**Checklist Syllabus**

**for**

**Surgery course**

 **(451)**

**THE CONTENTS**

**A . PRINCIPLES OF SURGERY**

 **( Lectures )**

1. **The metabolic response to injury**

 Dr. Thamer Nouh

1. **Fluid and electrolyte balance in surgical patient**

 Dr. Fahad Bamehriz

1. **Shock**

 Dr. Hamad Al-Qahtani

1. **Transfusion of blood and blood products**

 Prof. Dawlatly

1. **Nutritional support in surgical patients**

 Prof. Alam

1. **Surgical infections and antibiotics**

 Dr.Mohamed Al-Akeely

1. **Burns**

 Dr. Adnan gelidan

1. **Trauma ( Two lectures )**

 Dr. Thamer Nouh

* Primary and secondary survey
* Head injury
* Neck injury
* Chest injury
* Abdomen and pelvis injury
* Limbs injury

 **10. Pre-operative assessment and anesthesia**

 Dr. Mansour Akeel

**11.Post-operative care and complications**

 Prof. Alsalamah

**12.Obesity and principles of laparoscopic surgery**

Prof. Aldhohyan

**13. Transplantation**

Dr. AlSharabi

**FIRST CONT. EXAM**

**\**

**B . GENERAL SURGERY**

 **( Clinical sessions )**

|  |  |  |
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|  1 ) 2 ) | The abdominal wall and herniasGastroduodenal disorders | Teaching staff Upper GIT unit |
|  3 ) 4 ) 5 **)** | The liver Gallbladder and bile ductsThe pancreas and spleen | Teaching staff Hepatobiliary unit |
|  **6** ) **7** ) |  Intestine , appendix andAno-rectal conditions | Teaching staff Colorectal unit |
|  **8** ) **9** ) | The Breast Endocrine surgery  | Teaching staff Breast and Endocrine unit |
| **10**) | Emergency surgery a) Acute abdomen b) Intestinal obstructionc)Acute gastrointestinal hemorrhage  | Teaching staff Unit-- C - KSMC |

**C . SURGICAL SPECIALITIES**

 **( Clinical sessions )**

1. Plastic and reconstructive surgery
2. Vascular surgery
3. Cardiothoracic surgery
4. Urology
5. Neurosurgery
6. Pediatric surgery

**D. Practical procedures and patient investigations**

**( skills )**

|  |  |
| --- | --- |
| 1. General precautions |   |
| 2. Aseptic technique |  |
| 3. Local anesthesia |  |
| 4. Wound suture |   |
| 5. Airway procedures |  |
| 6. Thoracic procedures |  |
| 7. Abdominal procedures |  |
| 8. Vascular procedures |  |
| 9. Urinary procedures |  |
| 10. Central nervous system procedures |  |
| 11. Drug administration |  |
| 12. Imaging |    |

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| **SECOND CONT. EXAM** |
| **OSCE** |

**A . PRINCIPLES OF SURGERY**

**The metabolic response to injury**

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|  |  **Features of the response when** **not modified by medical**  **intervention** |
|  •The acute inflammatory response. •The endothelium and sympathetic  nervous system activation. •The endocrine response to surgery. |  **Factors mediating the metabolic**  **response to injury** |
|  • Hypovolaemia • Increased energy metabolism and substrate cycling. • Catabolism and starvation. • Changes in red blood cell synthesis and blood coagulation. |  **Consequences of the metabolic** **response to injury** |
|  • Control of blood glucose. • Manipulation of inflammation and coagulation in severe infection. |  **Factors modifying the metabolic** **response to injury** |
|  |  **Anabolism** |

**Principles of fluid and electrolyte balance in surgical patients**

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| • Fluids and Electrolytes distribution in the body compartments |  **Normal water and electrolyte** **balance** |
|  • Insensible fluid losses. • Effect of surgery. |  **Assessing losses in the surgical**  **patient** |
|  • Types of intravenous fluid. • Maintenance fluid requirements • Treating hypovolaemia and or/ hypotension. |  **Intravenous fluid administration** |
|  • Water and sodium imbalance. • Potassium imbalance. • Other electrolyte disturbances. |  **Specific water and electrolyte**  **Abnormalities** |
|  • Metabolic acidosis. • Metabolic alkalosis  • Respiratory acidosis • Respiratory alkalosis • Mixed patterns of acid-base imbalance |  **Acid-base balance** |

**Shock and Hemorrhage**

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| **Definition of shock** |  |
| **Causes of shock** |  |
| **Pathophysiology of shock** |  • Microcirculation • Microcirculation • Cellular function |
| **Effects on individual organ systems** |  • Nervous system • Kidneys • Respiratory system • Heart • Gut • Liver • Neurohumoral response |
| **Principles of management** |  • Hypovolemic shock • Septic shock • Cardiogenic shock • Anaphylaxis |
| **Advanced monitoring organ support**  |  • Cardiovascular support • Respiratory support • Renal support • Nutrition |
|  **Hemorrhage** |  • Pathophysiology • Revealed and concealed hemorrhage • Primary , Reactionary , Secondary hemorrhage • Surgical and non-surgical hemorrhage • Classification of hemorrhage • Management |

**Transfusion of blood and blood products**

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| **Blood donation** |  |
| **Blood components** |  • Fresh blood components • Plasma fractions |
| **Red cell serology** |  • ABO antigens • Rhesus antigens • Other red cell antigens |
|  **Indications for transfusion** |  |
| **Pre-transfusion testing** |  |
| **Blood administration** |  |
| **Adverse effects of transfusion** |  |
| **Autologous transfusion** |  • Pre-operative donation • Isovolaemic haemodilution • Cell salvage |
| **Transfusion requirements in**  **special surgical settings** |  • Massive transfusion • Cardiopulmonary bypass |
| **Methods to reduce the need for blood transfusion** |  • Acute volume replacement • Mechanism for reducing blood use in  Surgery |
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**Nutritional support in surgical patients**

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| **Assessment of nutritional status** |  |
| **Assessment of nutritional** **requirements** |  |
| **Causes of inadequate intake** |  |
|  **Methods of providing nutritional** **support** |  • Enteral nutrition • Parenteral nutrition |
| **Monitoring of nutritional support** |  |

**Surgical infections and antibiotics**

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| **Pathogenic potential of microbes** |  • Pathogenic synergy |
| **Asepsis** |  • Surgical disinfection and anti-septic precautions • Sterilization • Disinfection |
| **Surgical infection** |  • Infection, bacteraemia and septicaemia • Microbiological diagnosis of infection • Wound infection • Sepsis, shock and the systemic Inflammatory response syndrome • Helicobacter pylori |
| **Anaerobic infection** |  • Tetanus • Gas gangrene and other clostridial infections • Progressive bacterial gangrene and necrotizing fasciitis • Other anaerobic infections |
| **Hospital-acquired (nosocomial) infections** |  • Sites of colonization • Hospital microbial challenges • Control of hospital-acquired (nosocomial) infection |
| **Antimicrobial management of wound infections** |  |
| **Principles governing the choice and use of antibiotics** |  • Antibiotic policy • Prophylactic use of antibiotics |
| **Management of**  **immunosuppressed patients,** **including those who have had** **splenectomy** |  |

**Principles of the surgical management of cancer**

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| **The biology of cancer** |  •The adenoma-carcinoma progression • Invasion and metastasis • Natural history and estimate of cure |
| **The management of patients with** **cancer** |  • Screening • The cancer patient's journey • Symptoms that may initiate a patient's cancer journey • Referral to a specialist/cancer centre • Investigations • Management • Follow-up • Palliation of advanced cancer • Prognosis and counseling • Care of the dying |

**The Burns**

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| **Burns** |  • Mechanisms • Local effects of burn injury • General effects of burn injury • Classification • Prognosis • Management |

**Trauma**

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| **Trauma epidemiology** |  |
|  **Injury biomechanics and accident** **prevention** |  |
|  **Alcohol and drugs** |  |
| **Wounds** |  • Classification and production  • Gunshot wounds |
| **Falls** |  |
| **Injury severity assessment** |  |
| **Pre-hospital care and transport** |  |
| **Accident and Emergency (A&E) Department** |  |
| **Primary and secondary survey : Resuscitation in the emergency department** |  • ABCDE• Examination from head to toes |
| **Imaging and other diagnostic aids** | • FAST & U/S• CT scan• DPL |
| **Management of specific organ injuries** | * Head injury
* Neck injury
* Chest injury
* Abdominal and pelvic injuries
* Limbs injury
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**Pre-operative assessment , anesthesia and post-operative pain control**

  **a) Pre-operative assessment and investigations**

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| **Assessment of fitness for** **operation** |  • Perioperative risk • The importance of oxygen transport to tissues |
| **Systematic approach to the initial** **assessment of patients** |  • Cardiovascular system • Respiratory system • Smoking • Alcohol • Obesity • Drug therapy • Allergies • Previous operations and anesthetics  |
| **Pre-operative investigations** |  • Blood biochemistry • Liver function tests • Full blood count • Coagulation screen • Blood cross-matching |
| **The high-risk patient** |  |
| **Assessment of the patient for emergency surgery** |  |
| **The pre-operative ward round** |  • Pre-medication • Fasting |
| **Implications of chronic disease in the perioperative period** |  • Cardiovascular disease • Respiratory disease • Jaundice • Diabetes mellitus • Chronic renal failure • Hematological disease • Abnormal coagulation • Pregnancy • Miscellaneous conditions |

 **b) Anesthesia**

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| **General anesthesia** |  |
| **Local anesthesia** | • Topical anesthesia• Local infiltration• Peripheral nerve block• Spinal anesthesia• Epidural anesthesia |

 **c) Post-operative analgesia**

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| **Pain physiology** |  |
| **Pain assessment** |  |
| **Post-operative analgesic strategies** | • Epidural analgesia• Patient-controlled analgesia• Parenteral and oral opioid regimes• Paracetamol, NSAIDs and selective COX-2 inhibitors• Neuropathic pain• Post-operative nausea and vomiting |

**Post-operative care and complications**

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| **Immediate post-operative care** |  • Airway obstruction • Hemorrhage |
| **Surgical ward care** |  • General care • Tubes, drains and catheters • Fluid balance • Blood transfusion • Nutrition |
| **Complications of anesthesia and** **surgery** |  • General complications • Pulmonary complications • Cardiac complications • Urinary complications • Cerebral complications • Venous thrombosis and pulmonary embolism • Wound complications |

**Obesity and principles of laparoscopic surgery**

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| **Magnitude of the problem** |   |
| **Pathophysiology and associated medical problems** |  |
| **Preoperative Evaluation and Selection**  | • General Bariatric Preoperative Evaluation and preparation• Evaluation for Specific Comorbid Conditions   |
| **Operative procedures** |   |
| **Postoperative Care and Follow-up** |  |
|  **Complications of obesity surgery** |  |
| **Principles of laparoscopic surgery** |   |

**Transplantation**

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| **Transplantation immunology** | • Phases of the recipient’s immune response to the donor organ• Patterns of allograft rejection• Immunosuppression |
| **Organ donation** | • Brain-stem death• Multi-organ retrieval • Strategies to increase organ donation |
| **Renal transplantation** | • Indications and patient assessment• The operative procedure• Post-operative management and complications• Outcome |
| **Liver transplantation** | • Indications and patient assessment• The operative procedure• Post-operative management and complications• Outcome |
| **Pancreas transplantation** | • Indications and patient assessment•The operative procedure• Outcome |
| **Heart and lung transplantation** | • Indications and patient assessment• The operative procedure• Post-operative management and complications• Outcome |

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**B . GENERAL SURGERY**

**The abdominal wall and hernias**

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| **Umbilicus** |  • Developmental abnormalities • Umbilical sepsis • Umbilical tumors |
| **Disorders of the rectus muscle** |  • Hematomas • Desmoids tumor |
| **Abdominal hernias** |  • Inguinal hernias • Ventral hernias • Rare external hernias • Internal hernias • Complications of hernias • Management of complicated hernias |

**Gastroduodenal disorders**

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| **Surgical anatomy** |  • Stomach • Duodenum • Blood supply • Lymphatics • Nerve supply |
| **Surgical physiology** |  • Gastric motility • Gastric secretions |
| **Peptic ulceration** |  • Special forms of ulceration • Management of uncomplicated peptic ulcer disease |
| **Complications of peptic ulceration**  **requiring operative intervention** |  • Perforation • Acute hemorrhage • Pyloric stenosis |
| **Gastric neoplasia** |  • Benign gastric neoplasms • Malignant gastric neoplasms • Other gastric tumors |
| **Miscellaneous disorders of the**  **stomach** |  • Menetrier’s disease • Gastritis • Dieulafoy’s lesion • Gastric volvulus • Bezoars |
| **Miscellaneous disorders of the**  **duodenum** |  • Duodenal obstruction • Duodenal diverticula • Duodenal trauma |
| **Surgery for obesity** |  • Operations for obesity • Complications of obesity surgery |

**The liver**

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| **Anatomy** |  • Segmental anatomy • Blood supply and function |
| **Jaundice** |  • Diagnosis |
| **Congenital abnormalities** |  |
| **Liver trauma** |  |
| **Hepatic infections and infestations** |  • Pyogenic liver abscess • Amoebic liver abscess • Hydatid disease |
| **Portal hypertension** |  • Effects of portal hypertension • Clinical features • Acute variceal bleeding • Ascites |
| **Tumors of the liver** |  • Benign hepatic tumors • Primary malignant tumors of the liver • Metastatic tumors |
| **Liver resection** |  |
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| **The gallbladder and bile ducts** |
| **Anatomy of the biliary system** |  |
| **Physiology** |  • Bile salts and the enterohepatic circulation |
| **Congenital abnormalities** |  • Biliary atresia • Choledochal cysts |
| **Gallstones** |  • Pathogenesis • Pathological effects of gallstones • Common clinical syndromes associated with gallstones • Other benign conditions of the gallbladder • Investigation of patients with suspected gallstones • Surgical treatment of gallstones • Complications of cholecystectomy • Management of acute cholecystitis • Atypical biliary pain • Non-surgical treatment of gallstones • Management of acute cholangitis |
| **Other benign biliary disorders** |  • Asiatic cholangiohepatitis • Primary sclerosing cholangitis |
| **Tumors of the biliary tract** |  • Carcinoma of the gallbladder • Carcinoma of the bile ducts |

**The pancreas and spleen**

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| **THE PANCREAS** |
| **Surgical anatomy** |  |
| **Surgical physiology** |  • Exocrine function • Endocrine function • Pancreatic pain |
| **Congenital disorders of the pancreas** |  |
| **Pancreatitis** |  • Acute pancreatitis • Chronic pancreatitis |
| **Neoplasms of the pancreas** |  • Neoplasms of the exocrine pancreas • Neoplasms of the endocrine pancreas |
| **THE SPLEEN** |
| **Surgical anatomy** |  |
| **Surgical physiology** |  • Hemopoiesis • Filtration of blood cells • Immunological function |
| **Indications for splenectomy** |  • Trauma • Hemolytic anemia • The purpura • Hypersplenism • Proliferative disorders • Miscellaneous conditions • Other indications for splenectomy |
| **Splenectomy** |  • Pre-operative preparation • Technique • Post-operative course and complications |

**The intestine and appendix**

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| **Applied surgical anatomy and physiology** | • Anatomy and function of the small intestine• Anatomy and function of the large intestine and appendix |
| **Disorders of the appendix** |  • Appendicitis • Tumors of the appendix |
| **Clinical assessment of the small and large intestine** |  • History and clinical examination • Investigation of the luminal gastrointestinal tract |
| **Principles of operative intestinal surgery** |  |
| **Inflammatory bowel disease** |  • Crohn’s disease • Ulceration colitis |
| **Disorders of the small intestine** |  • Paralytic ileus • Mechanical obstruction |
| **Non-neoplastic disorders of the colon and rectum** |  • Colonic diverticular disease • Ischemia of the large intestine • Other benign conditions of large bowel |
| **Intestinal stoma and fistula** |  • Stoma • Intestinal fistula |
| **Polyps and polyposis syndromes of the large intestine** |  • Colorectal adenoma • Familial adenomatous polyposis |
| **Malignant tumors of the large intestine** |  • Colorectal adenocarcinoma • Management of colorectal adenocarcinoma |

**Anorectal conditions**

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| **Applied surgical anatomy** |  • Anal musculature and innervations •The lining of the anal canal • The anal (hemorrhoid) cushions • Lymphatic drainage of the anal canal |
| **Anorectal disorders** |  • Hemorrhoids  • Fissure-in-ano • Perianal abscess • Fistula-in-ano |
|  **Pilonidal disease** |   |
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**The breast**

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| **Anatomy and physiology** |  • Anatomy  • Congenital abnormities • Hormonal control of breast development and function |
| **Evaluation of the patient with breast disease** |  • Clinical features • Clinical examination • Assessment of regional nodes • Imaging • Cytology and biopsy • One-stop clinics • Accuracy of investigations |
| **Disorders of development** |  • Juvenile hypertrophy • Fibroadenoma |
| **Disorders of cyclical change** |  • Cyclical mastalgia • Nodularity • Non-cyclical breast pain |
| **Disorders of involution** |  • Palpable breast cysts • Sclerosis • Ducts ectasia • Epithelial hyperplasia |
| **Benign neoplasms** |  • Duct papillomas • Lipomas • Phyllodes tumors |
| **Breast infection** |  • Lactating infection • Non-lactating infection • Skin-associated infection |
| **Breast cancer** |  • Epidemiology • Types of breast cancer • Screening for breast cancer • Mammographic features of breast cancer • Staging • The curability of breast cancer • Presentation of breast cancer • Management of operable breast cancer • Complications of treatment • Psychological aspects • Follow-up • Management of locally advanced breast cancer • Breast cancer in pregnancy • Management of metastatic or advanced cancer • Miscellaneous tumors of the breast |
| **Male breast** |  • Gynaecomastia • Male breast cancer |

**Endocrine surgery**

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| **THYROID GLAND**  |  • Surgical anatomy and development • Thyroid function • Assessment of thyroid gland |
| **Enlargement of the thyroid gland (goitre)** |  • Non-toxic nodular goitre • Thyrotoxic goitre • Thyroiditis • Solitary thyroid nodules • Other forms of neoplasia |
| **Hyperthyroidism** |  • Primary thyrotoxicosis (Grave’s  disease) •Toxic multinodular goitre and toxic adenoma |
| **Malignant tumors of the thyroid** |  • Papillary carcinoma • Follicular carcinoma • Anaplastic carcinoma • Medullary carcinoma  • Lymphoma |
| **Thyroidectomy** |  |
| **PARATHYROID GLAND** |  • Surgical anatomy • Calcium metabolism • Primary hyperparathyroidism • Secondary and tertiary hyperparathyroidism  • Hypoparathyroidism • Parathyroidectomy   |
| **ADRENAL GLAND** |  • Surgical anatomy and development |
| **Adrenal cortex** |  • Cushing’s syndrome • Hyperaldosteronism • Adrenogenital syndrome (adrenal virilism) • Adrenal feminization |
| **Adrenal medulla**  |  • Phaeochromocytoma • Non-endocrine adrenal Medullary tumors • Adrenal ‘incidentaloma |
| **Adrenalectomy** |  |
| **OTHER SURGICAL ENDOCRINE SYNDROME** | • Apuldomas and multiple endocrine neoplasia• Carcinoid tumors and the carcinoid syndrome |

**Surgical emergency**

**a) The acute abdomen**

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| **Pathophysiology of abdominal pain** |  • Somatic pain • Visceral pain |
| **Pathogenesis** |  • Inflammation • Obstruction |
| **Clinical assessment** |  • History • Examination • Investigations |
| **Etiology** |  |
| **Management** |  |
| **Peritonitis** |  • Primary peritonitis • Post-operative peritonitis  |
|  **Intra-abdominal abscesses**  |  |
|  **Medical causes of acute abdomen** |  |
| **Non-specific abdominal pain (NSAP)** |  |
| **Gynecological causes of the** **acute abdomen** |  • Mittelschmerz and ruptured corpus luteum • Ruptured ectopic pregnancy • Torsion or rupture of the ovarian cyst • Pelvic inflammatory disease |

**b) Intestinal obstruction**

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| **Small bowel obstruction** | • Clinical features• Pathophysiology• Investigation and diagnosis• Etiology• Treatment |
|  **Large bowel obstruction** | • Clinical features• Pathophysiology• Investigation and diagnosis• Etiology• Treatment  |
| **Non-mechanical ( Adynamic , paralytic ) obstruction**  | • Clinical features• Pathophysiology• Investigation and diagnosis• Etiology• Treatment  |
| **Pseudo-obstruction of small and large bowel** | • Clinical features• Pathophysiology• Investigation and diagnosis• Etiology• Treatment  |
| **Bowel strangulation** | • Clinical features• Pathophysiology• Investigation and diagnosis• Etiology• Treatment |
| **Post-operative mechanical obstruction** | • Clinical features• Pathophysiology• Investigation and diagnosis• Etiology• Treatment  |
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**c) Acute gastrointestinal hemorrhage**

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| **Approach to the Patient with Acute Gastrointestinal Hemorrhage** | • Initial Assessment• Risk Stratification• Resuscitation• History and physical examination• Localization• Therapy  |
|  **Acute upper gastrointestinal Hemorrhage** | • Clinical presentation• Diagnosis • Specific causes• Treatment ( Medical , Endoscopic and surgical ) |
|  **Acute lower gastrointestinal Hemorrhage** | • Clinical presentation• Diagnosis ( colonoscopy , Radionuclide scanning and Mesenteric Angiography )• Specific causes• Treatment ( Medical , Endoscopic and surgical ) |
| **Acute lower gastrointestinal Hemorrhage from an obscure source** | • Diagnosis ( Endoscopy , Angiography , small bowel endoscopy , Video capsule endoscopy ) • Treatment |

**C . SURGICAL SPECIALITIES**

**Plastic and reconstructive surgery**

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| **Structure and functions of skin** |  |
| **Wound**  |  •Types of wound • Principles of wound healing • Factors influencing wound healing • Wound infection • Involvement of other structures • Devitalized skin flaps • Wound with skin loss • Crushing/degloving injuries and gunshot wounds |
| **Burns** |  • Mechanisms • Local effects of burn injury • General effects of burn injury • Classification • Prognosis • Management |
| **Skin and soft tissue lesions** |  • Diagnosis of skin swelling • Cysts • Tumors of the skin • Epidermal neoplasms arising from basal germinal cells • Epidermal neoplasms arising from melanocytes • Vascular neoplasms (hemangoimas) • Tumors of nerves • Tumors of muscles and connective tissue • Disorders of the nails |

**Vascular and endovascular surgery**

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| **Pathophysiology of arterial disease** | • Pathology• Clinical features |
| **Chronic lower limb arterial disease** |  • Anatomy • Clinical features • Intermittent claudication • Critical limb ischemia • Management of lower limb ischemia |
| **Amputation** |  • Indication • Level of amputation • Surgical principles • Rehabilitation and limb fitting • Phantom pain |
| **Arterial disease of the upper limb** |  • Overview • Management |
| **Cerebrovascular disease** |  • Definitions • Carotid artery disease • Vertebrobasilar disease |
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| **Acute limb ischemia** |  • Aetiology • Classification • Clinical features • Management • Post-ischemic syndromes |
| **Aneurysmal disease** |  • Classification • Abdominal aortic aneurysm (AAA) • Peripheral aneurysms |
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| **Pathophysiology of venous disease** |  • Anatomy • Physiology |
| **Varicose veins** |  • Classification • Epidemiology • Clinical features • Aetiology • Examination • Investigations • Management • Superficial thrombophlebitis |
| **Chronic venous insufficiency** |  • Pathophysiology • Assessment • Management |
| **Venous thromboembolism (VTE)** |  • Epidemiology • Pathophysiology • Aetiology-Diagnosis • Venous gangrene • Prevention • Management • Other forms of venous thrombosis |
| **Lymphoedema** |  • Pathophysiology • Primary lymphoedema • Secondary lymphoedema • Clinical features • Investigations • Management |

**Cardiothoracic surgery**

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| **Basic considerations** | • Pathophysiological assessment• Assessment of risk |
| **ACQUIRED CARDIAC DISEASE** |
| **Ischemic heart disease** | • Coronary artery disease• Surgery for the complications of  coronary artery disease |
| **Cardiac valvular disease** | • Assessment • Surgical management• Endocarditis• Aortic valve disease• Mitral valve disease• Tricuspid valve disease  |
| **Pericardial pathology** | • Pericardial effusion• Pericardial constriction |
| **CONGENITAL CARDIAC DISEASE** | • Atrial septal defect• Ventricular septal defect• Patent ductus arteriosus• Coarctation of the aorta• Tetralogy of Fallot |
| **THORACIC SURGERY** | • Assessment • Bronchogenic carcinoma• Assessment for pulmonary resection• Metastatic disease• Other lung tumors• Mesothelioma• Mediastinum• Pneumothorax• Emphysema• Interstitial lung disease• Pleuropulmonary infection• Chest wall deformities• Post-operative care• Cardiac and pulmonary  transplantation |

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| **THE ESOPHAGUS** |
| **Surgical anatomy** |  |
| **Symptoms of esophageal** **Disorders** |  • Dysphagia • Pain • Regurgitation |
| **Examination** |  |
| **Investigation** |  • Blood tests • Radiology • Endoscopy • Computed tomography • Ultrasonography • Laparoscopy • Manometry and pH studies |
| **Impacted foreign bodies** |  |
| **Corrosive oesophagitis** |  |
| **Perforation** |  |
| **Motility disorders** |  • Achalasia • Diffuse esophageal spasm • Nutcracker esophagus |
| **Plummer-Vinson syndrome** |  |
| **Pouches** |  |
| **Gastro-esophageal reflux** |  • Hiatus hernia • Barrett's esophagus |
| **Tumors of the esophagus** |  • Benign tumors • Carcinoma of the esophagus |

**Urological surgery**

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| **Assessment** | • General points• Urinary tract symptoms & Hematuria• Examination• Investigation |
| **Upper urinary tract (kidney and ureter)** | • Anatomy• Physiology• Trauma• Renal tumors• Renal and ureteric calculi• Upper tract obstruction• Pelviureteric junction obstruction (idiopathic hydronephrosis)• Miscellaneous causes of obstruction |
| **Lower urinary tract (bladder, prostate and urethra)** | • Anatomy• Physiology• Trauma• Bladder tumors• Carcinoma of the prostate• Benign prostatic hyperplasia• Urethra stricture |
| **Disorders of micturation-** **incontinence**  | • Structural disorders• Neurogenic disorders• Principles of management |
| **External genitalia** | • Anatomy• Physiology• Circumcision• Congenital abnormalities of the penis• Undescended testis (cryptorchidism)• Torsion of the testis• Epididymo-orchitis• Hydrocoele• Varicocoele  |

 **Neurosurgery**

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| **Surgical anatomy and physiology**  | • The skull• The spine• The brain• The meanings and cerebrospinal fluid • The cranial nerves• The spinal cord |
| **Blood supply** | • Anterior circulation• Posterior circulation |
| **Intracranial pressure** | • Brain herniation syndromes |
| **Investigations** | • Plain X-ray• Computed tomography• Magnetic resonance imaging• CT and MR angiography |
| **Cerebrovascular disease** | • Subarachnoid hemorrhage• Primary intracerebral hemorrhage• Arteriovenous malformations• Cavernomas |
| **Neurotrauma** | • Assessment• Management • Skull fracture• Extradural hematoma and contusions• Diffuse axonal injury• Trauma spinal injury |
| **Intracranial infections** | • Bacterial infections |
| **Intracranial tumors** | • Tumors of the skull• Pediatric neuro-oncology |
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| **Vertebral column** | • Spinal degenerative disease |
| **Peripheral nerve lesions** | • Carpal tunnel syndrome• Ulnar nerve compression at the elbow• Meralgia paraesthetica |

 **Pediatric surgery**

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| **Neonatal intestinal obstruction**  | • Hirschsprung disease• Esophageal atresia• Imperforated anus• Intestinal atresia |
| **Common pediatric surgical emergencies** | • Acute appendicitis and its deferential diagnosis• Intussusceptions and its associated problems• Meckle's diverticulum• Foreign bodies associated problem• Perianal sepsis in children |
| **Other common pediatric surgical problems** | • Abdominal wall defects• Umbilical , inguinal hernias and other hernias• Vascular malformation • Undescended testis |
| **Current national pediatric surgical problems** | • Children Motor Vehicle Trauma• Childhood obesity |
|   |

**D . Practical procedures and patient investigations**

**( skills )**

**Practical procedures and patient investigation**

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| **General precautions** |  |
| **Aseptic technique** |  |
| **Local anesthesia** |  |
| **Wound suture** |  • Suturing the skin • Suture materials |
| **Airway procedures** |  • Maintaining the airway • Ventilation by mask • The laryngeal mask airway • Endotracheal intubation • Surgical airway • Changing a tracheostomy tube |
| **Thoracic procedures** |  • Intercostal tube drainage • Removal of an intercostals drainage tube • Pleural aspiration |
| **Abdominal procedures** |  • Nasogastric tube insertion • Fine-bore nasogastric tubes • Gastric lavage • Esophageal tamponade • Abdominal paracentesis • Diagnostic peritoneal lavage  |
| **Vascular procedures** |  • Venepuncture • Safety measures • Venepuncture for blood culture • Peripheral venous cannulation • Venous cutdown • Central venous catheter insertion • Arterial blood sampling • Needle pericardiocentesis |
| **Urinary procedures** |  • Urethral catheterization • Suprapubic catheterization |
| **Central nervous system** **procedures** |  • Lumbar puncture |
| **Drug administration** |  |
| **Imaging** |  • Plain radiography • Contrast studies • Computed tomography (CT) • Ultrasonography • Magnetic resonance imaging (MRI) • Radioisotope imaging • Position emission tomography (PET) |