

Contents

1 General Features of Acoustic Neurinomas	1	Drills	35
Pathogenesis	1	Bipolar Coagulation	36
Epidemiology	1	Microinstruments	37
Natural History	1	Postoperative Management	38
Signs and Symptoms	1	Postoperative Medication	38
Hearing Loss	1	Discharge	39
Tinnitus	2		
Disequilibrium	2	5 Surgery in the Cerebellopontine Angle: General Concepts	40
Cerebellar Dysfunction	2	Surgical Orientation in the Cerebellopontine Angle	40
Trigeminal Nerve Involvement	2	Internal Auditory Canal	40
Facial Nerve Involvement	2	Cerebellopontine Angle	41
Lower Cranial Nerve and Brainstem Findings	2	Facial Nerve	43
Hydrocephalus and Headaches	3	Surgical Techniques in the Cerebellopontine Angle	44
		General Guidelines for Drilling	44
2 Imaging Study of Acoustic Neurinomas	4	Management of Bleeding	44
Tumor Assessment	4	How to Deal with Brain Tissue and Other	
Magnetic Resonance Imaging	4	Neurovascular Structures	45
Computed Tomography	15	How to Obtain Better Access to the Tumor	46
Differential Diagnosis	15	Techniques of Tumor Dissection and Removal	47
Neurofibromatosis Type 2	15		
Other Tumors	16	6 Intraoperative Monitoring	52
Residual Tumors	18	Facial Nerve Monitoring	52
Therapeutic Follow-Up	22	Introduction	52
Postoperative Scans	22	Instrumentation	52
Wait and Scan	22	Techniques	53
		Purposes of Intraoperative Facial Nerve Monitoring	54
3 Decision Making in Acoustic Neurinoma Surgery	25	Localization of the Facial Nerve (Mapping)	54
Introduction	25	Identification of the Facial Nerve	54
Surgical versus Nonsurgical Treatment	25	Minimization of Neural Trauma	55
Small Neurinomas	25	Artifacts	55
Acoustic Neurinoma in the Only Hearing Ear	25	Confirmation of the Functional Integrity of the Nerve	56
Acoustic Neurinoma in Patients with Poor General		Concluding Considerations	56
Condition	26	Cochlear Nerve Monitoring	56
Radiosurgery	26	Introduction	56
Management of the Patient with Serious		Protocol	56
Neurological Disorders	26	Concluding Considerations	59
Management of Elderly Patients	26		
Selecting the Surgical Approach	27	7 The Translabyrinthine Approaches	60
Translabyrinthine versus Hearing Preservation Surgeries	27	The Enlarged Translabyrinthine Approach	60
Total versus Subtotal Removal	29	Rationale	60
		Indications	60
4 Operating Room Setup and Patient Care	31	Contraindications	60
Operation Room Setup	31	Surgical Anatomy	60
Rationale	31	Surgical Technique	61
Arrangement	31	Clinical Application	86
Instruments	35	Pearls and Pitfalls	89
Suction Irrigation	35	Summary	92

Enlarged Translabyrinthine Approach with Transapical Extension	93	10 Transcochlear Approaches	205
Rationale	93	Introduction	205
Indications	94	Transotic Approach	205
Limitations	94	Rationale	205
Surgical Anatomy (Right Ear)	94	Indications	205
Surgical Technique	94	Contraindications	205
Clinical Application	98	Surgical Anatomy (Right Ear)	206
Pearls and Pitfalls	113	Surgical Steps of the Blind-Sac (Cul-de-Sac) Closure (Left Ear)	208
Summary	113	Surgical Techniques	210
Special Considerations in the Translabyrinthine Approach	114	Clinical Application	213
Anatomical Variations	114	Pearls and Pitfalls	231
Management of Surgical Mishaps	123	Summary	232
Management of Nerves and Vessels around the Tumor	124	Modified Transcochlear Approach	232
Specific Characteristics of the Tumor	136	Rationale	232
Pearls and Pitfalls	140	Indication	232
8 Combined Retrosigmoid–Retrolabyrinthine Approach	142	Contraindications	232
Rationale	142	Surgical Anatomy (Right Ear)	232
Indications	142	Surgical Technique	235
Contraindications	143	Clinical Application	236
Surgical Anatomy	143	Pearls and Pitfalls	243
Surgical Dissection Demonstrating the Combined Retrosigmoid–Retrolabyrinthine Approach (Left Ear)	143	Summary	243
Surgical Techniques	148	11 Management in Special Situations	244
Access to the Tumor (Right Ear)	148	Current Strategy for Neurofibromatosis Type 2:	
Tumor Removal (Left Ear)	150	Total Removal with a Concomitant Cochlear or Brainstem Implant	244
Clinical Application	155	Neurofibromatosis Type 2	244
Pearls and Pitfalls	172	Clinical Diagnosis	244
Summary	175	Clinical Manifestations of Disease	245
Advantages	175	Management	245
Disadvantages	175	Decision Making	247
Limitations	175	Brainstem Implantation in Neurofibromatosis Type 2	248
9 Enlarged Middle Cranial Fossa Approach	176	Clinical Application	251
Rationale	176	Management of Acoustic Neurinoma in the Only Hearing Ear	263
Indications	176	Strategy	263
Contraindications	176	Clinical Application	264
Surgical Anatomy	176	Summary of Auditory Brainstem Implants	266
Technique for Identification of the Internal Auditory Canal	178	Pearls and Pitfalls	266
House's Method	178	12 Facial Nerve Reanimation	268
Fisch's Method (Meatal Plane Approach)	178	Introduction	268
Garcia-Ibanez's Method	179	Indications	268
Our Method	179	End-to-End Anastomosis	268
Surgical Dissection Demonstrating the Middle Cranial Fossa Approach (Left Ear)	180	Keys to Successful Results	268
Surgical Techniques	184	Interposition Graft	270
Special Positioning	184	Clinical Application	270
Surgical Steps up to the Internal Auditory Canal (Right Ear)	184	Harvesting the Sural Nerve Graft	282
Exposure of the Internal Auditory Canal (Right Ear)	187	Hypoglossofacial Nerve Anastomosis	283
Tumor Removal (Right Ear)	189	Anatomy of the Hypoglossal Nerve	283
Closure (Right Ear)	190	Surgical Approach	283
Clinical Application	192	Pearls and Pitfalls	285
Pearls and Pitfalls	201		
Summary	204		
Advantages	204		
Disadvantages	204		
Limitations	204		

13 The Role of Endoscopy in Acoustic Neurinoma Surgery	286	Cerebrospinal Fluid Leakage	298
Introduction	286	Meningitis	299
Instruments	286	Brain Edema	299
Sterilization	286	Cranial Nerve Defects	299
Endoscopic Surgical Anatomy	286	Ataxia	300
From the Posterior Aspect of the Temporal Bone:		Hydrocephalus	300
Retrosigmoid Approach	286	Air Embolism	300
Through the Superior Surface of the Temporal Bone:		Pneumocephalus	300
Middle Fossa Approach	288	Headaches	300
The Technique of Endoscopy	289	Postoperative Unsteadiness	300
Applications	289	Tinnitus	300
Translabyrinthine Approach	289	Nonspecific Complications	300
Retrosigmoid Approach	293	Atelectasis and Pneumonia	300
Enlarged Middle Fossa Approach	293	Deep Venous Thrombosis and Pulmonary Embolism	301
Risks of Cerebellopontine Angle Endoscopy	294	Wound Infection and Hematoma	301
		Transfusion	301
14 Complications and Management	295		
Introduction	295	Bibliography	303
Postoperative Complications Specific to Cerebellopontine			
Angle Surgery	295	Index	305
Hemorrhage	295		
Infarction	296		