



ALL INDIA INSTITUTE OF MEDICAL SCIENCES, BIBINAGAR,

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**अखिलभारतीयआयुर्विज्ञानसंस्थान, बीबीनगर,
हैदराबादमेट्रोपोलिटनक्षेत्र, तेलंगाना – 508126**

Department of General Surgery-MS Curriculum-2022

GOALS/ OBJECTIVES:

1. To practice surgery safely and effectively backed by scientific knowledge and sound skills
2. To have a keen interest in patient care
3. Maintain high ethical standards
4. To provide a comprehensive and structured training programme

DURATION:

1. 3 years to be followed by the “exit” or specialty examination

CLINICAL POSTINGS:

1. Each postgraduate (PG) is posted in Surgical unit
2. Rotations in Specialty Departments is for a period of one year
3. ICU Posting is for a period of one month
4. Causality posting for 3 months
5. Trauma unit posting for 1 month rotation wise

TEACHING AND LEARNING ACTIVITIES:

1. Case presentation -weekly once
2. Journal clubs -weekly once
3. Seminar& symposium- monthly once
4. Clinical case presentations -monthly once
5. Mortality meets- monthly once
6. Clinico- pathological correlation -monthly once
7. Clinic- radiological meet -monthly once

THESIS : Every PG should complete one research project during the time course

CONTENT OF TRAINING:

General Objectives of Training:

Trainees should develop:-

1. Clinical and operative competence in both emergency and elective general surgery
2. He/she should be responsible for both the emergency admissions in general surgery and elective referrals
3. Appropriate skills in (a) Basic Gastro-intestinal endoscopy (b) Endoscopic surgery
4. A knowledge of the basic sciences related to general surgery
5. The ability to teach medical students
6. The ability to work as a member of a clinical team, bearing in mind the needs of the service and the hospital
7. An understanding of the particular requirements of day case surgery
8. A knowledge of palliative care.

9. A knowledge of subjects such as
 1. Medical ethics
 2. Health economics
 3. Medico-legal matters
 4. Risk management
 5. Medical statistics
 6. Information technology
 7. Health service management
10. A knowledge and experience of clinical audit
11. An understanding of research methods

Syllabus:

1. The following pages comprise schedules of knowledge and operative skills, which provide a syllabus for training in general surgery and its sub-specialties
2. The PG's should also be familiar with recent advances and current controversies
 - a. Applied Basic Sciences include applied anatomy, physiology, biochemistry, microbiology and pathology
 - b. General Surgical Topics

General Surgical Topics:

1. History of Surgery
2. Fluids and Electrolyte balance/ Acid – Base metabolism
3. Wound Healing and Wound Management
4. Pathophysiology and Management of Shock
5. Principles of Operative Surgery: Asepsis, Sterilization and Antiseptics
6. Surgical Infections and Antibiotics
7. Nutrition and Metabolism
8. Principles of Burn Management
9. Principles of Oncology
10. Principles of Laparoscopy and Endoscopy
11. Haemostasis, Blood Transfusion
12. Trauma: Assessment of polytrauma, triage, basic and advanced trauma
13. Basic Principles of Anaesthesia
14. Informed Consent and Medicolegal Issues
15. Organ Transplantation
16. Molecular Biology and Genetics
17. Hernias: Types of hernias, repair techniques
18. Breast Diseases: Benign breast disorders, investigations, screening, genetics, Breast Cancer
19. Thyroid Disorders: Solitary nodule, investigations, multinodular goitre, Graves disease, malignancies

PERI-OPERATIVE MANAGEMENT

Pre-operative Management

1. Assessment of fitness for anesthesia and surgery
2. Tests of respiratory, cardiac and renal function
3. Management of associated medical conditions, eg: diabetes; respiratory disease
4. cardiovascular disease; malnutrition; anaemia; steroid, anticoagulant
5. immunosuppressant and other drug therapy
6. Pathophysiology of the body's response to infection
7. The sources of surgical infection - prevention and control
8. Surgically important micro-organisms
9. Principles of asepsis and antisepsis
10. Surgical sepsis and its prevention
11. Aseptic techniques
12. Skin preparation
13. Antibiotic prophylaxis
14. Sterilisation

Investigative and Operative Procedures:

- Excision of cysts and benign tumors of skin and subcutaneous tissue.
- Principles of techniques of biopsy
- Suture and ligature materials
- Drainage of superficial abscesses
- Basic principles of anastomosis

Anaesthesia

- Principles of anaesthesia
- Pre-medication and sedation
- Local and regional anaesthesia
- Care and monitoring of the anaesthetised patient

Theatre Problems & Surgical technique and technology.

- Diathermy - principles and precautions
- Lasers - principles and precautions
- Explosion hazards relating to general anesthesia and endoscopic surgery
- Tourniquets - uses and precautions

Prevention of nerve and other injuries in the anaesthetized patient

Surgery in hepatitis and HIV carriers (special precautions)

- Disorders of coagulation and haemostasis (prophylaxis of thromboembolic disease)

PERI-OPERATIVE MANAGEMENT

- Skin and Wounds
- Pathophysiology of wound healing
- Classification of surgical wounds
- Principles of wound healing
- Incisions and their closure
- Suture and ligature materials
- Scars and contracture
- Wound dehiscence
- Dressings
- Fluid Balance
- Assessment and maintenance of fluid and electrolyte balance
- Techniques of venous access
- Nutritional support - indications, techniques, total parenteral nutrition
- Blood
- Disorders of coagulation and haemostasis
- Blood transfusion - indications, hazards, complications, plasma substitutes.
- Haemolytic disorders of surgical importance
- Haemorrhagic disorders; disorders of coagulation

- Post-operative Complications
- Post-operative complications - prevention, monitoring, recognition, management
- Ventilatory support - indications
- Post-operative Sequelae
- Pain control
- Immune response to trauma, infections and tissue transplantation
- Pathophysiology of the body's response to trauma
- Surgery in the immuno-compromised patient

TRAUMA

Initial Assessment and Resuscitation after Trauma

Clinical assessment of the injured patient

Maintenance of airway and ventilation

Haemorrhage and shock

Chest, Abdomen and Pelvis

Cardiorespiratory physiology as applied to trauma

Penetrating chest injuries and pneumothorax

Rib fractures and flail chest

Abdominal and pelvic injuries

Central Nervous System Trauma

- Central nervous system: anatomy and physiology relevant to clinical examination of the central nervous system
- understanding of its functional disorders particularly those caused by cranial or spinal trauma
- Intracranial haemorrhage
- Head injuries, general principles of management
- Surgical aspects of meningitis
- Spinal cord injury and compression
- Paraplegia and quadriplegia - principles of management
- Special Problems
- Pre-hospital care

Triage:

- Trauma scoring systems
- Traumatic wounds - principles of management
- Gunshot and blast wounds
- Skin loss - grafts and flaps
- Burns
- Facial and orbital injuries
- Principles of Limb Injury
- Peripheral nervous system - anatomy and physiology
- Fractures - pathophysiology of fracture healing
- Non-union, delayed union, complications
- Principles of bone grafting
- Traumatic oedema, compartment and crush syndromes, fat embolism.
- Brachial plexus injury

INTENSIVE CARE

- Cardiovascular : The surgical anatomy and applied physiology of the heart relevant to clinical cases
- Physiology and pharmacological control of cardiac output, blood flow, blood pressure, and coronary circulation
- Cardiac arrest, resuscitation Monitoring of cardiac function in the critically ill patient, central venous pressure, pulmonary wedge pressure, tamponade, cardiac O/P measurements.
- The interpretation of special investigations
- The management of haemorrhage and shock
- Pulmonary oedema
- Cardiopulmonary bypass - general principles, cardiac support. Respiratory
- The surgical anatomy of the airways, chest wall, diaphragm and thoracic viscera
- The mechanics and control of respiration
- The interpretation of special investigations; lung function tests, arterial blood gases, radiology
- The understanding of disorders of respiratory function caused by trauma, acute surgical illness and surgical intervention
- Respiratory failure
- Complications of thoracic operations
- Adult respiratory distress syndrome
- Endotracheal intubation, laryngotomy, tracheostomy
- Artificial ventilation
- Multisystem Failure
- Multisystem failure
- Renal failure - diagnosis of renal failure, complications of renal failure
- GI tract and hepatic failure
- Nutrition. Problems in Intensive Care
- Sepsis, predisposing factors, organisms causing septicaemia
- Complications of thoracic operations

- Localised sepsis, pneumonia, lung abscess, bronchiectasis, empyema, mediastinitis

Principles of ICU

- Indications for admission
- Organization and staffing
- Scoring
- Costs

NEOPLASIA: TECHNIQUES AND OUTCOME OF SURGERY

- Principles of Oncology
- Epidemiology of common neoplasms and tumour-like conditions; role of cancer registries
- Clinico-pathological staging of cancer
- Pathology, clinical features, diagnosis and principles of management of common cancers in each of the surgical specialties
- Principles of cancer treatment by surgery, radiotherapy, chemotherapy, immunotherapy and hormone therapy
- The principles of carcinogenesis and the pathogenesis of cancer relevant to the clinical features, special investigations, staging and the principles of treatment of the common cancers
- Principles of molecular biology of cancer, carcinogenesis; genetic factors; mechanisms of metastasis. Cancer Screening and Treatment
- The surgical anatomy and applied physiology of the breast relevant to clinical examinations, the interpretation of special investigations, the understanding of disordered function and the principles of the surgical treatment of common disorders of the breast
- The breast: acute infections; benign breast disorders; nipple discharge; mastalgia
- Carcinoma of breast; mammography; investigation and treatment
- Screening programmes
- Techniques of Management
- Terminal care of cancer patients

- pain relief
- Rehabilitation

Syllabus - M S

- Psychological effects of surgery and bereavement
- Ethics and the Law
- Medical/legal ethics and medico-legal aspects of surgery
- Communication with patients, relatives and colleagues
- Outcome of Surgery
- The evaluation of surgery and general topics
- Decision-making in surgery
- Clinical audit
- Statistics and computing in surgery
- Principles of research and design and analysis of clinical trials
- Critical evaluation of innovations - technical and pharmaceutical
- Health service management and economic aspects of surgical care

LOCOMOTOR SYSTEM :

Musculo-skeletal anatomy and physiology relevant to clinical examination of the locomotor system and to the understanding of disordered locomotor function, with emphasis on the effects of acute musculoskeletal trauma.

Effects of Trauma and Lower Limb

- Effects of acute musculo-skeletal trauma
- Common fractures and joint injuries
- Degenerative and rheumatoid arthritis (including principles of joint replacement)
- Common disorders of the lower limb
- Amputations and prosthesis. Infections and Upper Limb
- Common soft tissue injuries and disorders

- Infections of bones and joints (including implants and prostheses)
- Pain in the neck, shoulder and arm
- Common disorders of the hand, including hand injuries and infections. Bone Disease and Spine
- Common disorders of infancy and childhood
- Low back pain and sciatica.
- Metabolic bone disease (osteoporosis, osteomalacia)
- Surgical aspects of paralytic disorders and nerve injuries

VASCULAR - Course and Curriculum of M S Surgery

The surgical anatomy and applied physiology of blood vessels relevant to clinical examination, the interpretation of special investigations and the understanding of the role of surgery in the management of cardiovascular disease

Arterial Diseases

- Chronic obliterative arterial disease
- Amputations
- Aneurysms
- Carotid disease
- Special techniques used in the investigation of vascular disease
- Limb ischaemia: acute and chronic; clinical features; gangrene; amputations for vascular disease.
- Principles of reconstructive arterial surgery
- Atherosclerosis
- Thrombolysis
- Raynaud's/vasospastic disorders
- Lymphoedema
- Vasculitis
- Mesenteric ischaemia
- Graft prosthetics
- Graft surveillance
- Reperfusion injury
- Ischaemic limb Arterial trauma

- Hyper/hypo coagulable state
- Arteriography
- Continuous wave doppler
- Duplex ultrasound Venous Diseases
- Vascular trauma and peripheral veins
- Varicose veins
- Venous hypertension, post-phlebitic leg, venous ulceration.
- Disorders of the veins in the lower limb
- Deep venous thrombosis and its complications
- Chronic ulceration of the leg
- Thrombosis and embolism
- Lymphatics and Spleen
- Thromboembolic disease
- Spleen; role of splenectomy; hypersplenism

Syllabus

- Lymph nodes
- lymphoedema
- Surgical aspects of auto-immune disease
- Surgical aspects of disordered haemopoiesis

HEAD, NECK and ENDOCRINE

The surgical anatomy and applied physiology of the head and neck relevant to clinical examination, the interpretation of special investigations, the understanding of disorders of function, and the treatment of disease and injury involving the head and neck.

- The Head
- Laryngeal disease; maintenance of airway; tracheostomy
- Acute and chronic inflammatory disorders of the ear, nose, sinuses and throat
- Intracranial complications
- Foreign bodies in ear, nose and throat
- Epistaxis
- Salivary gland disease
- The eye - trauma, common infections

Neck and Endocrine Glands

The surgical anatomy and applied physiology of the endocrine glands relevant to clinical examination, the interpretation of special investigations, the understanding of disordered function and the principles of the surgical treatment of common disorders of the endocrine glands

Common neck swellings

Thyroid:

- The role of surgery in diseases of the thyroid; complications of thyroidectomy; and the solitary thyroid nodule
- Parathyroid;
- Hyperparathyroidism & hypercalcaemia
- Secondary hypertension
- Pituitary
- Adrenal cortex

- Adrenal medulla
- Gut as endocrine organ
- Endocrine pancreas and the management of:- Thyrotoxicosis
- Adrenal insufficiency
- Hyper/hypo thyroidism
- Carcinoid syndrome
- Counselling and screening in familial disease
- Anaesthetic and pharma-cological problems
- Radio-immuno assays

ABDOMEN

The surgical anatomy of the abdomen and its viscera and the applied physiology of the alimentary system relevant to clinical examination, the interpretation of common special investigations, the understanding of disorders of function, and the treatment of abdominal disease and injury.

Abdominal Wall

- Anatomy of the groin, groin and other ventral hernias, acute and elective; clinical features of hernias; complications of hernias
- Anterior abdominal wall, anatomy, incisions, laparoscopic access. Acute Abdominal Conditions
- Peritonitis; intra-abdominal abscesses
- Common acute abdominal emergencies
- Intestinal obstruction; paralytic ileus
- Intestinal fistulae
- Investigation of abdominal pain
- Investigation of abdominal masses
- Gynaecological causes of acute abdominal pain
- Pelvic inflammatory disease
- Assessment of the acute abdomen
- Appendicitis and right iliac fossa pain
- Peritonitis
- Acute intestinal obstruction

- Intestinal pseudo-obstruction
- Biliary tract emergencies
- Acute pancreatitis
- Strangulated hernia
- Intestinal ischaemia
- Swallowed foreign bodies
- Gastrointestinal bleeding
- Toxic megacolon
- Superficial sepsis and abscesses
- Acute ano-rectal sepsis
- Ruptured aortic aneurysm
- Acute presentations of urological disease
- Acute presentations of gynaecological disease
- Abdominal injury
- Assessment of the multiply injured patient
- Triage (major accidents)
- Battle triage and Field hospitals
- Initial management of head injuries
- Closed abdominal injuries, especially splenic, hepatic and pancreatic injuries
- Closed chest injuries
- Stab and gunshot wounds
- Arterial injuries
- Injuries of the urinary tract
- Initial management of head injuries and interpretation of CT scans
- Initial management of severe burns

SMALL BOWEL AND COLORECTAL DISORDERS

- Neoplasms of large bowel
- Inflammatory bowel disease (inc.medical management)
- Diverticular disease
- Irritable bowel syndrome
- Haemorrhoids
- Anal fissure
- Rectal prolapse
- Acute appendicitis/RIF pain
- Intestinal obstruction
- Intestinal pseudo-obstruction
- Intestinal ischaemia
- Peritonitis
- Large bowel and rectal injuries
- Anal tumours
- Pelvic autonomic nerves
- Screening for colorectal cancer
- Genetics of colorectal cancer
- Place of radiotherapy and chemotherapy in treatment
- Anorectal physiology
- Anorectal ultrasound
- Faecal incontinence
- Chronic constipation
- Intestinal fistulae
- Colonic bleeding
- Radiation enterocolitis
- Other small bowel conditions
- Colonic obstruction
- Colonic perforation
- The use of staplers

LAPAROSCOPIC SURGERY

- Laparoscopic anatomy of the abdomen
- Diagnostic laparoscopy
- Physiology of pneumo-peritoneum Dangers of pneumoperitoneum
- Principles of diathermy
- Informed consent for laparo-scopic procedures
- Pre and post operative management of laparoscopic cases
- Port complications
- Technology of video imaging, cameras, insufflator etc.
- The methods of manipulation of images
- Laparoscopic instruments, clips, staplers and port types
- Management of equipment failure
- Ultrasound interpretation, internal and external techniques
- Recognition and management of laparoscopic complications
- Use and dangers of diathermy
- Anaesthetic problems in laparoscopic surgery
- Medico-legal implications of video-endoscopic surgery
- Theory and practice of choledocho-scopy
- Theory of different forms of diathermy
- Laparoscopic ultrasound
- Advanced instrumentation and equipment
- Endoscopic suturing devices
- Theory, uses and dangers of lasers and other energy sources e.g. harmonic scalpel
- Creation and maintenance of new endoscopic spaces
- Use of assistance robots and robotic instruments

HEPATOPANCREATOBILIARY SURGERY

- Gallstones and complications Course
- Biliary stricture
- Obstructive Jaundice
- Neoplasms of the Liver, Biliary Tract and Pancreas
- Pancreatitis, acute and chronic, complications
- Liver injuries
- Portal Hypertension
- Hydatid disease
- ESRD and Liver transplantation
- UPPER GI TRACT
- Neoplasms of the upper GI tract
- Management of perforations of the upper GI tract
- Management of intestinal obstruction
- Management of GI bleeding
- Oesophageal motility disorders
- Oesophageal Strictures
- Gastro-oesophageal reflux and its complications
- Peptic ulceration and its complications
- Radiation enteritis
- Abdominal trauma
- Principles of screening for cancer
- The use and limitations of multimodality treatment for upper GI cancer
- Oesophageal motility disorders
- Other small bowel conditions
- Principles of Small bowel resection
- Sutured and stapled anastomoses
- Urinary Tract
- Urinary tract infection
- Urinary Tract Obstruction
- Haematuria

- Trauma to the urinary tract
- Urinary calculi
- Retention of urine
- Urinary tract Neoplasms
- Disorders of prostate
- Pain and swelling in the scrotum
- Other Scrotal Lesions
- Testicular Neoplasms

NEUROSURGERY

- Cranial, spinal and peripheral nerve tumours
- Head Injury
- Spinal and peripheral nerve injuries
- Hydrocephalus
- Cerebrovascular Accidents
- Infections
- Recent advances Cardiac and Thoracic Surgery
- Myocardial revascularisation
- Valvular Disorders
- Peripheral vascular disease
- Renovascular disease
- Secondary Hypertension
- Inflammatory Lung Disease
- Chest Wall lesions
- Thoracic Neoplastic Disease
- Chest Trauma
- Pleural Diseases

Orthopaedics

- Principles of Orthopaedic Trauma
- Casts and braces
- Nerve injuries
- Hand Infections
- Principles of Traction
- Amputations
- Principles of Rehabilitation
- Congenital Lesions
- Bone and Joint Infections

SKILLS

Objectives

1. To provide a comprehensive and structured training programme in general surgery and to enable trainees to achieve the training and experience necessary for independent practice.
2. The PG should be able to take proper history, conduct physical examination, perform or request for relevant investigations. He should be able to interpret these investigations to arrive at a working diagnosis.
3. Communicate with patient. Discuss operative plan, possible management options, postoperative complications etc and be able to take informed consent
4. Perform minor operative procedures and common major general surgical operations independently
5. Evaluate and manage trauma and acute surgical emergencies.
6. Undertake Critical care
7. Undertake wound management

Basic Ward Procedures

1. Insertion of intravenous cannula, Nasogastric tube, urinary catheters
2. Removal of Tubes and Drains
3. Abdominal Paracentesis, Pleural Tap
4. Venous Cutdown
5. Wound dressings

ICU Procedures

1. Insertion of CVP line, arterial lines, endotracheal intubation
 2. Intercostal Drainage
 3. Tracheostomy
 4. Knowledge of Ventilators and Monitors
 5. Prescribing TPN Minor Surgical Procedures
 6. Hydrocele surgery, Lymph node biopsy, Excision of superficial swellings, Ingrowing toe nail, Circumcision, Banding of Haemorrhoids, Vasectomy
- Emergency Room Procedures
7. Diagnostic peritoneal lavage (DPL)
 8. Suturing of lacerations
 9. Drainage of abscesses
 10. Wound Debridement
 11. Reduction and Plaster application of simple fractures and dislocations
 12. Anal Dilatation and Sphincterotomy
 13. Preoperative Workup and Postoperative Care

Major Operative Procedures

- A) Perform Independently/ Assistance
- B) The following list is not exhaustive
- C) The Trainee should try to get the maximal operative exposure possible. The range of exposure will also depend upon the type of surgeries a particular unit (where the Trainee is posted) is performing

- D) Routine: Open and laparoscopic Cholecystectomy, Groin Hernia Repair, Mastectomy, Breast Lump Excision, microdochectomy, Radical Duct Excision, Hemithyroidectomy, Laparotomy, Diagnostic laparoscopy, Thoracotomy, Cystogastrostomy, Suprapubic cystostomy, Hemicolectomy, Cysts, Sinuses of the Neck, Gastrostomy and feeding jejunostomy, Nephrectomy, Pyelolithotomy, Ureterolithotomy, Orchidopexy, Skin grafting, Varicose vein surgery, vein harvesting, Lumbar Sympathectomy, Small bowel resection, Femoral herniorrhaphy, Umbilical and para umbilical hernia repair, Incisional and para-stomal hernia repair
- E) Emergency: Appendectomy, Laparotomy for intestinal Obstruction, Trauma Laparotomy, Splenectomy, Closure of Peptic Ulcer Perforation, Enteric Perforation, Resection-Anastomosis of bowel, Colostomy, Hemicolectomy, Amputations, Embolectomy, Tracheostomy, Obstructed Inguinal Hernia