anastomosis, postgastrectomy syndromes and complications.

## **c. Biliary System**

Detailed anatomy, bile physiology, enterohepatic circulation, acute cholecystitis, chronic cholecystitis, acalculous cholecystitis, gallstones-pathogenesis and presentation, CBD stones. CBD stricture, cholangitis, postcholecystectomy syndromes, choledochal cyst, polyps of GB, carcinoma of gall bladder, cholangiocarcinoma, parasitic infestations of biliary tree, cholecystectomy-open and laparoscopic, CBD exploration and drainage, biliary bypass radical cholecystectomy, choledochal cyst excision, primary sclerosing cholangitis endoscopic biliary interventions and stenting hemobilia.

## **d. Liver**

Segmental anatomy in detail, liver function and tests, liver regeneration, liver failure-diagnosis and management, liver abscess cysts, benign and malignant tumours (HCC, intrahepatic cholangiocarcinoma, hemangioma, FNH adenoma), cirrhosis, PBC, viral

hepatitis, radiological imaging modalities (US, CECT, Lipiodol CT, Dynamic CT, MR imaging and radionuclide scanning), percutaneous transhepatic biliary drainage and cholangiography. Liver biopsy, portal hypertension (cirrhotic and non-cirrhotic causes), hepatic venous outflow obstruction, shunt surgery (Proximal lienorenal shunt, cavoatrial, mesocaval, portocaval-side to side), splenectomy and devascularisation, liver resection-anatomic and non-anatomic, liver trauma, hepaticojejunostomy, seg III bypass, Orthotopic liver transplantation, live related transplantation, Caroli's disease, hemobilia.

#### **e. Pancreas**

Anatomy, physiology, pancreatic ductal anomalies, acute pancreatitis, chronic pancreatitis- calcific, tropical and alcoholic; endocrine tumours, exocrine tumours of pancreas, cystic neoplasms; pseudocysts of pancreas, haemosuccus pancreaticus; pancreatic operations : pancreatic necrosectomy, pseudocystogastrostomy/jejunostomy, pylorus preserving pancreatoduodenectomy, duodenum preserving pancreatic head resections (Frey's, Beger's), distal pancreatectomy, regional pancreatectomy, total pancreatectomy, lateral pancreaticojejunostomy, Whipple's, pancreatic transplantation.

#### **f. Peritoneum, Omentum, Retroperitoneum**

Recesses, reflections, subdiaphragmatic spaces, peritonitis primary secondary and tertiary, tuberculosis, mesenteric cyst, pseudomyxoma peritonei, ascites (diag. invest and management), retroperitoneal tumours, inguinal hernia, ventral hernias, peritoneoscopy.

#### **g. Spleen**

Anatomy, splenic function, haemolytic anaemias, splenomegaly hypersplenism, splenic trauma, cysts and granulomas, physiological effects of splenectomy, OPSI, splenic vein thrombosis, splenic artery aneurysms, splenectomy, splenic preservation.

#### **h. Small Intestine**

Mesenteric vascular anatomy, intestinal physiology, Ladd's band, malrotation, volvulus, hernia, intestinal obstruction, ileocaecal TB, lymphoma, tumours of small intestine, Meckel's diverticulum, intussusception, small bowel gangrene, intestinal resections, lengthening and transplantation, mesenteric ischaemia, short gut syndrome, small bowel fistulae, Crohn's and other inflammatory bowel diseases, enteral feeding, home/parenteral nutrition.

#### **i. Colon, Rectum and Anal Canal**

Anatomy, physiology. colonic motility, physiology of defaecation and anal continence; Hirschsprung's disease, anorectal malformations, rectal prolapse, SRUS, pseudo-obstruction (Ogilvie syndrome), descending perineum syndrome, anismus and

constipation, anal incontinence, haemorrhoids, fissure, fistulae and anal stricture, polyps and other benign tumours-hereditary and familial polyposis syndrome, ulcerative colitis and Crohn's disease, amoebic colitis, ischaemic colitis, diverticulitis.lower GI haemorrhage, carcinoma of the colon, rectum, anal canal; Operations-APR, anterior resections, segmental colectomies, pelvic exenterations, colostomy, ureterosigmoidostomy, hemicolectomies, urinary diversions, surgery for anal incontinence, rectal prolapse and complex fistulae, restorative proctocolectomy and ileoanal pouch anastomosis.

#### **j. General Topics**

Tumour genetics-oncogenes, tumor markers, systemic inflammatory response syndrome (SIRS), multiple organ dysfunction syndrome (MODS), immunology in relation to transplantation and rejection, intensive care and respiratory support, surgical nutrition-parenteral and enteral, iatrogenic complications of surgery like enterocutaneous fistulae, biliary strictures, intrabdominal sepsis/collections, AIDS, hepatitis and surgeons, renal failure, shock, disorders of coagulation, biostatistics, research methodology and surgical audit.

#### **k. Liver Transplant Programme**

Each resident is expected to be conversant with the issues related to liver transplantation(viz.recipient selection and workup, pre-transplant evaluation, Indian brain death law, brain dead donor management - before and during retrieval, donor harvesting procedure, recipient management - operative and post transplant care and followup).

## **2. OPERATIVE SKILLS**

Surgical Procedures, each Candidate is Expected to perform or Assist at the end of his / her M.Ch. course in surgical gastroenterology. No exhaustive list is possible, and the maximum extent of surgical exposure a candidate would acquire would depend on his/her competence. However, a basic level of surgical competence is essential by the end of the course.

### **Esophagus**

Heller's Operation, Fundoplication, THE + gastric pull up, TTE + gastric pull up,  
Colonic pull up

### **Stomach and Duodenum**



TV + G.I./Poloroplasty, Billroth I & II gastrectomy, Radical gastrectomy

### **Small Intestine**

Resection and anastomosis, Ileostomy closure, Feeding jejunostomy,

### **Large Intestine**

Rt hemicolectomy, Lt hemicolectomy, APR, Ant. Resection, Restorative Proctocolectomy Ileal J Pouch and anastomosis

### **Pancreas**

Pancreatic Necrosectomy, Cyto-gastrostomy/jejunostomy, Lateral  
pancreatico- jejunostomy, Whipple's procedure

### **Biliary Surgery**

Open cholecystectomy, Radical cholecystectomy, CBD Exploration/CDD, Hepatico-jejunostomy R-en-y, Segment III HJ

### **Portal Hypertension**

Splenectomy+Devascularisation, Proximal lienorenal shunt, Portocaval/Mesocaval shunt

### **Liver Surgery**

Major hepatic resection, Wedge resections, Hydatid cyst excision

# Teaching Learning Methods

The training programme curriculum was revised so that at the end of 3years of training in the Department of Surgical Gastroenterology, a resident would be conversant with all the complex gastrointestinal surgical problems and in addition would be able to manage complex abdominal, alimentary tract and hepatobiliary diseases in dependently with a high degree of competence. To achieve a high degree of surgical and clinical skill, a resident requires being proficient with both the theoretical and practical aspects of gastrointestinal diseases. The training period consists of three years duration. Each candidate undergoes a stepwise training programme as mentioned below

## **1<sup>st</sup> Year**

- Clinical exposure with bed responsibilities
- I<sup>st</sup> on call duties for in-patients.
- Exposure to intensive care and artificial respiratory support with ventilators.
- Academic work - Journal Club/Topic discussion
- Protocol submission for research projects
- Monthly audit presentations
- Surgical work - mainly as an assistant in all surgical procedures-emergency + elective. In addition he is allowed to perform few minor operations under supervision.

## **2<sup>nd</sup> Year**

- Ward responsibilities + out patients (supervision of 1<sup>st</sup> year residents)
- Project work
- Assist and perform emergency and elective operations under supervision.
- Academic presentation – case presentation/journal clubs/seminars.
- Encouraged to attend and present research paper in conferences.

## **3<sup>rd</sup> Year (1<sup>st</sup> Half)**

- Ward responsibilities similar to 2nd year + out patients (supervision of 1<sup>st</sup> year).
- Emphasis on completion of projects/data analysis.
- Academic work -as before with more emphasis on intra department clinical case presentations.
- Expected to perform major abdominal operations independently

### **3rd Year (2<sup>nd</sup> Half)**

- Ward responsibilities (lesser duties) + outpatients.
- Submission of research projects.
- Clinical case presentation - 3 times/ month along with topic discussion.
- Surgical work including performing major cases under supervision and assisting and teaching residents junior to him in OT
- MCh exit send up exams (model exam) to held 3 months prior to the actual exit exam date.
- MCh exit exam.

### **TEACHING AND LEARNING ACTIVITIES**

A list of teaching and learning activities designed to facilitate the resident to acquire essential knowledge and skills is given below.

#### **1. PG Orientation:**

A PG Orientation programme organized during the first year of residency to inculcate communication skills in the residents and apprise them of research methodology, Bio-statistics, writing dissertation, use of library, medical code of conduct and medical ethics.

#### **2. Journal Club:**

It will be held once a week. The presentations would be evaluated using check list and would carry weightage for internal assessment.

#### **3. Subject Seminar:**

Seminar will be held at least once a week. Every candidate must make a presentation on selected topics at least four times a year and a total of 12 presentations in three years. The presentations would be evaluated using checklists and would carry weightage for internal assessment.

#### **4. Ward Rounds:**

Ward rounds will be service or teaching rounds. Every week there will be one 'grand round' for teaching purpose. All post graduate students will be required to attend the grand round.

#### **5. Pre-operative session:**

Preoperative session including detailed presentation of clinical history, examination findings, imaging and operative plan of the patient posted for surgery on that particular

day

### **6. Surgical Audit:**

This session will be held once in a month. The patients with complications and morbidity will be discussed. All the post graduate students will participate and present their cases.

### **7. Inter Departmental Meetings:**

Inter departmental meetings will be held with pathology, radiodiagnosis and radiotherapy to discuss complex multidisciplinary cases.

### **8. Teaching Skills:**

Postgraduate students must teach under-graduate students (E.g. Medical Nursing by taking demonstrations, beside clinics, tutorials etc.)

### **9. Continuing Medical Education Programmes (CME) and Conference:**

From second year onwards, residents shall be encouraged to attend at least one conference per year (IASG/ specialty conference) and would need to compulsorily present a paper/poster.

## **Interdisciplinary Training**

Extra-mural posting – 1 month, in 3rd year M.Ch. to observe other renowned departments

# **ASSESSMENT METHOD**

There will be periodic assessment of learning outcomes. Following will be methods of assessment:

- (i) Personal Attitudes
- (ii) Acquisition of Knowledge
- (iii) Clinical and Operative Skills
- (iv) Teaching skills
- (v) Periodic Tests
- (vi) Log Book
- (vii) Dissertation.

**(i) Personal Attitudes:**

Caring attitude, punctuality, organizational ability, potential to cope with stressful situations and undertake responsibility, trustworthiness and reliability, communication and professional relationship with patients and colleagues, ability to work in a team will be assessed mainly by observation. Periodic reviews and feedback will be given to the residents, by the supervisor's and peers.

**(ii) Acquisition of knowledge:**

Log Book will be assessed by periodic checking which will record participation in various teaching/learning activities by the residents. The number of activities attended and the presentations made will be recorded. The log book will be validated periodically by the supervisors.

**(iii) Clinical and Operative Skills:**

Skills in outpatient, operation theater and ward work will be assessed periodically.

**a. Clinical Skills:**

Candidates should periodically present cases to his peers and faculty members. Candidates approach to the case, diagnosis abilities, case work up and treatment planning will be assessed using a checklist.

**b. Operative Skills:**

The candidate will be given graded responsibilities to enable learning by apprenticeship. The assessment will include candidates' analytical ability, preoperative assessment, planning for surgery, assistance during surgery, surgical performance and postoperative care. The performance will be assessed by the guide by direct observation.

In addition minimally invasive operative surgery skills will be assessed objectively using **advanced laparoscopic stimulators** with haptic feedback. Candidates need to undergo

repeated training till they achieve a predetermined target score. Achievement of a target score is an essential prerequisite before operating on the patients.

**(iv) Teaching Skills:**

Candidates will be encouraged to teach MS general post graduate students (if posted to the department of Surgical Gastroenterology) and paramedical students. Teaching skills will be assessed by the faculty members of the department and from feedback from the residents and students.

**(v). Periodic Tests:**

Problem based short essay questions will be used for assessment of theoretical knowledge. For the assessment of clinical skills separate clinical examination will be held using both long and short cases.

Journal Club reviews; Seminar; Treatment planning session; Case presentations and Model Examinations will be assessed based on predesigned assessment forms.

**(vi). Log Book:**

The maintenance of Log book will be mandatory for the trainee. It will be a record of the important activities of the candidate during his training. Internal assessment will be based on the evaluation of the log book. Collectively, log books will be a tool for the evaluation of the training programme of the institution by external agencies. The record will include academic activities as well as the presentations and procedures / operations carried out / observed / assisted by the candidate. Format of the log book for the different activities will be submitted. Copies may be made and used by the candidate. Candidate will have an internal assessment at the end of first two years and there will be one examination at the end of three years of the training. In each of these exams, the assessment of the trainee for the award of MCh in gastrointestinal Surgery will be done in four parts.

**a) Written Examination:**

There will be four papers, each of THREE HOURS duration.

Paper I: Basic medical sciences related to surgical Gastroenterology.

Paper II: Basic principles of surgical gastroenterology

Paper III. Regional and systemic GI surgery

Paper IV: Current trends and recent advances in surgical gastroenterology including transplantation

**b) PRACTICAL/OPERATIVE, CLINICAL AND VIVA VOCE:**

## Assessment of Logbook and dissertation

### **c) Clinical Examination:**

1. Long case – 1hour
2. Short case – A selection of short cases covering a wide range of problems (1 hour)
3. Clinical ward round

### **d) Viva voce:**

This is to assess the competences of the candidate in interpreting various diagnostic aids, Pathology specimens, slides and surgical instruments, radiological images of relevance to the subject are to be identified and discussed to evaluate analytical skills in all settings and their appropriateness.

### **SUGGESTED READING**

Although no specific books are prescribed, and the candidate is expected to read extensively in the field, the following are suggested.

1. Biological basis of Modern Surgical practice –Sabiston
2. Shackelford's Surgery of the Alimentary tract
3. Surgery of Colon and Rectum –Coreman
4. Surgery of anus rectum and colon – MRB Keighley
5. Nyhu's mastery of surgery
6. Maingot's abdominal operations
7. Bumgart's- Surgery of the liver and biliary tract
8. Surgery of Pancreas – Trede and Carter
9. Art of Laparoscopic Surgery – C Palanivelu
10. Cuschieri laparoscopic biliary surgery
11. Patho-physiology, diagnosis and management of gastrointestinal and liver diseases  
Sleisnger and Fordtrans

## **Academic Activities**

Monday	GI – Medical Gastro Meeting
Tuesday	Case Presentation
Wednesday	Approach to In house Clinical Problems
Thursday	GI – Tumor board Meeting
Friday	GI – Pathology Meeting
Saturday	GI – Seminar, Journal Club, Audit & Mortality

### **Research Methodology**

- a) Have acquainted with basics of statistics to understand and critically evaluate published research paper.
- b) Attend to a few lectures or other type of exposure to human behavior studies.
- c) Possess basic understanding of pharmaco-economics.
- d) Be able to plan and conduct clinical trials
- e) Be able to undertake and complete a research project.
- f) Be able to formulate a research question.
- g) Design an appropriate study.
- h) Collect and analyse data using appropriate statistical techniques.
- i) Present his findings in the form of a research paper for publication.

### **Communication Skills**

Physician communication skills are associated with improved patient satisfaction, better health outcomes, greater adherence to treatment, and more active self-management of chronic illnesses.

Communication skills rating scale from Kalamazoo consensus statement is used for assessment. Feedback is provided to improve learning and corrective measures (including counseling) taken if performance is below expected.