Contents

Section 1: Basics in Surgery

1. Metabolic Response to Injury **3**
- Neuroendocrine Reflex Response: Modulates the Immune Response *4*
- Homeostatic Response to Injury *5*
- Diagnosis of SIRS *7*

2. Shock **10**
- Shock *10*
- Septic Shock *15*
- Other Forms of Shock *15*

3. Blood and Blood Components **17**
- Blood Transfusion *17*
- Indications for Blood Transfusion *19*
- Massive Blood Transfusion *19*
- Complications of Blood Transfusion *19*
- Blood Substitutes *20*
- Plasma Substitutes *20*

4. Burns **21**
- Mechanism of Burns *21*
- Depth of Burns *21*
- Types of Burns *22*
- Classification of Burns Based on Body Surface Area (BSA) *22*
- Pathophysiology of Burns *22*
- Assessment of Burns Patient and Management *23*
- Surgery in Acute Burns *26*
- Nutrition in Burns *26*
- Inhalation Burns Injuries *27*
- Electrical Burns *27*
- Cold Injuries *28*
- Frostbite *28*
- Radiation Burns (Good to Know) *28*
- Medico-Legal Aspects in Burn Injuries *28*
- Legalities of the Award of Disability by Various Competent Authorities *30*
- Impairment and Disability *30*
- Legal Rights of Burns Survivors for Compensation *30*

5. Wound Healing and Wound Care **32**
- Wounds *32*
- Chronic Wound Healing (Abnormal Healing) *34*

- Assessment and Treatment of Acute Wound *35*
- Burst Abdomen *36*
- Diabetic Ulcers *37*
- Negative Pressure Wound Closure Therapy (NPWT) *38*
- Pressure Sores *38*
- Hypertrophic Scar *39*
- Keloid *39*
- Contracture *40*
- Skin Grafts *40*
- Flaps *40*

6. Surgical Infections and Hand Infections 45
- Surgical Infections *45*
- The Decisive Period—The 4 Hours Interval *46*
- Surgical Site Infection *47*
- Microbiology of Surgical Infections *47*
- Antimicrobial Treatment of Surgical Infection *48*
- Short Notes Questions *49*
- Acute Cellulitis and Lymphangitis *51*
- Tetanus *53*
- Gas Gangrene *55*

Hand Infections 56
- Paronychia *56*
- Felon (Terminal Pulp Space Abscess) *56*
- Webspace Abscess (Collar-Button Abscess) *57*
- Acute Suppurative Flexor Tenosynovitis *57*
- Midpalmar Abscess *58*
- Thenar Space *59*

Section 2: Essential Topics in General Surgery

7. Surgical Audit and Research 63
- Audit and Service Evaluation *63*
- Audit Cycle *64*
- Steps of Conducting Clinical Research (Must Know) *65*
- Details of Research Study Designs (Good to Know) *66*

8. Ethics in Surgery 68
- Informed Consent *69*
- Confidentiality *70*
- Medico-Legal Issues in Surgical Practice *71*
- "On Table Death" and Post-operative Death *72*

9. Investigation of the Surgical Patient and Basis of Cancer Therapy 74
- Biopsy *76*
- Imaging: In a Surgical Patient *76*

10. Pre, Intra and Post-operative Management 82
Perioperative Management *82*

11. Anesthesia and Pain Relief, Day Care Surgery and Safe General Surgery 88
Anesthesia and Pain Relief 88
Management of Chronic Pain *94*
Day Care Surgery 96
Safe General Surgery 99

12. Nutrition and Fluid Therapy 101
- Physiology of Body Nutrition *101*
- Parenteral Nutrition *103*
- Types of Fluids Used *105*

13. Transplantation 107
- Immunosuppressive Therapy *108*
- Transplantation and Immunosuppression *109*
- Mechanism of Graft Rejection *109*
- Donor Recipient Matching *110*
- The Tissue: Typing Laboratory *110*
- Organ Transplantation in Practice *111*
- Liver Transplantation (Orthotopic) *111*
- Graft Dysfunction *112*
- Legal, Social and Ethical Issues *113*

14. Basic Surgical Skills 115
- Beginning of Antisepsis and Disinfection *115*
- Methods of Sterilization and Disinfection *115*
- Surgical Approaches *116*
- Abdominal Incisions *117*
- Drains *118*
- Suturing *119*

15. Hospital Waste Disposal 120
Disposal of Hospital Waste *121*

16. Minimally Invasive Surgery and Bariatric Surgery 124
- Minimally Invasive Surgery *124*
- Conversion to Open Surgery *127*

Bariatric Surgery 129

- Surgery for Obesity and Diabetes *129*
- Obesity Surgery *130*
- Types of Bariatric Surgery *130*

17. Trauma 133

- Mass Casualties *135*
- War Surgery: Mass Injuries due to War (Conflicts) *136*
- Damage Control Surgery *136*

Neurotrauma 138

- Pathophysiology of Head Injury *138*
- Types of Hematomas in Head Trauma *139*
- Chronic Subdural Hematoma *139*
- Clinical Assessment of Head Injury *140*
- Principles of Treatment of Head Injury *141*
- Soft Tissue Injuries *144*

Chest Trauma 145

- Pathophysiology of Chest Injuries *145*

Section 3: Skin, Face, Mouth, Oropharynx, Salivary Glands and Jaws

18. Infections and Tumors of Skin 155

- Anatomy and Function of Skin and Adnexa *155*
- Infections of Skin *156*
- Lipoma *156*
- Neurofibroma *157*
- Hemangioma *157*
- Arteriovenous Fistula (AV Fistula) *159*
- Branham's Bradycardiac Sign *159*
- Benign Lesions of Skin and Subcutaneous Tissue *160*
- Malignant Melanoma of Skin *162*
- Systemic Therapy *165*
- Basal Cell Carcinoma *165*
- Squamous Cell Carcinoma *166*
- Microscopy *166*
- Malignant Soft Tissue Tumors *167*

19. Developmental Anomalies of Face, Tumors and Swellings of Gums and Jaws 170

- Craniofacial Anomalies: The "Omens" *170*
- Cleft Lip and Palate *170*
- Epulis ("Epulides" Pleural) *172*
- Swellings of Jaw *172*

- Dentigerous Cyst (Follicular Odontome) *173*
- Dental Cyst *173*
- Adamantinoma *174*

20. Oropharyngeal Cancer **175**
- Premalignant Lesions of Oral Cavity *175*
- Oral and Oropharyngeal Cancers *176*
- Oral Cancers *179*
- Management of Secondaries in Neck Nodes *182*

21. Salivary Glands **186**
- Surgical Anatomy of Salivary Glands *186*
- Disorders of Salivary Glands *187*
- Xerostomia *188*
- Cysts: Ranula *188*
- Submandibular Salivary Gland and Parotid Disorders *188*
- Salivary Calculi *189*
- Acute Sialadenitis and Parotid Abscess *190*
- Acute Bacterial (Suppurative) Parotitis and Parotid Abscess *190*
- Frey's Syndrome (Auriculotemporal Syndrome) *191*
- Sialadenosis (Sialosis) *192*
- Classification of Salivary Gland Tumors *192*
- Primary Malignancies of Salivary Glands *195*
- Treatment of Salivary Malignancies (General) *195*
- Adenoid Cystic Carcinoma (Cylidromatous Carcinoma) *196*
- Acinic Cell Tumor *196*
- Malignancy in a Mixed Tumor *196*
- Minor Salivary Gland Tumors *197*

Section 4: Endocrines and the Breast

22. Thyroid and Parathyroid **201**
- Embryology *201*
- Ectopic Thyroid and Thyroglossal Cyst *201*
- Congenital Thyroid Disorders *203*
- Thyroglossal Cyst *204*
- Goiter (Goitre) any Enlargement of Thyroid Gland *205*
- Diffuse Hyperplastic Goiter and Nodular Goiter *206*
- Investigations for Thyroid Disorders *206*
- Toxic Goitre (Toxic Goiter) *207*
- Toxic Multinodular Goiter (Plummer's Disease) *208*
- Treatment of Thyrotoxicosis (Very Important Topic) *211*
- Treatment of Toxic (Multi) Nodular Goiter *211*

- Thyroiditis *212*
- Hashimoto's Thyroiditis *213*
- Thyroidectomy: Definitions *213*
- Thyroid Malignancies *214*
- Differentiated Thyroid Carcinoma *214*
- Medullary Thyroid Carcinoma *215*
- Treatment of Thyroid Cancers *217*
- Management of Discrete (Solitary) Thyroid Nodules *218*

Parathyroids

- Hypoparathyroidism *220*
- Pseudohypoparathyroidism *221*
- Hyperparathyroidism *221*
- Primary Hyperparathyroidism *221*
- Secondary Hyperparathyroidism *223*

23. The Adrenal Glands 225

- Applied Anatomy of Adrenal Glands *225*
- Disorders of Adrenal Glands *226*
- Incidentaloma *226*
- Investigations in any Adrenal Mass *227*
- Primary Hyperaldosteronism *227*
- Cushing's Syndrome *228*
- Adrenogenital Syndrome *228*
- Tumors of Adrenal *229*
- Tumors of Adrenal Medulla *230*
- Neuroblastoma *231*
- Pheochromocytoma *231*

24. The Pancreas - Exocrine and Endocrine 233

- Anatomy of the Pancreas *233*
- Functions of the Pancreas *234*
- Serum Amylase *234*
- Lipase *235*
- Annular Pancreas *236*
- Mucoviscidosis (Cystic Fibrosis—CF) *236*
- Pancreatic Fistula *237*
- Pancreatitis *238*
- Acute Pancreatitis *238*
- Clinical Features of Acute Pancreatitis *239*
- Complications of Acute Pancreatitis *240*
- Management of Acute Pancreatitis *241*
- Local Complications and Management *242*
- Acute Peripancreatic Fluid Collection *242*
- Sterile and Infected Pancreatic Necrosis *242*

- Pseudocyst of Pancreas *243*
- Chronic Pancreatitis *244*
- Surgery in Chronic Pancreatitis *245*
- Pancreatic Tumors: Exocrine and Endocrine *246*
- Tumors of the Pancreas *246*
- Exocrine Pancreatic Tumors *247*
- Pathology *248*
- Staging of Pancreatic Cancer *249*
- Tumor Node Metastasis Stage *249*
- Treatment of Carcinoma of Pancreas *251*
- Palliative Surgery *251*
- Palliation in Pancreatic Cancer *251*
- Endocrine Tumors or Pancreas Neuroectodermal Tumors (PNET) *252*
- Diagnosis and Treatment of PNETS *253*
- Glucagonoma *253*
- Somatostatinoma *253*

25. The Breast **255**

- Diseases of Breast *255*
- Evaluation of Breast Diseases *257*
- Mammography *258*
- Benign Breast Diseases *259*
- Acute Mastitis and Breast Abscess *260*
- Aberrations of Normal Differentiation and Involution *262*
- Mastalgia *263*
- Benign Tumors of the Breast *264*
- Treatment Algorithm for Breast Lumps *264*
- Galactocele *266*
- Carcinoma Breast *267*
- Management of Carcinoma Breast *271*
- Treatment of Carcinoma Breast *272*
- Surgical Operations *272*
- Surgery for Axillary Node Metastases *273*
- Hormone Therapy *275*
- Chemotherapy *275*
- Biological Therapy *276*
- Treatment of Non-invasive Breast Cancer *277*
- Treatment of Invasive Carcinoma of Breast *277*
- Treatment of Locally Advanced Breast Cancer *278*
- Inflammatory Carcinoma of Breast *279*
- Treatment of Metastatic Carcinoma Breast *279*
- Recurrent Carcinoma of Breast *279*
- Palliation *280*
- Rehabilitation in Breast Cancer *280*

Section 5: Cardiothoracic and Vascular System

26. Cardiothoracic Surgery **283**

- Principles of Cardiopulmonary Bypass *283*
- Surgery for Coronary Artery Disease *285*
- Echocardiography *285*
- Surgery for Valvular Heart Disease *286*
- Role of Surgery for Congenital Heart Diseases *288*
- Cyanotic Heart Diseases *289*
- Acyanotic Heart Diseases *289*
- Pleural Effusion *291*
- Empyema Thoracis *292*
- Empyema Necessitans *292*
- Surgery for Medical Conditions *293*
- Lung Cysts *293*
- Mesothelioma of Pleura *293*
- Tumors of the Chest Wall *293*
- Lung Tumors *295*
- Lung Cancers *296*
- Small Cell Lung Cancer (SCLC) (Oat Cell Cancer) *296*
- Non-Small Cell Lung Cancer (NSCLC) *297*
- Metastatic Lung Cancers *299*
- Mediastinal Diseases and Principles of Management *300*
- Treatment of Mediastinal Mass Lesions *301*
- Thymoma *301*

27. Arteries, Veins and Lymphatics **304**

Arterial Diseases 304

- Occlusive Arterial Disease of the Extremities *304*
- Gangrene *306*
- Signs Elicited on Examination of Ischemic Limb *306*
- Diagnosis and Management *307*
- Treatment of Acute Limb Ischemia (ALI)—Must be Started Immediately *309*
- Treatment of Chronic Limb Ischemia *310*
- Surgical Treatment *310*
- Vasospastic Conditions and Arteritis *311*
- Raynaud's Disease and Syndrome *312*

Veins 317

- Applied Anatomy of Venous System of Lower Limbs *317*
- Venous Pathophysiology *317*
- Venous Hypertension and Chronic Venous Insufficiency *318*
- Chronic Venous Insufficiency *318*
- Deep Venous Thrombosis *322*

Lymphatic System 324

- Lymphedema *324*
- Classification of Lymphedema *324*
- Treatment of Lymphedema *326*
- Acute Lymphangitis *327*

Lymphomas 328

- Burkitt's Lymphoma *329*
- Hodgkin's Lymphoma *329*
- Clinical Features of Lymphomas *329*
- Investigations and Diagnosis *331*
- Treatment of Lymphoma *331*
- Tips for Examination of Lymphatic System *332*

Section 6: Hernia, Peritoneum and the Digestive Tract

28. Abdominal Cavity, Hernia and Digestive Tract 337

28.1: Hernia, Peritoneum and Retroperitoneum 337

Herniology 337

- Hernia *337*
- Etiology and Pathogenesis of Hernia *337*
- Principles of Treatment of Hernia *339*
- Groin Hernias (Herniae) *339*
- Surgical Anatomy of Femoral Hernia *340*
- Classification of Groin Hernias *340*
- Nyhus' Classification of Groin Hernia *340*
- Fruchaud's Myopectineal Orifice *341*
- Inguinal Hernia *342*
- Sliding Hernia *342*
- Tension Repairs *344*
- Surgery for Femoral Hernia *345*
- Ventral Hernias *346*
- Epigastric Hernia *346*
- Incisional Hernia *347*
- Rare Hernias *348*
- Parastomal Hernia *348*

The Peritoneum 349

- Peritoneal Cavity *349*
- Peritonitis *349*
- Acute Peritonitis *349*
- Factors Spreading/Deciding Severity *350*
- Peritonitis: Clinical Features *351*

- Treatment of Acute Peritonitis *352*
- Special Types of Peritonitis *352*
- Bile Peritonitis *353*
- Meconium Peritonitis *353*
- Abdominal Tuberculosis *354*
- Tuberculous Peritonitis *354*
- Complications of Acute Peritonitis and Intraperitoneal Abscess *355*
- Localised Intra-abdominal Abscess *355*
- Pelvic Abscess *356*
- Subphrenic Spaces and Abscess *356*
- Subdiaphragmatic Abscess *357*
- Mesenteric Cysts *358*
- Carcinomatosis Peritonei *359*
- Pseudomyxoma Peritonei *360*

Retroperitoneum 361

- Retroperitoneal Pathology *361*
- Retroperitoneal Tumors *361*
- Retroperitoneal Lipoma *361*
- Retroperitoneal Sarcoma *361*

28.2: Esophagus and Stomach 363

Esophagus 363

- Applied Anatomy of Esophagus *363*
- Lower Esophageal Sphincter *364*
- Evaluation of Dysphagia *366*
- Esophageal Perforations *366*
- Esophageal Diverticula *368*
- Classification of Esophageal Motility Disorders *368*
- Achalasia Cardia *369*
- Esophageal Atresia and Tracheoesophageal Fistula *370*
- Gastroesophageal Reflux Disease (GERD/GORD) *371*
- Esophageal Hiatus Hernia *372*
- Carcinoma of Esophagus *375*
- Staging Esophageal Carcinoma *376*
- Treatment of Esophageal Carcinoma *377*
- Surgery for Esophageal Carcinoma *378*
- Radiotherapy and Chemotherapy (Combination) *379*
- Palliation in Carcinoma Esophagus *379*

Stomach 380

- Applied Anatomy and Physiology of Stomach *380*
- Nerve Supply to the Stomach *381*
- Microscopy of Gastroduodenal Mucosa *381*

- Surgical Physiology of Stomach and Duodenum *383*
- Investigation of Stomach and Duodenum: Gastric Function Study *384*
- Gastrin *385*
- Hypergastrinemia *385*
- Helicobacter Pylori *385*
- Congenital Hypertrophic Pyloric Stenosis *386*
- Gastritis *387*
- Peptic Ulcer *388*
- Pathology of Peptic Ulcers *388*
- Complications of Peptic Ulcer *392*
- Hematemesis and Melena *393*
- Bleeding Peptic Ulcer: Massive Bleed *394*
- Pyloric Stenosis in Duodenal Ulcer *395*
- Gastric Volvulus *396*
- Acute Dilatation of Stomach *397*
- Gastric Cancer *397*
- Pathology of Gastric Cancer *398*
- Treatment of Carcinoma Stomach *401*
- Summary of Treatment of Gastric Carcinoma *402*
- Palliation in Gastric Cancer *403*
- Other Tumors of Stomach *403*
- Gastric Lymphoma *404*
- Zollinger-Ellison Syndrome *404*

28.3: Spleen, Liver, and Biliary Tract 406

Spleen 406

- Spleen *406*
- Splenunculi *407*
- Splenic Rupture *408*
- Splenic Trauma *409*

Liver 411

- Anatomy of Liver *411*
- Alfa-fetoprotein *412*
- Acute Liver Failure *413*
- Liver Injuries *413*
- Infectious Conditions of the Liver *415*
- Amebic Liver Abscess *415*
- Pyogenic Abscess *417*
- Portal Pyemia *418*
- Hydatid Cyst of Liver *418*
- Tumors of the Liver *420*
- Palliative Therapy for HCC *423*

- Metastatic Tumors *423*
- Portal Hypertension (PHT) *424*
- Etiopathogenesis *425*
- Exclude Non-variceal Bleed *427*

Biliary Tract 431

- Applied Anatomy of Biliary System *431*
- Percutaneous Transhepatic Cholangiography *434*
- Intraoperative Imaging Techniques *434*
- Extrahepatic Biliary Atresia *435*
- Choledochal Cyst *436*
- Gallstones (Cholelithiasis) *436*
- Gallstones *436*
- Pathogenesis of Gallstone Formation *437*
- Pathology and Complications of Gallstones *438*
- Chronic Cholecystitis *439*
- Acute Cholecystitis *439*
- Emergency Cholecystectomy *441*
- Choledocholithiasis (Stone in the Bile Duct) *442*
- T-tube Cholangiography *444*
- Biliary Strictures *444*
- Cholangiocarcinoma of Bile Ducts *444*
- Carcinoma of Gallbladder *445*
- Obstructive Jaundice *445*
- Extrahepatic Biliary Obstruction (Surgical Jaundice) *445*
- Courvoisier's Law *447*
- Surgery in Obstructive Jaundice *448*
- Management Algorithm for Surgical Jaundice *449*

28.4: The Intestines 451

- Anatomy of Small Intestine *451*
- Anatomy of the Large Intestine *452*
- Lymphatic Drainage of the Colon *453*
- Intestinal Diverticulae *454*
- Meckel's Diverticulum *454*
- Crohn's Disease *455*
- Imaging in Crohn's Disease *457*
- Tuberculosis of the Intestines *459*
- Surgical Complications of Typhoid *460*
- Surgical Complications of Roundworm (Ascaris Lumbricoides) *461*
- Pneumatosis Cystoides Intestinalis (PCI) *462*
- Ileal Strictures *462*
- Blind Loop Syndrome *463*
- Enterocutaneous Fistula *463*

- Small Intestinal Tumors *464*
- Peutz–Jeghers Syndrome *464*
- Malignant Tumors of Small Bowel *464*
- Short Gut Syndrome (SGS) *466*
- Intestinal Obstruction *468*
- Pathophysiology of Intestinal Obstruction (Dynamic) *468*
- Strangulated Obstruction *469*
- Paralytic Ileus *469*
- Clinical Features of Acute Intestinal Obstruction *470*
- Simple v/s Strangulated Obstruction *470*
- Chronology of Symptoms Related to Level of Obstruction *470*
- Paralytic Ileus *472*
- Pseudo-obstruction *472*
- Colonic Pseudo-obstruction *472*
- Volvulus of Intestines *472*
- Ileosigmoid Knotting (Compound Volvulus) *474*
- Cecal Volvulus *474*
- Intussusception *475*
- Acute Intussusception *475*
- Intestinal Obstruction due to Internal Hernias *478*
- Neonatal Intestinal Obstruction *478*
- Duodenal Atresia *478*
- Midgut Malrotation *479*
- Associated Anomalies 20–25% *479*
- Meconium Ileus *480*
- Chronic Large Bowel Obstruction *481*
- Mesenteric Vascular Insufficiency (with/without Occlusion) *481*
- Chronic Mesenteric Ischemia (Mesenteric Angina) *482*

28.5: The Vermiform Appendix 483

- Diseases of the Vermiform Appendix *483*
- Acute Appendicitis *484*
- Clinical Signs in Acute Appendicitis *486*
- Differential Diagnosis of Acute Appendicitis *486*
- Appendix Mass (Appendicular Phlegmon) *488*
- Appendix Abscess *488*
- Mucocele of Appendix *489*
- Pseudomyxoma Peritonei (PMP) *490*
- Carcinoid of the Appendix—Syn: Argentaffinoma *490*
- Mass in the Right Iliac Fossa *491*

The Large Intestine 492

- Chronic Large Bowel Obstruction *492*
- Hirschsprung's Disease (Congenital Megacolon) *492*

- Diverticulosis Coli *493*
- Ulcerative Colitis (UC) *495*
- Surgical Manifestations of Intestinal Amebiasis *497*
- Ischemic Colitis *498*
- Chronic Constipation *499*
- Treatment of Chronic Constipation and Coloparesis *500*
- Colostomy *500*
- Lower Gastrointestinal Bleeding *501*
- Surgery in Acute GI Bleed: General Principles *503*

Anorectal Surgery 505

- Surgical Anatomy of Rectum *505*
- Emryology of Rectum and Anal Canal *505*
- Lymphatic Drainage of Rectum and Anal Canal *508*
- Puborectalis Sling of Levator Ani is the Key to Continence *510*
- Invertogram *513*
- Rectal Injuries *514*

28.6: Tumors of Colon, Rectum and Anal Canal 515

Tumors of Large Intestine 515

- Tumors of Large Intestine *515*
- Hereditary Polyposis Syndromes *516*
- Colorectal Cancers *516*
- Etiological Factors for Colorectal Carcinoma *517*
- Spread of Colorectal Carcinoma *518*
- Surgery for Colonic Carcinoma *522*
- Carcinoma Rectum *524*
- Rectal Lymphatics *524*
- Anal Carcinoma *528*

Anal Canal 529

- Etiology and Pathogenesis of Anorectal Abscesses *529*
- Etiology of Anorectal Abscesses *529*
- Pathogenesis: Anorectal Abscess *529*
- Anorectal Fistula *530*
- Goodsall's Rule *531*
- Pelvirectal (Supralevator) Fistula (Extrasphincteric) *533*
- Pilonidal Sinus *533*
- Sacrococcygeal Pilonidal Sinus *533*
- Hemorrhoids *536*
- Anal Cushions " Corpus Cavernosum Recti" of Stelzner *537*
- Principles of Stapled Hemorrhoidopexy (Syn: MIPH) *539*
- Thrombosed External Piles (Short Notes) *539*
- Fissure in Ano *540*
- Prolapse of the Rectum *542*

Section 7: Urogenital Surgery

29. Kidney, Ureters and the Bladder 547

Hematuria, Congenital Disorders, Infections and Obstructive Pathology 548

- Hematuria *548*
- Embryology of Urogenital System *550*
- Congenital Abnormalities *550*
- Ectopic Kidney/Crossed Renal Ectopia *551*
- Horseshoe Kidney *551*
- Cystic Diseases of the Kidney *551*
- Autosomal Dominant Polycystic Kidney Disease *551*
- Urinary Tract Infections *553*
- Acute Pyelonephritis *553*
- Chronic Pyelonephritis *554*
- Emphysematous Pyelonephritis *555*
- Genitourinary Tuberculosis *556*
- Thimble Bladder *558*
- Vesico-ureteric Reflux *558*
- Lower Urinary Tract Infection and Cystitis *559*
- Schistosomiasis (Bilharziasis) of the Bladder *561*
- Hydronephrosis *562*

Renal Calculi and Renal Tumors 567

- Urolithiasis *567*
- Pain, Hematuria and Fever *569*
- Extracorporeal Shockwave Lithotripsy *570*
- Percutaneous Nephrolithotomy (PCNL) *570*
- Staghorn Calculus *571*
- Lower Urinary Tract Stones *572*
- Upper Tract Transitional Cell Carcinoma *577*
- Wilms' Tumor (Nephroblastoma) *578*
- Additional Reading - Good to Know *579*
- Investigations in Surgery of Urinary Tract *579*
- CT Scan—Renal Cysts *579*
- Renal Trauma *581*

Lower Urinary Tract: Bladder, Prostate and Urethra 582

- Surgical Anatomy of the Bladder *582*
- Congenital Defects of the Bladder *583*
- Rupture of Bladder: Trauma *583*
- Bladder Diverticula *586*
- Neoplasms of the Bladder *587*
- Carcinoma of the Bladder *587*
- Disorders of Prostate *590*

- Benign Prostatic Hyperplasia *591*
- Acute Prostatitis *594*
- Chronic Prostatitis *594*
- Prostatic Abscess *594*
- Carcinoma Prostate *595*
- Anatomy of Urethra *599*
- Posterior Urethral Valves *599*
- Hypospadias *599*
- Injuries to the Male Urethra *600*
- Urethral Stricture *601*

30. Scrotum, Testis and the Penis.....604

- Balanoposthitis *605*
- Carcinoma of Penis *606*
- Premalignant Conditions *606*
- Pathology of Carcinoma of Penis *606*
- Staging *607*
- Undescended Testis *609*
- Vanishing Testis *610*
- Acute Epididymo-orchitis *610*
- Chronic Epididymitis *611*
- Torsion of the Testis *613*
- Epididymal Cysts *618*
- Pyocele *619*
- Staging of Testicular Tumors *621*
- Treatment of Testicular Tumor *622*
- Tumors of Scrotum *623*

Bibliography..... *625*

Index..... *627*