Contents

SECTION 1: SPECIAL TOPICS

1. Development of General Anesthesia
   Jaydeb Prakash Kundu
   Tenth Century Downwards up to Eighteenth Century  3; Nineteenth Century  4;
   Chloroform  5; Anesthetic Machine  7

2. Pediatric Anesthesia: An Overview
   Purnima Mukherjee, Shalini Chaudhuri
   Fasting Guidelines 10; Reversal Criteria 11; OPD Anesthesia 12;
   Anesthetic Drugs 12; Special Considerations 13

3. Neurosurgical Anesthesia: An Overview
   Bibhukalyani Das
   What Makes Neuroanesthesia Different? 15; Basic Principles of Neurophysiology 15;
   Clinical Neuroanesthesia 17; Preanesthetic Evaluation and Optimization 17;
   Basic Principles 18; Management of Intracranial Pressure 19;
   Recent Advances in Neurosurgery 21

4. Cardiovascular and Respiratory Physiology
   Anupam Goswami
   Respiratory Physiology with Anesthetic Implications 23; Cardiovascular Physiology with
   Anesthetic Implications 28

5. Role of Anesthesiologist in Pain Management in the Preoperative Period
   Sushma Bhatnagar, Arif Ahmed
   Adverse Physiological Effects 39; Unidimensional Tools 40; Functional Measurement of Acute
   Pain 42; Pain Assessment in Pediatric Population 43; Peripheral Nerve Block 45;
   Level of Administration—Thoracic vs Lumbar 46; Nonselective Nonsteroidal Anti-inflammatory
   Drugs (nsNSAIDs) 52; Management of Acute Pain 60

6. How to Write a Thesis?
   Uday C Ghoshal, Rajan Singh, Sushil Kumar
   What is Thesis? 69; How to Write the Introduction and Background? 71; How to Write
   Aims? 71; How to Write a Review of Literature? 72; How to Write Method Section? 73;
   How to Write Results? 75; How to Write Discussion? 77; How to Write Conclusion? 78;
   How to Write the Reference or Bibliography Section? 78; Appendices 79;
   Some Important Language Points 80

7. Renal Physiology and Anesthetic Implications: An Overview
   Srabani Basu
   Anatomy of the Kidney 81; Functions of the Kidney 82; Renal Circulation 82;
   Renal Blood Flow 83; Glomerulus and its Function 84; Tubular Function 86;
   Regulation of Glomerular Blood Flow 87; Formation of Urine 88; Proximal Tubule and
   Peritubular Capillaries 88; Loop of Henle and Vasa Recta 88; Distal Tubule and Collecting
   Ducts 90; Perioperative Renal Function and Anesthetic Implications 91; Direct Anesthetic
   Effects on Renal Function 91; Direct Surgical Effects on Renal Function 91; Nephrotic Insults
   in the Perioperative Period 92
8. Anesthetic Considerations in Pregnant Patients with Cardiac Disease

Sampa Dutta Gupta
Valvular Heart Disease 94; Mitral Stenosis 95; Mitral Regurgitation 98; Aortic Stenosis 99; Aortic Regurgitation 100; Congenital Heart Disease 101; Eisenmenger’s Syndrome 103; Coarctation of the Aorta 104; Infective Endocarditis 107

9. Anesthetic Considerations for Liver Transplantation

Jyotsna Goswami

10. Preanesthetic Evaluation

Dalim Kumar Baidya, Souvik Maitra
Approach to a Patient in Preanesthetic Clinic 122; Coagulation Disorders 132; Preoperative Investigations 132; Assessment of a Child before Elective Surgery 133; Risk Stratification 133

11. Legal Aspects of Anesthesia: Knowledge of Postgraduates in Anesthesiology

Sukdev Nayak
Legal Master-servant Relationship 136; Standards of Care 137; Expert Witness 138; How to Avoid a Lawsuit? 138; If a Trial is to Occur? 138; Government Hospitals 140; Vexatious Complaints 141; Prevention 141

SECTION 2: LONG CASES

12. Mitral Stenosis during MD (Anesthesiology) Examination

Deepak K Tempe, Indira Malik

13. Anemia in Pregnancy

Sagarmoy Basu
Case Summary 155

14. Anesthetic Management of a Patient with Permanent Pacemaker/Cardiac Implantable Electronic Device

Sumitra Bakshi, JV Divatia
Establishing whether Patient has a CIED (Must know) 161; Basics of Pacemaker and CIED 165; Preoperative and Intraoperative Device Functioning (Must know) 169; Postoperative Care and Instructions 173

15. Anesthetic Management of a Patient with Chronic Renal Failure Posted for Elective Surgery

Nibedita Pani, Dhanee Majhi
Pharmacology 186

16. A Patient with Surgical Jaundice to Undergo Anesthesia for Laparotomy

Jayashree Sood
History 195; Social History 196

17. Diabetes Mellitus: Anesthetic Considerations

Ashok Kumar Saxena

18. A Patient with Lung Cyst Posted for Pneumonectomy

Anupam Goswami
Pathophysiology: Cysts and Bullae 226; Management of One Lung Ventilation 231; Technique and Steps of Anesthesia 232; Strategies for Postoperative Mechanical Ventilation 233
19. Thyroid Swelling
Subrata Pahari, Koel Mitra
Case Summary 234; Palpation 235

Sanghamitra Mishra
Case 246

21. Transurethral Resection of the Prostate Syndrome in Patient with Hypertension and Ischemic Heart Disease
Baljit Singh, Indira Malik

22. A 65-Year-Old Male Hypertensive Patient Posted for Elective Herniorrhaphy
Rahul Guha Biswas, Chandan Kumar Mandal
Hypertension 275; Drugs for Compelling Indication 278

23. Renal Transplant Anesthesia
Kanak Kanti Kundu
Case Summary 286; Cardiovascular System 293; Hematological System 293; Respiratory System 294; Electrolytes and Acid Base Status 294; Endocrine System 294; Coagulation 294; Central Nervous System 294; Gastrointestinal System 295; Dermatological 295; Problems of Dialysis 295; Opioids 297; Muscle Relaxants 297; Nondepolarizing Agents 297; Drugs Modifications 300

24. Hypertensive Diseases in Pregnancy
Sampa Dutta Gupta, Maupali Ghosh, Samarendra Samui
Case Summary 309

25. A Patient Suffering from Ischemic Heart Disease, have an Intracoronary Stent, on Beta Blockers, Calcium Channel Blocker and Statin Therapy, Posted for Elective Abdominal Surgery
Minati Choudhury
Case 320

26. Anesthetic Management of a Patient with Airway Disorder Posted for Upper Abdominal Elective Surgery
Sampa Dutta Gupta, Pooja Banerjee, Rajat Choudhuri
Few Algorithm Related to the Management 353

27. Hydrocephalus
LD Mishra, S Parashar
Causes of Hydrocephalus 359; Pathogenesis 359; Signs and Symptoms 360; Treatment 361; Anesthetic Management 361; Postoperative Care 362

28. Cleft Lip/Palate
Dilip K Pawar

29. Role of Anesthesiologist in Acute Burn
Sudakshina Mukherji

30. Postburn Contractures: Neck and Extremity
Anil Agarwal, Sujeet Kumar Singh Gautam

SECTION 3: SHORT CASES

27. Hydrocephalus
LD Mishra, S Parashar
Causes of Hydrocephalus 359; Pathogenesis 359; Signs and Symptoms 360; Treatment 361; Anesthetic Management 361; Postoperative Care 362

28. Cleft Lip/Palate
Dilip K Pawar

29. Role of Anesthesiologist in Acute Burn
Sudakshina Mukherji

30. Postburn Contractures: Neck and Extremity
Anil Agarwal, Sujeet Kumar Singh Gautam
31. Meningocele and Meningomyelocele
   Jatisankar Rudra
   384

32. Cyanotic Congenital Heart Disease: Tetralogy of Fallot
   Soumenda Pal
   389

33. Patent Ductus Arteriosus
   Mohona Mukherjee, Sudeshna Bhar (Kundu), Samarendra Pal
   396

34. Anesthetic Management of a Diabetic Patient Posted for Emergency Laparotomy
   Ratul Kundu, Chiranjib Bhattacharyya, Rajib Samal
   406

SECTION 4: MISCELLANEOUS

35. Inhaled Anesthetics
   Mahendra Kumar
   417
   Halothane 417; Isoflurane 418; Other Drugs Related to Anesthesia 420

36. Intravenous Fluids: Crystalloids and Colloids
   Mahendra Kumar
   425
   General Consideration of Intravenous Fluids 425; Crystalloid Intravenous Fluids 426; 5% Dextrose Solution 426; 10% Dextrose Solution 427; Normal Saline (NS) Solution 427; Dextrose Normal Saline (DNS) Solution 428; Ringer Lactate Solution 428; Pediatric Electrolyte Solution (Isolyte P) Multielectrolyte Solution in 5% Dextrose 429; Colloid Intravenous Fluids 429; Gelatin Solution (Haemaccel) 429; Dextran 40 and Dextran 70 430; Hydroxy Ethyl Starch (HES) 431; Human Albumin 432

37. Surgical Airway
   Sabyasachi Das
   433
   Definition 433; Indications of Surgical Airways 433; Techniques 434; Percutaneous Cricothyrotomy 437; Percutaneous Tracheostomy 441; Cricothyrotomy 445

38. How to Prepare Chest X-rays for MD/DA/DNB Examinations?
   Prithwis Bhattacharyya
   450
   Objectives 450; Lateral Positioning 451; Positioning 452

39. How to Prepare ECG for Examination of Postgraduate Students of Anesthesiology?
   Sumanta Dasgupta
   463
   Normal ECG and the 12-Lead System 463; Basic ECG Waveform 463; Determination of the Electrical Axis 464; Normal Rhythm of the Heart 466; Mechanism of Genesis of Dysrhythmia 467; Einthoven’s Triangle Hypothesis 493; Normal Appearance in Pericardial Leads 494; Electrophysiology of the Heart 500; Digoxin 502; Digoxin Toxicity 502; ICD Therapy 502

40. Cardiopulmonary Resuscitation Guidelines—the Science Behind Applications: What We Need to Know?
   Saikat Sengupta, Simantika Ghosh
   504

41. Neonatal Resuscitation
   Rajat Choudhuri
   514
   Steps of Resuscitation 514

42. Vaporizers
   Sudeshna Bhar (Kundu)
   518
   Salient Features of Some Vaporizers 525

Index
   529