

## **GENERAL SURGERY, ORTHOPEDICS**

### **1. GENERAL SURGERY INCLUDING PAEDIATRIC SURGERY**

#### **1.1. GOAL**

The broad goal of the teaching of undergraduate students in Surgery is to produce graduates capable of delivering efficient first contact surgical care.

#### **1.2. OBJECTIVES**

##### **1.2.1. Knowledge**

At the end of the course, the student should be able to:

1. Describe aetiology, pathophysiology, principles of diagnosis and management of common surgical problems including emergencies, in adults and children.
2. Define indications and methods for fluid and electrolyte replacement therapy including blood transfusion.
3. Define asepsis, disinfection and sterilization and recommended judicious use of antibiotics.
4. Describe common malignancies in the country and their management including prevention.
5. Enumerate different types of anaesthetic agents, their indications, mode of administration, contraindications and side effects.

##### **1.2.2. Skills**

At the end of the course, the student should be able to:

1. Diagnose common surgical conditions both acute and chronic, in adult and children.
2. Plan various laboratory tests for surgical conditions and interpret the results.
3. Identify and manage patients of hemorrhagic, septicemic and other types of shock.
4. be able to maintain patent air-way and resuscitate:
  - 4.1. a critically injured patient
  - 4.2. Patient with cardio-respiratory failure
  - 4.3. a drowning case
5. Monitor patients of head, chest, spinal and abdominal injuries, both in adults and children.
6. Provide primary care for a patient of burns.

- 7.Acquire principles of operative surgery, including pre-oper-a-tive, operative and post-operative care and monitoring.
- 8.Treat open wounds including preventive measures against tetanus and gas gangrene.
- 9.Diagnose neonatal and pediatric surgical emergencies and provide sound primary care before referring the patient to secondary/ tertiary centres.
- 10.Identify congenital anomalies and refer them for appropriate management.

In addition to these he/she should have observed/assisted/ performed the following:

- 1.Incision and drainage of abscess
- 2.Debridement and suturing open wound
- 3.Venesection
- 4.Excision of simple cyst and tumours
- 5.Biopsy of surface malignancy
- 6.Catheterisation and nasogastric intubation
7. Circumcision
8. Meatotomy
- 9.Vasectomy
10. Peritoneal and pleural aspirations
11. Diagnostic proctoscopy
12. Hydrocele operation
13. Endotracheal intubation
14. Tracheostomy and cricothyroidotomy
15. Chest tube insertion.

### **1.2.3. Integration**

The undergraduate teaching in surgery should be integrated at various stages with different pre and para and other clinical departments.

## **2. ORTHOPEDICS**

### **2.1. OBJECTIVES**

#### **2.1.1. Knowledge**

The student should be able to:

- 1.Explain the principles of recognition of bone injuries and dis-location.
- 2.Apply suitable methods to detect and manage common infec-tions of bones and joints.
- 3.Identify congenital, skeletal anomalies and their referral for ap-propriate correction or rehabilitation.
- 4.Recognize metabolic bone diseases as seen in this country.
- 5.Explain etiogenesis, manifestations, diagnosis of neoplasm af-fecting bones.

#### **2.1.2. Skills**

At the end of the course, the student should be able to:

- 1.Detect sprains and deliver first aid measures for common frac-tures and sprains and manage uncomplicated fractures of clavicle, Colles's, forearm, phallanges etc.
- 2.Techniques of splinting, plaster, immobilization etc.
- 3.Management of common bone infections, learn indications for sequestration, amputations and corrective measures for bone de-formities.
- 4.Aspects of rehabilitation for Polio, Cerebral Palsy and Amputation.

#### **2.1.3. Application**

Be able to perform certain orthopedic skills, provide sound advice of skeletal and related conditions at primary or secondary health care level.

#### **2.1.4. Integration**

Integration with anatomy, surgery, pathology, radiology and Fo-rensic Medicine is done.

## **3. RADIO-DIAGNOSIS AND RADIOTHERAPY**

### **3.1. RADIODIAGNOSIS & IMAGING**

#### **3.1.1. GOAL**

The broad goal of teaching the undergraduate medical students in the field of Radio-diagnosis should be aimed at making the students realize the basic need of various radio-diagnostic tools in medical practice. They should be aware of the techniques required to be undertaken in different situations for the diagnosis of various ailments as well as during prognostic estimations.

### **3.1.2. OBJECTIVES**

#### **3.1.2.1. Knowledge**

**The student should be able to:**

1. Understand basics of X-ray production, its uses and hazards.
2. Appreciate and diagnose changes in bones - like fractures, infections, tumours and metabolic bone diseases.
3. Identify and diagnose various radiological changes in disease conditions of chest and mediastinum, skeletal system, G.I. Tract, Hepatobiliary system and G.U. system.
4. Learn about various imaging techniques, including isotopes C.T., Ultrasound, M.R.I. and D.S.A.

#### **3.1.2.2. Skill**

**At the end of the course the student should be able to:**

1. Use basic protective techniques during various imaging procedures.
2. Interpret common X-ray, radio-diagnostic techniques in various community situations.
3. Advise appropriate diagnostic procedures in specialized circumstances to appropriate specialists.

## **3.2 RADIO THERAPY**

### **3.2.1. GOAL**

The broad goal of teaching the undergraduate medical students in the field of Radiotherapy is to make the students understand the magnitude of the ever-increasing cancer problem in the country. The students must be made aware about steps required for the prevention and possible cure of this dreaded condition.

### **3.2.2. OBJECTIVES**

#### **1. Knowledge**

**The students should be able to:**

1. Identify symptoms and signs of various cancers and their steps of investigations and management.
2. Explain the effect of radiation therapy on human beings and the basic principles involved in it.
3. Know about radio-active isotopes and their physical properties
4. Be aware of the advances made in radiotherapy in cancer management and knowledge of various radio therapeutic equipment while treating a patient

## **2. Skill**

At the completion of the training programme, the student should be able to:

1. Take a detailed clinical history of the case suspected of having a malignant disease.
2. Assist various specialists in administration of anticancer drugs and in application and use of various radio-therapeutic equipment, while treating a patient.

## **4. DEPARTMENT OBJECTIVES**

### **4.1. General Surgery**

Aims of the surgical education for undergraduates are to develop a primary care physician with appropriate knowledge, skill and attitude to treat common disease at the primary care level. Emphasis will be laid on the primary care of the injured, care of comatose, common wounds and ulcers, resuscitation of patient with cardiac arrest, initial care of acute abdominal conditions and other emergencies. Diagnosis, workup and proper referral of common

conditions viz. hernia, lumps in breast, thyroid, piles and fissure & fistula, abdominal lumps, renal stones, varicose veins will be covered substantially.

### **4.2. Orthopedics**

At the end of the training the student should be able to describe the aetiology, pathophysiology, principles of diagnosis and management of common orthopaedic problems including emergencies.

## **5. SYLLABUS**

### **5.1. Theory**

#### **5.1.1. General Surgery**

##### **1. General Principles**

Wound Healing and Management; Scars; Hypertrophic and Ke-loid; First aid management of severely injured - Asepsis, antiseptics, sterilization - Surgical sutures, knots, drains, bandages and splints - Surgical infections and rational use of antibiotics; Causes of infection, prevention of infection, common organisms causing infection - Boils, cellulitis, abscess, and necrotizing fasciitis - Tetanus and Gas gangrene: Prevention and treatment - Chronic specific infections: Tuberculosis, Filariasis, Leprosy - Antibiotic therapy -Hospital infection - AIDS and hepatitis B - Mechanisms and management of missile, blast and gunshot injuries - Surgical aspects of diabetes mellitus - Bites and stings - Organ transplantation: Basic Principles -Nutritional support to surgical patients.

## **2.Resuscitation**

Fluid and Electrolyte balance - Shock: Etiology, Pathophysiology and Management - Blood Transfusion: Indications and hazards - Common postoperative complications.

## **3.Common Skin and Subcutaneous Conditions**

Sebaceous cyst, dermoid cyst, lipoma, Haemangioma, Neurofibroma, pre-malignant conditions of the skin, Basal cell carcinoma, squamous cell carcinoma, Naevi and malignant melanoma -Sinus and fistulae - Pressure sores: prevention and management.

## **4.Arterial Disorders**

Acute arterial obstruction: diagnosis and initial management; types of gangrene; diagnosis of chronic arterial insufficiency with emphasis on Buerger's disease, atherosclerosis; Investigation in case of arterial obstruction - Amputations, Vascular injuries: Basic principles of management.

## **5.Venous Disorders**

Varicose veins: diagnosis and management; deep venous thrombosis; diagnosis, prevention, principles of therapy; thrombophlebitis.

## **6.Lymphatics and Lymph Nodes**

Diagnosis and principles of management of lymphangitis, lymph edema, acute and chronic lymphadenitis; cold abscess, lymphomas; surgical manifestations of filariasis

## **7.Burns**

Causes, prevention and first aid management; Pathophysiology; assessment of depth and surface area, fluid resuscitation; skin cover; prevention of contractures

## **8.Scalp, Skull and Brain**

Wounds of scalp and their management; recognition, diagnosis and monitoring of patients with head injury including unconsciousness; Glasgow coma scale; recognition of acute cerebral compression

### **9. Oral Cavity, Jaw, Salivary Glands**

Cleft lip and palate; Leukoplakia; retention cysts; ulcers of the tongue - Features, diagnosis and basic principles of management of carcinoma lip, buccal mucosa and tongue, prevention and staging of oral carcinomas - Salivary Glands; Acute sialoadenitis, neoplasms; diagnosis and principles of management - Epulis, cysts and tumors of jaw; maxillofacial injuries; salivary fistulae.

### **10. Neck**

Branchial cyst; cystic hygroma - Cervical lymphadenitis: Non-specific and specific, tuberculosis of lymph nodes, secondaries in neck - Thoracic outlet syndrome; diagnosis.

### **11. Thyroid Gland**

Thyroid: surgical anatomy, physiology, investigations of thyroid disorders; types, clinical features, diagnosis and principles of management of goitre, thyrotoxicosis and malignancies; thyroglossal cyst and fistula - Thyroiditis, Hypothyroidism.

### **12. Parathyroid and Adrenal Glands**

Clinical features and diagnosis of hyperparathyroidism, adrenal hyperfunction/ hypofunction

### **13. Breast**

Surgical anatomy; nipple discharge; acute mastitis, breast abscess; mammary dysplasia; gynaecomastia; fibroadenomas - Assessment and Investigation of a breast lump - Cancer breast: diagnosis, staging, principles of management.

### **14. Thorax**

Recognition and treatment of pneumothorax, haemothorax, pulmonary embolism; prevention / recognition and treatment; flail chest; stove in chest; postoperative pulmonary complications - Principles of management of pyothorax; cancer lung.

### **15. Heart and Pericardium**

Scope of cardiac surgery

### **16. Oesophagus**

Dysphagia: Causes, investigations and principles of management - Cancer esophagus: principles of management.

### **17. Stomach and Duodenum**

Anatomy, Physiology; Congenital hypertrophic pyloric stenosis; Aetiopathogenesis, diagnosis and management of: peptic ulcer, cancer stomach; upper gastrointestinal haemorrhage with special reference to bleeding varices and duodenal ulcer.

### **18. Liver**

Clinical features, diagnosis and principles of management of : Amoebic liver abscess, hydatid cyst and portal hypertension - Surgical anatomy; primary and secondary neoplasms of liver.

### **19. Spleen**

Splenomegaly: causes, investigations and indications for splenectomy; splenic injury.

### **20. Gall Bladder and Bile Ducts**

Anatomy, Physiology and investigations of biliary tree; clinical features, diagnosis, complications and principles of management of cholelithiasis and cholecystitis; obstructive jaundice - Carcinoma gall bladder, choledochal cyst

### **21. Pancreas**

Acute pancreatitis: clinical features, diagnosis, complications and management - Chronic pancreatitis, cancer pancreas.

### **22. Peritoneum, Omentum, Mesentery and Retroperitoneal Space:**

**Peritonitis:** causes, recognition and principles of management intra peritoneal abscesses - Laparoscopy.

### **23. Small and Large Intestines**

Diagnosis and principles of treatment of: Intestinal amoebiasis, tuberculosis of intestine, carcinoma colon; lower gastrointestinal haemorrhage - Ulcerative colitis, premalignant conditions of large bowel - Intestinal Obstruction: Types, etiology, diagnosis and principles of management; paralytic ileus - Acute Abdomen: Causes, approach, diagnosis and principles of management - Appendix: Diagnosis and management of acute appendicitis, appendicular lump and abscess

### **24. Rectum**

Carcinoma of rectum: diagnosis, clinical features and principles of management: indications and management of colostomy - Prolapse of rectum.

### **25. Anal Canal**

Surgical anatomy: Clinical features and management of: fissure, fistula in ano, perianal and ischiorectal abscess and haemorrhoids; Diagnosis and referral of anorectal anomalies - Anal carcinoma

## **26. Hernias**

Clinical features, diagnosis, complications and principles of management of : umbilical, inguinal and femoral hernia - Epigastric hernia; omphalitis; umbilical fistulae; burst abdomen and ventral hernia

## **27. Genito-Urinary System**

Symptoms and Investigations of the urinary tract - Investigation of renal mass; diagnosis and principles of management of urolithiasis, hydronephrosis, pyonephrosis, perinephric abscess and renal tumours - Renal tuberculosis - Causes, diagnosis and Principles of management of haematuria, anuria and acute retention of urine - Benign prostatic hyperplasia; diagnosis and management; carcinoma prostate - Diagnosis and principles of management of Phimosi, paraphimosi and carcinoma penis - Principles of management of urethral injuries - Diagnosis and principles of treatment of undescended testis, torsion testis, hydrocele, haematocoele, pyocoele, epididymo orchitis and testicular tumours - Varicocele.

## **28. Laparoscopic Surgery :**

History, Advantages, Instruments, preparation, Technique, complication, contraindication

## **29. Day Care Surgery**

### **5.1.2. Orthopaedics**

#### **1. Trauma**

1.1. General principles in diagnosis, first aid and treatment methods of closed fractures and open fractures, open reduction including principles of internal fixation and external fixation, their complications, Preservation of amputated parts before transfer

1.2. General principles of diagnosis and management of non-unions and delayed unions

#### **2. Diagnosis, First Aid and Referral of**

Fracture clavicle - Anterior dislocation of shoulder - Fracture proximal end, shaft, supracondylar, and internal condylar humerus - Posterior dislocation of elbow - Fracture shaft of radius and ulna - Fracture of distal radius - Traumatic dislocation of hip - Fracture femur neck, trochanter and shaft - Fracture patella - Fracture shaft tibia and fibula - Haemarthrosis, traumatic synovitis - Injury to muscles and ligaments (shoulder arc syndrome, tennis elbow, ankle sprain) - General principles of management of hand injuries - Peripheral nerve injuries - Spinal injuries - Fracture of olecranon - Monteggia fracture dislocation - Polytrauma - Complications of fracture: Fat embolism, Ischaemic contracture, myositis ossificans, osteodystrophy

### **3.INFECTIONS OF BONES AND JOINTS**

Diagnosis and Principles of Management: Osteomyelitis; pyo-genic, tubercular, fungal (Madurafoot), syphilitic and parasitic in-fection of bone - Arthritis: septic and tubercular - Tuberculosis of the spine - Leprosy: principles of corrective surgery

### **4.TUMOURS**

Diagnosis and Principles of Management: Benign lesions: Mul-tiple exostosis, Enchondroma, Osteoid osteoma, Simple bone cyst. Osteochondroma - Malignant lesions: Osteosarcoma, Ewing's sar-coma, Giant cell tumor, Chondrosarcoma and Secondary deposits

### **5.DEGENERATIVE DISEASES**

Diagnosis and Principles of Management: Osteoarthritis -Spondylosis - Degenerative disc diseases.

### **6.CONGENITAL ANOMALIES**

Diagnosis and Principles of Management: Congenital disloca-tion hip - Congenital talipes equinovarus - Pes Planus

### **7.BONE DYSPLASIA**

Diagnosis and Principles of Management: Osteogenesis imper-fect - Achondroplasia

### **8.NEURO-MUSCULAR DISORDERS**

Diagnosis and Principles of Management: Post-polio residual Paralysis - Cerebral palsy

### **9.OSTEOCHONDROSES**

Diagnosis and Principles of Management: Perthe's disease

### **10.DEFORMITIES**

Scoliosis: diagnosis and referral - Genu Varum and Valgum: diagnosis

### **11. PREVENTIVE ORTHOPAEDICS**

### **12. BASIC PRINCIPLES OF PHYSIOTHERAPY /OCCUPATIONAL THERAPY AND ORTHOTICS / PROSTHETICS**

Physiatric evaluation of common neurological diseases -Physiatric evaluation of common orthopaedic conditions -Principles of Exercise therapy, Electrotherapy and Occupational therapy - Principles of Orthotics and Prosthetics - Principles of Cardiopulmonary Rehabilitation.

13. Adequate working knowledge of total knee arthroplasty, indications and contraindications and total hip arthroplasty with indications and contraindications - Arthroscopy diagnostic and therapeutic in knee