# Contents

Contributors Foreword by Millind V Kirtane Preface	vi ix
1. Temporal Bone Dissection Laboratory Setting	1
Dipak Ranjan Nayak • Produl Hazarika • P Satyanara, Historical Perspective Microsurgery of Ear 1 Equipment 2 Operating Microscope 4 Microscope Suspension System 6 Bone Holders 7 Suction Irrigation 7 Surgical Instruments 7 Bone 8	yan Murthy
2. Temporal Bone Anatomy including Radiology	13
Surgical Anatomy of Temporal Bone 13 Petrous Temporal Bone and Petrous Apex 17 External Auditory Canal 19 Tympanic Cavity 19 Inner Ear 22	jeet wiisii u
3. Endoscopic Surgical Anatomy of the Middle Ear	25
Sanjeev Mohanty • Nikitha Periaswamy • Dipak Ra	njan Nayak
Introduction 25 Historical Perspective 25 Role of Otoendoscopy in Understanding the Anatomy and Pathology of Middle Epitympanic Space 27 Protympanum 29 Hypotympanum 29 Facial Nerve 29	e Ear 25
4. Cortical Mastoidectomy	32
Rohit Singh • Dipak Ranjan Nayak • Chinmoy	Sundar Ray
Historical Perspective 32 Preparations 32	

Surgical Principle and Instrumentation  $\ 32$ 

Surgical Technique 33

#### 5. Modified Radical Mastoidectomy

39

Dipak Ranjan Nayak • Balakrishnan Ramaswamy • Subrat Behera • Santosh Mishra

Introduction 39

Historical Perspective 39

Indications 39

Objectives 40

Procedure 40

Outside in Approach 40

Inside Out Approach 47

Complications of Modified Radical Mastoidectomy 50

### 6. Radical Mastoidectomy

52

Kailesh Poojary • P Satyanarayan Murthy • Dipak Ranjan Nayak

Introduction 52

Indications for Radical Mastoidectomy 52

Steps of Radical Mastoidectomy 53

## 7. Combined Approach Tympanoplasty

57

Dipak Ranjan Nayak ● Produl Hazarika ● Asheesh Dora ● Apoorva N Reddy

Historical Perspective 57

Facial Recess Anatomy 59

Indications for CAT (Posterior Tympanotomy) 60

## 8. Endolymphatic Sac Decompression

66

Dipak Ranjan Nayak • Devaraj K • Sauvagini Acharya

Introduction 66

Historical Perspective 66

Indications 66

Surgical Anatomy 67

Donaldson's Line 67

Technique 67

Simple Cortical Mastoidectomy Performed 67

Exposure of Endolymphatic Sac(ES) 68

Operative Problems 70

Modifications of Portmann's Technique 71

Postoperative Care 72

#### 9. Facial Nerve Decompression

74

Dipak Ranjan Nayak • Sampath Chandra Prasad Rao • Produl Hazarika • Santosh Pani

Introduction 74

Historical Perspective 74

Contents

Etiology 74

Principles of Facial Nerve Surgery 75

Transmastoid Approach 76

Middle Cranial Fossa Approach 79

Combined Transtemporal—Transmastoid Approach 80

Skin Incision and Mastoid Temporal Exposure 81

Transmastoid Approach 81

Identification of Bony Superior Semicircular Canal 81

Exposure of Meatal Plane 81

Exposure of Geniculum and Ossicles 82

## 10. Stapedectomy

84

Dipak Ranjan Nayak • Produl Hazarika • Rajalaxmi Panigrahi

Introduction 84

Historical Perspective 84

Evaluation and Case Selection for Stapes Surgery 85

Special Problems during Stapedectomy 87

The Operation 88

Laser Stapedectomy 93

Stapedectomy in the Temporal Bone 94

#### 11. Myringoplasty

95

Suresh Pillai • Ajay Bhandarkar • Dipak Ranjan Nayak

Historical Perspective 95

Classification of Myringoplasty 95

## 12. Tympanoplasty and Ossiculoplasty

104

Produl Hazarika • P Satyanarayan Murty • Dipak Ranjan Nayak • Smruti Swain

Introduction 104

Historical Perspective 104

Physiologic Considerations 105

Tympanoplasty—Classification 105

Farrior's Classification of Ossiculoplasty 106

Common Ossicular Defects 107

Rare Ossicular Defects 108

Procedure 108

#### 13. Historical Perspective and Principle of CochlearImplant Surgery

112

Produl Hazarika • Dipak Ranjan Nayak • Manushrut

Introduction 112

Historical Perspective 112

Principle of Cochlear Implant Surgery 113

How the Device Produce Hearing Sensation Step by Step 113

Hybrid Implants (Electroacoustic Stimulation) 113

Parental Counseling 115

Evaluation, Assessment and Diagnosis 115

Preoperative Counselling (to Correct Common Patient Misconceptions) 116

Surgical Implantation 117

Rehabilitation 119

Various Preliminary Cochlear Implant Programs 121

#### 14. Cochlear Implantation: An Overview

123

Shankar B Medikeri • Madhuri Gore • Rashmi A Deshpande

Introduction 123

Pre-implant Counselling 128

Surgical Technique of Cochlear Implantation 129

Complications of Cochlear Implantation 134

Switch-on and Mapping 135

#### 15. Translabyrinthine Approach to the Internal Auditory Canal

139

Produl Hazarika • Dipak Ranjan Nayak • Ajay Bhandarkar • Kabikanta Samantaray

Introduction 139

Historical Perspective 139

Anatomy 139

Translabyrinthine Approach to the IAM Indications 141

Limitations 141

Technique 142

Labyrinthine Dissection 142

Internal Auditory Canal Dissection 143

Dural Incision 144

Identification of the Facial Nerve 145

Complications 145

## 16. Surgical Refinements to the Translabyrinthine Approach to the Cerebellopontine Angle

147

Sampath Chandra Prasad Rao • Mario Sanna

Introduction 147

The Enlarged Translabyrinthine Approach (ETLA) 147

Surgical Technique 149

Identification of the Facial Nerve at the Fundus 152

Opening the Dura 154

Bloodless Techniques for Tumor Removal 155

Enlarged TLA with Transapical Extension (ETLA+TAE) 161

Contents xvii

## 17. Principle of Skull Base Surgery and Approaches to Lateral Skull Base Surgery

166

HN Udaybhanu ● Dipak Ranjan Nayak ● Produl Hazarika ● Ajay Bhandarkar

Introduction 166

Principles of Lateral Skull Base Approaches 167

Steps for Surgery for Type A Approach 168

Type B Approach 171

Type C Approach 172

Surgical Steps 172

Type D Approach 172

#### 18. An Introduction to Infratemporal Fossa Approaches

174

Sampath Chandra Prasad Rao • Ananth Chintapalli • Mario Sanna

Introduction 174

Infratemporal Fossa Approach Type A (ITFA-A) 175

Surgical Anatomy 176

Surgical Technique 177

Management of the Internal Carotid 180

Infratemporal Fossa Approach Type B (ITFA-B) 181

Surgical Anatomy 181

Surgical Technique 182

Infratemporal Fossa Approach Type C (ITFA-C) 184

Surgical Anatomy 185

Surgical Technique 186

Infratemporal Fossa Approach Type D (ITFA-D) 188

Surgical Anatomy 188

Surgical Technique 189

#### 19. Temporal Bone Resections for Malignancies of the Temporal Bone

191

Sampath Chandra Prasad Rao • Mario Sanna

Introduction 191

Staging of TBMs 192

Preoperative Management 192

Surgical Techniques for TBMs 193

#### 20. Complications of Mastoidectomy: A Short Review

203

Dipak Ranjan Nayak • Khageswar Rout • Swetapadma Nayak

Introduction 203

Complications 203

Hemorrhage 203

Postgraduate Manual of Temporal Bone Dissection and Ear Microsurge	Postgraduate	Manual of	Temporal F	Rone Dissection	and Far	Microsurger
--	--------------	-----------	------------	-----------------	---------	-------------

Facial Nerve Injury 205

Labyrinthine Injury and Sensory Neural Hearing Loss 206

## 21. MIRA: Cerebellopontine Angle and Vascular Conflicts

211

HN Udayabhanu • Dipak Ranjan Nayak

Introduction 211 Investigations 213

Neurovascular Conflicts 213

## 22. Mastoid Obliteration

217

Balakrishnan Ramaswamy • Kailesh Pujary • Dipak Ranjan Nayak

Historical Perspective 217

Mastoid Obliteration Technique 218

Superficial Temporoparietal Fascial Flap 220

Posterior Canal Wall Reconstruction 221

Middle Ear Mastoid Cavity Augmentation Following Blind Sac Closure 221

Index 223