Contents

1. Lateral Nasal Wall **1**
Renuka Bradoo
Overview 1; Vestibule and Atrium 1; Turbinates 2; Ostiomeatal Unit 2; Maxillary Ostium 2; Frontal Recess 3; Ethmoid Labyrinth 3; Sphenoethmoidal Recess and Sphenoid Sinus 4

2. Endoscopic Surgical Anatomy **5**
Renuka Bradoo
Diagnostic Endoscopy 5; Turbinates 6; Dissection of Frontal Recess 7; Dissection of the Ethmoid Sinus and the Ostiomeatal Unit 7; Dissection of Posterior Ethmoid Cells 9; "Wandering" Cells 10; Dissection of Sphenoid Sinus 10

3. Imaging for Paranasal Sinuses **12**
Nishit J Shah, Sunita Kanojia
Pre-FESS CT Checklist 12; How to Approach CT Scan Reading? 13

4. Preoperative Preparation of Functional Endoscopic Sinus Surgery **19**
Arpit Sharma
Indications of Surgery 19; Goals of Surgery 19; Patient Management before Surgery 20; Postoperative Management 20

5. Postoperative Management after Functional Endoscopic Sinus Surgery **22**
Siddharth Chaudri
Need for Postoperative Care 22; Patient Counseling and Advice 23; Resuming Activities 23; Nasal Irrigation 24; Medical Treatment 24; Cleaning and Debridement 25

6. Endoscopic Ethmoid Sinus Surgery **27**
Anagha Joshi
Indications of Ethmoidectomy 27; Presurgical Considerations 27; Steps of Ethmoidectomy 27; Revision Surgery 30; Cleaning and Packing 31; Mucosal Preservation and Prevention of Adhesions 31; Optimizing the Surgical Field 32; Management of Complications 32; Postoperative Care 33

7. Endoscopic Surgery for the Frontal Sinus **35**
Abhineet Lall, Milind V Kirtane
Embryology 35; Endoscopic Anatomy 35; Other Factors Affecting the Frontal Sinus Outflow Tract 38; Pathologies Affecting the Frontal Sinus 38; Imaging for the Frontal Sinus 39; Magnetic Resonance Imaging 40; Approaches to the Frontal Sinus 40; Endonasal Frontal Sinus Surgery Type I–III 41; Frontal Sinus Trephination 42; Stenting in the Frontal Recess 44

8. Endoscopic Maxillary Sinus Surgery **47**
Milind Navalakhe
History 47; Anatomy 47; Pneumatization and Growth 48; Clinical Anatomy 48; Physiology of Sinus Drainage 48; Pathology 48; Clinical Features of Rhinosinusitis 48; Medical Management of Rhinosinusitis 49; Preoperative Evaluation of Patient 49; Indications of Maxillary Sinus Surgery 49; Preoperative Preparation of Patient 49; Steps of Surgery 49; Tips for Complete Clearance of Antrochoanal Polyp 50; Postoperative Care 50; Complications 50; Difficulties Arising in Endoscopic Maxillary Sinus Surgery 50

9. Approach to the Sphenoid Sinus **51**
Nishit J Shah, Rahul P Tejankar
Anatomy 51; Surgical Approaches 52; Pathologies 55; Complications of Sphenoid Surgery 55; Landmarks and Precautions during Sphenoid Surgery 57; Sphenoid as a Route 58

10. Sinonasal Polyposis **59**
Sujata Muranjan
Pathophysiology and Theories 59; Other Diseases Associated with Nasal Polyposis 60; Symptoms 62; Signs 62; Differential Diagnosis 63; Investigations 63; Medical Management 64; Recurrence 66

11. Rhinosinusitis **68**
Arpit Sharma, Shraddha Deshmukh, JP Dabholkar
Definition 68; Duration of the Disease in Adults 68; Acute Rhinosinusitis 68; Chronic Rhinosinusitis 71

12. Invasive Fungal Sinusitis **76**
Kashmira Chavan, Gauri Mankekar, Bachi Hathiram, Milind V Kirtane
Classification 76; Microbiology 77; Pathogenesis 77; Clinical Features 77; Investigations 78; Treatment 80; Prognosis 82

13. Instrumentation in Functional Endoscopy Sinus Surgery **84**
Samir Bhargava
Operation Theater Layout 84; Endoscopes 84; Camera 85; Suction Tips 85; Sickle Knife 85; Freer Elevator 86; Ball Probes 86; Curettes: Straight and Curved Curettes 86; Blakesley Forceps 86; Through-Cutting Instruments: Rhinoforce Blakesley 87; Tobey Reverse Cutting Forceps and Stammberger Antrum Punch 87; Stammberger Mushroom Punch 88; Kerrison Punch 88; Bellucci Scissors 88; Heuwieser Antrum Grasping Forceps 88; Giraffe Forceps (Kuhn) 88; Stammberger Side-Biting Punch Forceps 89; Microdebrider Power Shavers 89; Nasal Packing 89; Dissolvable Nasal Packing 90; Suction Diathermy 90; Balloon Catheter 90; Image-Guidance Systems 91; Procedure 91

14. Endoscopic Sinus Surgery in Orbital Lesions **93**
Hetal Marfatia Patel
Endoscopic Approach 93; Orbital Abscess 94; Orbital Decompression of Graves' Orbitopathy 94; Orbital Hematoma 95; Blow Out Fracture of the Orbit 95; Foreign Body of the Orbit 96; Orbital Tumor 96; Endoscopic Assisted Orbital Lesion 97; Tips and Pearls 98; Limitations 98

15. Endoscopic Decompression for Post-traumatic Optic Neuropathy **100**
Milind V Kirtane, Roshni Nambiar
Historical Aspects 100; Surgical Anatomy 100; Pathophysiology 101; Preoperative Work-up 101; Ophthalmic Examination 101; Imaging 102; Medical Therapy 102; Surgical Management 102; Complications 103

16. Endoscopic Dacryocystorhinostomy **105**
Milind Navalakhe
History 105; Anatomy 105; Endoscopic Anatomy 106; Physiology of Lacrimation 107; Clinical Features of Dacryocystitis 107; Diagnostic Nasal Endoscopy 107; Preoperative Patient Preparation 109; Anesthesia 109; Steps of Surgery 109; Challenges Faced in Surgery 109; Steps to Enhance Success Rates in Endoscopic Dacryocystorhinostomy 110; Pack Removal and Treatment 110; Stent Removal and Results 110; Advantages of Endoscopic Dacryocystorhinostomy 110; Complications 110

17. Endoscopic Management of Epistaxis **112**
Sujata Muranjan
Anatomy 112; Causes of Epistaxis 114; Pathophysiology 114; Management 114; Endoscopic Electrocauterization 116; Endoscopic Ligation of Sphenopalatine Artery 117

18. Juvenile Nasopharyngeal Angiofibroma **119**
Renuka Bradoo, Milind V Kirtane, Anagha Joshi
Epidemiology 119; Etiopathogenesis 119; Pathology 120; Mode of Spread 120; Classification 121; Blood Supply 121; Clinical Features 121; Diagnosis 122; Treatment 123; Complications 125; Prognosis 125

19. Pituitary Tumors **127**
Nishit J Shah, Chandrashekhar E Deopujari, Gauri M Kapre
Epidemiology 128; Clinical Features 128; Mass Effect of Tumor 129; Investigations 129; Management 130; Equipment 133; Anesthesia and Position 133; Surgical Technique 133; Complications 137; Other Lesions in the Pituitary 139; Malignant Tumors of the Pituitary 140

20. Endoscopic Approach to Sinonasal and Anterior Skull-base Tumors **141**
Prathamesh S Pai
Progress 141; Biology of Tumors 142; Evaluation 142; Treatment 143; Why Transnasal Surgical Access? 143; Is Endonasal Access Suitable? 144; Contraindications 144; Debate: Endoscopic Surgery Versus Conventional Surgery 147; Author's Experience 147

21. Endoscopic Management of Cerebrospinal Fluid Rhinorrhea **150**
Milind V Kirtane, Hetal Marfatia Patel, Kashmira Chavan, Dhruv Satwalekar
Historical Aspects 150; Pathophysiology 150; Clinical Presentation 152; Management 153; Conservative Management 155; Surgical Management 155; Postoperative Care 160; Postoperative Complications 160

22. Complications of Endoscopic Sinus Surgery **163**
Satish Jain, Gaurav Shankar Medikeri
Classification of Complications of Endoscopic Sinus Surgery 163; Risk Factors for Complications in Endoscopic Sinus Surgery 163; Orbital Complications 163; Prevention of Orbital Complications 168; Intracranial Complications in Endoscopic Sinus Surgery 170; Intranasal Complications of Endoscopic Sinus Surgery 176; Pearls and Perils for Safe Endoscopic Sinus Surgery 177

23. Image-guided Sinus Surgery **180**
TN Janakiram
History 180; Technology and Practical Use 180; Steps to Get Started with the Navigation System 181; Clinical Indications for Navigation Surgery 181; Surgical Advantages 182; Limitations 182

24. Nasal Packing Materials **183**
Siddharth Chaudri
Nonabsorbable Nasal Packing Materials 183; Absorbable Nasal Packing Materials 184; Newer Absorbable Nasal Packs 185

25. Revision Endoscopic Sinus Surgery **188**
Milind V Kirtane, Swapna Patil, Sharmela Sondhi
Indications for Revision Sinus Surgery 188; Diagnosis and Preoperative Evaluation 189; Techniques of Revision Surgery 190; Postoperative Care 196

26. Balloon Sinuplasty **198**
Nishit J Shah
Balloon Sinuplasty System 198; Procedure 200; Clinical Studies for Safety and Efficacy 202; Recent Advances 204

27. Pediatric Endoscopic Sinus Surgery **205**
Hetal Marfatia Patel
Antrochoanal Polyp 205; Ethmoidal Polypi 206; Meningocele 206; Deviated Nasal Septum 207; Congenital Dacryocystocele 207; Choanal Atresia (CA) 208; Juvenile Angiofibroma 208; Hemangioma 208; Nasal Glioma 208; Preoperative Work-up 209; Anesthesia 209; Instruments 209; Tips and Pearls 209

28. Imaging of Paranasal Sinuses Pathologies **211**
Abhijit A Raut, Prashant S Naphade
General Considerations 211; Common Pathological Conditions 213; Benign Sinonasal Neoplasms 220; Malignant Sinonasal Neoplasms 224

Index *229*