

CURRICULUM
FOR
DNB SURGICAL
GASTROENTEROLOGY

National Board of Examinations

New Delhi

INTRODUCTION

The National Board of Examinations was established in 1975 by the Government of India with the prime objective of improving the quality of the Medical Education by establishing high and uniform standards of postgraduate examinations in modern medicine on an all India basis.

DNB IN SURGICAL GASTROENTEROLOGY

APPROVAL OF COURSE

The DNB program shall be started only after appropriate regulatory approvals from NBE.

STUDENTS' ELIGIBILITY AND SELECTION METHODS

Entry Requirements

Applicants for DNB Surgical Gastroenterology course should have passed DNB or MS in General Surgery.

Selection Procedure

Students will be granted admission as per the procedure laid down by the NBE for admission to various DNB Super Specialty courses in various Institutions/Hospitals accredited for running DNB Surgical Gastroenterology courses. Currently, this is being done through a CET-Super Specialty Examination held as per schedule of examinations laid down by NBE from time to time followed by merit base centralized counseling conducted by NBE.

Duration of the Course

The duration of course in Surgical Gastroenterology will be 3 years, which will include training in clinical, basic sciences and research.

DNB SURGICAL GASTROENTEROLOGY COURSE – GENERAL DESCRIPTION

Surgical Gastroenterology is a sub-speciality dealing with the management of diseases related to the human gastrointestinal tract involving the organs namely oesophagus, stomach, pancreas, liver, gall bladder and biliary tract, small and large intestine, rectum and anus. It is a well recognized specialty today.

Diseases of the GI system are among the most common disorders in India. The National Board of Examinations, recognizing the need and the importance of GI surgery, has established a DNB examination in Surgical Gastroenterology. This DNB programme will fulfill the 3 objectives of good surgical training, namely, patient care, teaching and research.

PROGRAMME GOALS

The goal of the training programme in the Surgical Gastroenterology is to produce a surgeon who can provide tertiary care for patients with complicated problems related to the gastrointestinal tract and related organs.

At the end of the training, the trainee should be:

- i. A competent and caring surgeon who follows high standards of ethical practice.
- ii. A thinking surgeon who applies his knowledge based on best current evidence, to the problems of gastrointestinal surgery.
- iii. A competent surgeon who performs complicated major surgery.
- iv. A good teacher who shares his skills and knowledge with his colleagues.
- v. One who constantly updates his knowledge and skill.

PROGRAMME OBJECTIVES

In order to achieve the above goals, the following objectives are laid down:

The objectives may be considered under 3 domains:

- i. Knowledge (cognitive)
- ii. Skills (psychomotor)
- iii. Ethical principles, Communication and Rational thought (affective)

At the end of the training programme the trainee should be able to:

Knowledge:

- a. Understand etiology, pathophysiology and diagnose gastrointestinal surgical problems on the basis of history and clinical examination.
- b. Interpret laboratory investigations, endoscopic and radiological findings in a logical manner and arrive at a reasonable diagnosis.
- c. Advise the patient appropriate treatment on the basis of (a) and (b) above.
- d. Be proficient in the proper selection of patients for surgery, the timing of surgery and pre-operative work up and post-operative care.
- e. Manage emergency situations related to the gastrointestinal system, such as gastrointestinal bleeding, acute abdomen, abdominal trauma, etc.
- f. Be proficient in monitoring and management of the critically ill patient.
- g. Continuously update knowledge and skills, and keep abreast of the latest advances.

- h. Teach undergraduate and postgraduate students.
- i. Carryout medical research i.e. plans clinical trials and laboratory research.

Skills:

- a. Perform endoscopic procedures.
- b. Perform elective complex gastrointestinal surgery such as porta-systemic shunts, pancreato-duodenectomies, esophageal resections, etc., and have exposure to laparoscopic and minimally invasive surgery
- c. Proficient and preoperative work up and post-operative care of the surgical patient, including invasive monitoring.

Ethical Principles:

- a. Follow-up high standards of ethical practice.
- b. Respect patient's right and privileges, his/her right to information and right to seek second opinion.
- c. Be able to work as member of a team and also provide leadership where necessary.

TEACHING & LEARNING METHODS

Teaching method and learning methods will include

1. Ward and out patient management.
2. Learning correct surgical technique. Assisting and performing operations.
3. Gastrointestinal surgery teaching rounds.
4. Combined surgical gastroenterology and medical gastroenterology teaching rounds.
5. Formal case presentations and discussions.
6. Topic discussion in which a topic relating to a problem in management is discussed.
7. Journal club (weekly)
8. Research Review (monthly). Thesis and research projects in unit are discussed.
9. Guest and in-house lectures.
10. Participation in conferences, workshops, CMEs (conducted by NBE, other institutions etc.), seminars.
11. Surgical Audit (weekly morbidity and mortality meeting

SYLLABUS

Each candidate is expected to acquire a thorough knowledge of the organs of the GI tract as regards anatomy, physiology, pathology of various diseases congenital/acquired/traumatic vascular/ neoplastic and their detailed principles of management both medical and surgical. For the management of malignant diseases, the candidates are supposed to be acquainted with general oncological principles, various investigative approaches and different modalities of adjuvant treatment employed (e.g. chemotherapy, radiotherapy, immunotherapy etc.).

BASIC SCIENCES AND PRINCIPLES OF SURGICAL GASTROENTEROLOGY

Part I

- Anatomy - Gross and histological anatomy of the abdomen .and its contents including entire GI tract, Liver (including segmental anatomy), Biliary tract, Pancreas, spleen, portal and Hepatic venous system.
- Physiology - Normal function of GI tract and related organs including endocrine functions of gut and pancreas. Physiological basis of various tests to study these functions.
- Pharmacology of drugs used in GI surgical disorders e.g. to control acid secretion in the management of ulcerative colitis and immunosuppressive drugs.
- Fluid -electrolyte and acid base disturbance- general aspects, imbalance in GI surgical patient's physiological responses to volume and osmolality abnormalities, interpretation of blood gas analysis, maintenance and replacement therapy.
- Nutritional considerations in GI surgical patients.- nutrient stores and body compositions, nutrient requirements, malnutrition, evaluation of nutritional status., nutritional therapy, enteral and parenteral therapy and complications of these.
- Wound healing- Principles, Phases, types of healing, influencing factors on wound healing, wound dehiscence and management.
- Principles and disorders of hemostasis.
- Immunology in GI surgery. Especially in relation to organ transplantation

Part II

a. Oesophagus

Anatomical detail, physiology of swallowing, esophageal manometry, pilmonitroning, 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 introgenic, corrosive burns- detection, evaluation and management, esophageal motility disorders, Gastroesophageal reflux disease, achalasia. Barrett's esophagus, esophageal cancer- adeno & suarmous, various esophageal operations-

diverticulectomy, excision of leiomyoma, oesophagostomy, myotomy, fundoplication, oesophageal resection (Ivor Lewis, Mc Keown, Transhiatal), cervical exploration, oesophagogastrostomy, gastric pull-up, gastric and colonic bypass, complications of oesophagectomy, management of chylothorax.

b. Stomach and Duodenum

Anatomical details, physiology of gastric secretions, gastroduodenal 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 tumours, gastric surgery-vagotomy pyloric drainage, gastrojejunostomy, bariatric gastric tube creation, R-en-Y oesophagojejunal anastomosis, postgastrectomy syndromes and complications.

c. Biliary System

Detailed anatomy, bile physiology, enterohepatic circulation, acute cholecystitis, chronic cholecystitis, acalculus cholecystitis, gallstones-pathogenesis and presentation, CBD stones. CBD stricture, cholangitis, sphincter of Oddi (SOD) dysfunction and biliary dyskinesia, cholelithiasis, 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 resecting-anatomic and non-anatomic, liver trauma, hepaticojejunostomy, seg III bypass, Orthotopic liver transplantation, liver 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 neurosectomy, 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 (diagnosis, investigation and management), retroperitoneal tumors, 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, tumors 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, pseudoobstruction (Ogilvie syndrome), descending perineum syndrome, anismus and constipation, anal incontinence; haemorrhoids, fissure, fistulae and anal stricture; polyps and other benign tumors- hereditary and familial polyposis syndrome, ulcerative colitis and Crohn's 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.

CLINICAL PROCEDURES

Surgical procedures, candidates are expected to perform or assist:

1. Esophagus

- Heller's Operation
- Fundoplication
- THE + GPU
- TTE + GPU
- Colonic pull up

2. Stomach and Duodenum

- TV + G.I./Pyloroplasty
- Billroth I & II gastrectomy
- Radical gastrectomy

3. Small Intestine

- Resection and anastomosis
- Ileostomy closure
- Feeding jejunostomy

4. Large Intestine

- Rt hemicolectomy
- Lt hemicolectomy
- APR
- Ant.Resection
- Restorative Proctocoledctomy
- Ileal J Pouch and anastomosis

5. Pancreas

- Pancreatic Necrosectomy
- Cyto-gastrostomy/jejunostomy
- Lateral pancreatico-jejunostomy

- Whipple's procedure

6. Biliary surgery

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

7. Portal Hypertension

- Splenectomy+ Devascularisation
- Proximal Ilenorenal shunt
- Portocaval/Mesocaval shunt

8. Liver Surgery

- Major hepatic resection
- Wedge resections
- Hydatid cyst excision

9. Others

- Diagnostic Laparoscopy
- Perianal Procedures

THESIS

Guidelines for Submission of Thesis/Dissertation by Candidates

Research shall form an integral part of the education programme of all candidates registered for DNB degrees of NBE. The Basic aim of requiring the candidates to write a thesis/dissertation is to familiarize him/her with research methodology. The members of the faculty guiding the thesis/dissertation work for the candidate shall ensure that the subject matter selected for the thesis/dissertation is **feasible, economical and original**.

Guidelines

- a) The dissertation may be normally restricted to the size of 100 pages, to achieve this, following item may be kept in view :-
 - i. Only contemporary and relevant literature may be reviewed.

- ii. The techniques may not be described in detail unless any modification / innovations of the standard techniques are used and reference may be given.
- iii. Illustrative material may be restricted
- iv. Since most of the difficulties faced by the residents related to the work in clinical subject or clinically oriented laboratory subjects the following steps are suggested :
 - The number of clinical cases to be included in the dissertation may be limited. No number is therefore, prescribed and it will vary from topic to topic.
 - For prospective study, as far as possible the number of cases should be such that adequate material, judged from the hospital attendance, will be available and the candidate will be able to collect the case material within a period of 6-12 months so that he / she is in a position to complete the work within the stipulated time.
 - The objective of the study should be limited and well defined.
 - As far as possible, only clinical or laboratory data of investigations of patients or such other material easily accessible in the existing facilities should be used for the study
 - The laboratory work required to be performed by the residents of clinical departments should be minimal. For this purpose technical assistance, wherever necessary, may be provided by the department concerned. The resident of one specialty taking up some problem related to some other specialty should have some basic knowledge about the subject and he/she should be able to perform the investigations independently. Wherever some specialized laboratory investigations are required, a co-guide may be co-opted from the concerned investigative department. The quantum of laboratory work to be carried out by the candidate should be decided by the guide and co-guide by mutual consultation.
 - The clinical residents may not ordinarily be expected to undertake experimental work or clinical work involving new techniques not hitherto perfected or the use of chemicals or radio isotopes not readily available. They should however, be free to enlarge the scope of their studies or undertake experimental work on their own initiative but all such studies may be feasible within the existing facilities.
 - The residents should be able to use freely the surgical pathology / autopsy data if it is restricted to diagnosis only. If however, detailed histological data are required the resident will have to study the case himself with the help of guide / co-guide. The same will apply in case of clinical data.

b. Statistical methods used for analyses will be described in detail.

Thesis Submission to NBE

1. As per NBE norms, writing a thesis is essential for all DNB candidates towards partial fulfillment of eligibility for award of DNB degree certificate.
2. The protocol of Thesis/ Dissertation should be submitted to the office of the NBE through head of the institutions within three (3) months of joining the training in Medical college/university/DNB accredited institution.
3. No correspondence will be made in regard to acceptance of the protocol except only in the case of rejected protocols for which individual will be informed by office through mail/website.
4. DNB candidates are required to submit their thesis before the cut off date which shall be 30th June of same year for candidates appearing for their scheduled December final theory examination. Similarly candidates who shall be appearing in their scheduled June DNB final examination shall be required to submit their thesis by 31st of preceding December.
5. Thesis should be hard bound and the front cover page should be printed in the standard format. A hard bound thesis should be accompanied with:
 - I. A summary of thesis.
 - II. Thesis submission form duly completed.
 - III. NBE copy of challan in original.
 - IV. Soft copy of thesis in a CD duly labeled.
 - V. Copy of letter of registration with NBE.
6. A declaration of thesis work being bonafide in nature and done by the candidate himself at the institute of DNB training need to be submitted bound with thesis.
7. It must be signed by the candidate himself/herself, the thesis guide and head of the institution, failing which thesis shall not be considered.
8. If thesis is rejected or needs to be modified for acceptance, NBE will return it to the candidate with suggestion of assessors in writing for modification.
9. If any unethical practice is detected in work of the Thesis, the same is liable to be rejected. Such candidates are also liable to face disciplinary action as may be decided by NBE.

10. The thesis is to be submitted 6 MONTHS before the commencement of the DNB examination along with thesis evaluation fees of Rs. 1500/- drawn in favor of NATIONAL BOARD OF EXAMINATIONS - payable at New Delhi, for evaluation.

Guidelines for Writing of Thesis/Dissertation

Title - Should be brief, clear and focus on the relevance of the topic.

Introduction – Should state the purpose of study, mention lacunae in current knowledge and enunciate the Hypothesis, if any.

Review of Literature – Should be relevant, complete and current to date.

Material and Methods- Should include the type of study (prospective, retrospective, controlled double blind) details of material & experimental design procedure used for data collection & statistical methods employed; statement of limitations ethical issues involved.

Observations– Should be organized in readily identifiable sections having correct analysis of data be presented in appropriate charts, tables, graphs & diagram etc. These should be statistically interpreted.

Discussion- Observations of the study should be discussed and compared with other research studies. The discussion should highlight original findings and should also include suggestion for future.

Summary and Conclusion

Bibliography - Should be correctly arranged in Vancouver pattern.

Appendix— All tools used for data collection such as questionnaire, interview schedules, observation check lists etc should be put in the annexure.

ASSESSMENT

The formative assessment will be observation of the trainee's performance in day to day practice. This requires close interaction between the trainee and trainer, allowing direct observation of the trainee's performance in a range of clinical settings. Formative assessment of knowledge will also include annual appraisals by external subject experts, assessment of presentations in clinics, grand rounds, seminars etc., and in future using MCQs, when a reliable and valid set has been developed. The log book will also be assessed periodically.

The summative assessment of competence will be done in the form of DNB Final Examination leading to the award of the degree of Diplomate of National Board in Surgical Gastroenterology. The DNB final is a two-stage examination comprising the theory and practical part. An eligible candidate who has qualified the theory exam is permitted to appear in the practical examination.

Examination

a) Theory Exam:

- I. The theory exam comprise of three papers (I,II & III), maximum marks 100 each divided into I) Basic Medical Sciences as applied to Surgical Gastroenterology, II) Principles and Practice of Surgical Gastroenterology & III) Recent Concepts/advances in Surgical Gastroenterology respectively.
- II. There are 10 short notes of 10 marks each, in each of the papers.
- III. Maximum time permitted is 3 hours for each paper.
- IV. Candidate must score at least 50% in the aggregate of 3 papers to qualify the theory exam.
- V. Candidate who have qualified the theory exam are permitted to take up the practical exam.

b) Practical Exam:

- I. Maximum Marks: 300.
- II. Comprises of Clinical Examination and Viva.
- III. Candidate must obtain a minimum of 50% marks in the Clinical Examination (including Viva) to qualify for the Practical exam.
- IV. There are a maximum of two attempts that can be availed by a candidate for Practical Exam.
- V. First attempt is the practical exam following immediately after the declaration of theory results.

- VI. The final attempt can be taken by the candidate within two years of passing the theory exam.
- VII. Absentation from Practical Exam is counted as an attempt.
- VIII. Appearance in first practical exam is compulsory;
- IX. Requests for change in centre of exam are not entertained, as the same is not permissible.

LOG BOOK

A candidate shall maintain a log book of operations (assisted / performed) during the training period, certified by the concerned post graduate teacher / Head of the department / senior consultant. In general it will be a portfolio of material documenting the trainees progress and clinical performance and might include: summaries of exemplary clinical case material, profile of clinical case mix seen and surgical procedures performed/assisted each month, training/educational courses attended, published or unpublished audit, critical review of literature presentations of audit, clinical cases & research work at local or national meetings and peer reviewed publications.

Recommended Reading

Books

1. Blumgart L.H. : Surgery of the Liver, Pancreas and Biliary Tract
2. Bockus H.L. : Gastroenterology
3. Cotton and Williams : Practical Gastroenterological Endoscopy
4. Cuschieri and Berci : Laparoscopic Biliary Surgery
5. DeVita, Lawrence, and Rosenberg's Cancer: Principles and Practices of Oncology
6. Goligher J.C.: Surgery of the Anus, Rectum and Colon
7. Keighley M.R.B.:Surgery of the Anus, Rectum and Colon
8. Maingot's Abdominal Operations
9. Michael Trede : Surgery of the Pancreas
10. Nyhus, Baker and Fischer : Mastery of Surgery
11. Rob and Smith's Operative Surgery
12. Sabiston Textbook of Surgery- The Biological Basis of Modern Surgical Practice
13. Sherlock and Dooley: Diseases of the Liver and Biliary System
14. Zuidema and Shackelford :Shackelford's Surgery of the Alimentary Tract

Journals

1. American Journal of Gastroenterology

2. British Journal of Surgery
3. Current Problems in Surgery
4. Digestive Surgery
5. Disease of Colon and Rectum
6. Gastroenterology
7. GI Surgery Annual
8. Gut
9. Hepatology
10. Journal of Endoscopy
11. Lancet
12. Liver Transplantation in Surgery
13. New England Journal of Medicine
14. Recent Advances in Surgery: UK and Indian Editions
15. Surgery Today
16. Transplantation
17. Tropical Gastroenterology
18. World Journal of Surgery
