

# Contents

## Part A Clinical Evaluation of Laryngeal Disorders

<b>1</b>	<b>Anatomy and Physiology of the Larynx</b>	<b>3</b>
1.1	Anatomy	3
1.1.1	Laryngeal Cartilages	3
1.1.1.1	Thyroid	3
1.1.1.2	Cricoid	3
1.1.1.3	Arytenoid	3
1.1.1.4	Accessory Cartilages: Cuneiform and Corniculate	3
1.1.1.5	Epiglottis	4
1.1.2	Laryngeal Joints	4
1.1.2.1	Cricothyroid Joint	4
1.1.2.2	Cricoarytenoid Joint	4
1.1.3	Laryngeal Musculature	4
1.1.3.1	Intrinsic Laryngeal Muscles	4
1.1.3.2	Extrinsic Laryngeal Muscles	5
1.1.4	Fibroelastic Tissue of the Larynx	5
1.1.4.1	Quadrangular Membrane	5
1.1.4.2	Conus Elasticus	5
1.1.5	Microanatomy of the Vocal Fold	6
1.1.6	Vasculature	6
1.1.7	Innervation	6
1.2	Physiology	7
1.2.1	Major Laryngeal Functions: Lower Airway Protection, Respiration, and Phonation	7
1.2.1.1	Phonation	7
	Key Points	8
	Selected Bibliography	8
<b>2</b>	<b>Principles of Clinical Evaluation for Voice Disorders</b>	<b>9</b>
2.1	Fundamental and Related Chapters	9
2.2	Introduction	9
2.3	Gathering a Patient History	9
2.4	History of Present Illness	9
2.5	Past Medical History	10
2.6	Past Surgical History	11
2.7	Social History	11
2.8	Occupational History	11
2.9	Listening to the Voice	11
2.10	Perceptual Analysis	12
2.11	Quality-of-Life Questionnaires	12
2.12	Professional Speaking/Singing Voice	12
	Key Points	14
	Selected Bibliography	14

<b>3</b>	<b>Videostroboscopy and Dynamic Voice Evaluation with Flexible Laryngoscopy</b>	<b>17</b>
3.1	Fundamental and Related Chapters	17
3.2	Introduction	17
3.3	Surgical Indications and Contraindications	17
3.4	Dynamic Voice Assessment with Flexible Laryngoscopy	18
3.4.1	Nasopharynx	19
3.4.2	Base of Tongue	19
3.4.3	Larynx (Global)	19
3.4.4	Vocal Fold (Focal)	19
3.5	Recording of Laryngeal Examination	19
	Key Points	20
	Selected Bibliography	20
<b>4</b>	<b>Pathological Conditions of the Vocal Fold</b>	<b>21</b>
4.1	Fundamental and Related Chapters	21
4.2	Introduction	21
4.3	Epithelial Pathology of the Vocal Folds	21
4.3.1	Recurrent Respiratory Papillomatosis of the Larynx	21
4.3.2	Leukoplakia of the Vocal Fold	21
4.3.3	Dysplasia–Carcinoma in Situ of the Vocal Folds	22
4.3.4	Carcinoma of the Vocal Fold	22
4.4	Benign Diseases of the Vocal Fold Lamina Propria	23
4.4.1	Overview of Midmembranous Vocal Fold Lesions	23
4.4.2	Approach to Midmembranous Vocal Fold Lesions	23
4.4.3	Vocal Fold Nodules	23
4.4.4	Vocal Fold Cyst (Subepithelial)	23
4.4.5	Vocal Fold Cyst (Ligament)	24
4.4.6	Vocal Fold Polyp	24
4.4.7	Fibrous Mass (Subepithelial)	24
4.4.8	Fibrous Mass (Ligament)	24
4.4.9	Reactive Lesion	25
4.5	Miscellaneous Disorders of the Vocal Fold	25
4.5.1	Polypoid Corditis (Reinke's Edema)	25
4.5.2	Vocal Fold Granuloma	25
4.5.3	Rheumatologic Lesions of the Vocal Folds	26
4.5.4	Vascular Lesions of the Vocal Folds	26
4.5.5	Vocal Fold Scar and Sulcus Vocalis	27
	Key Points	27
	Selected Bibliography	27

<b>5</b>	<b>Glottic Insufficiency: Vocal Fold Paralysis, Paresis, and Atrophy</b> .....	29	6.7.2	Criteria for Endoscopic Treatment for Subglottic Stenosis .....	41
5.1	Introduction .....	29	6.7.3	Criteria for T-Tube Stenting for Subglottic Stenosis .....	42
5.2	Unilateral Vocal Fold Paralysis .....	29	6.7.4	Criteria for External Treatment of Glottic/Subglottic Stenosis .....	42
5.2.1	Etiology .....	29		Key Points .....	42
5.3	Surgical Indications and Contraindications ...	30		Selected Bibliography .....	42
5.3.1	Vocal Quality and Swallowing .....	30			
5.4	Unilateral Vocal Fold Paralysis: Physical Examination .....	31	<b>7</b>	<b>Nonsurgical Treatment of Voice Disorders</b> ...	43
5.4.1	General .....	31	7.1	Fundamental and Related Chapters .....	43
5.4.2	Laryngeal .....	31	7.2	Introduction .....	43
5.5	Unilateral Vocal Fold Paralysis: Workup .....	32	7.3	Surgical Indications and Contraindications ...	43
5.5.1	Serology .....	32	7.4	Vocal Fold Granuloma .....	43
5.5.2	Imaging Studies .....	32	7.5	Infectious and Inflammatory Disorders .....	44
5.6	Unilateral Vocal Fold Paralysis: Treatment ...	32	7.6	Neurologic Disorders .....	45
5.7	Unilateral/Bilateral Vocal Fold Paresis .....	33	7.6.1	Spasmodic Dysphonia .....	45
5.7.1	Etiology .....	33	7.6.2	Essential Tremor .....	45
5.7.2	History .....	33	7.6.3	Parkinson's Disease .....	45
5.7.3	Physical Examination .....	33	7.6.4	Muscle Tension Dysphonia .....	45
5.7.4	Diagnostic Workup .....	33	7.6.5	Paradoxical Vocal Fold Motion Disorder ...	46
5.7.5	Treatment .....	33	7.6.6	Postviral Vagal Neuropathy .....	46
5.8	Presbylaryngis/Age-Related Changes in the Larynx .....	34	7.7	Allergy and Voice Disorders .....	46
5.8.1	General Considerations .....	34	7.8	Medications and Their Effects on Voice .....	46
5.8.2	Etiology, History, and Physical Findings .....	34	7.9	Vocal Hygiene .....	47
5.8.3	Workup .....	34	7.10	Role of the Speech–Language Pathologist in Voice Therapy .....	47
	Key Points .....	34		Key Points .....	48
	Selected Bibliography .....	35		Selected Bibliography .....	48
<b>6</b>	<b>Glottic and Subglottic Stenosis: Evaluation and Surgical Planning</b> .....	37	<b>8</b>	<b>Timing, Planning, and Decision Making in Phonosurgery</b> .....	49
6.1	Fundamental and Related Chapters .....	37	8.1	Fundamental and Related Chapters .....	49
6.2	Introduction .....	37	8.2	Key Components to Successful Care of Patients with Voice Disorders .....	49
6.3	Etiology of Glottic and Subglottic (Laryngotracheal) Narrowing .....	37	8.3	Surgical Indications and Contraindications ...	49
6.3.1	Common Clinical Conditions and Associated Risk Factors .....	37	8.3.1	Timing of Phonomicrosurgery .....	49
6.4	Glottic and Subglottic Stenosis: History .....	38	8.3.2	Preoperative Considerations for Phonomicrosurgery .....	49
6.4.1	Symptoms/Time Course .....	38	8.4	Decision Making in Phonosurgery .....	50
6.4.2	Medical Comorbidities .....	38	8.5	Informed Consent Regarding Phonosurgery ..	51
6.5	Glottic and Subglottic Stenosis: Physical Examination .....	38		Key Points .....	51
6.5.1	Local Anesthesia Techniques for Examination .....	38		Selected Bibliography .....	51
6.5.2	Documentation of Examination .....	38	<b>9</b>	<b>Anesthesia and Airway Management for Laryngeal Surgery</b> .....	53
6.5.2.1	Flexible Laryngoscopy/Tracheoscopy Protocol .....	39	9.1	Fundamental and Related Chapters .....	53
6.6	Additional Studies for the Evaluation of Glottic/Subglottic Stenosis .....	40	9.2	Equipment .....	53
6.6.1	Voice Evaluation (VHI-10, Audio Recording) .....	40	9.3	Surgical Indications and Contraindications ...	53
6.6.2	Air-Flow Measures .....	40	9.4	Principles of Airway Management: Subglottic and Tracheal Stenosis .....	54
6.6.3	Radiographic Studies .....	40	9.5	Special Circumstances: Difficult Exposure of the Larynx .....	55
6.6.4	Laboratory Testing .....	40	9.6	Anesthesia for Laryngeal Framework Surgery .....	58
6.7	Glottic and Subglottic Stenosis: Surgical Planning .....	41		Key Points .....	58
6.7.1	Corrective Surgical Procedures for Glottic/ Subglottic Stenosis .....	41		Selected Bibliography .....	58

## Part B Phonomicrosurgery for Benign Laryngeal Pathology

### I Fundamentals of Phonomicrosurgery

<b>10</b>	<b>Principles of Phonomicrosurgery</b> .....	63	13.2.2	Tissue Interaction .....	85
10.1	Fundamental and Related Chapters .....	63	13.2.3	Delivery Systems .....	85
10.2	Introduction .....	63	13.2.4	Types of Laser .....	86
10.3	Surgical Indications and Contraindications ..	63	13.3	Surgical Indications and Contraindications ..	86
10.4	Equipment for Phonomicrosurgery .....	65	13.4	Equipment: Laser Microlaryngoscopy Setup ..	87
10.5	Phonomicrosurgery Procedures, Techniques, and Methods .....	67	13.5	CO <sub>2</sub> Laser Safety Guidelines .....	87
10.5.1	Anesthesia .....	67	13.5.1	General Guidelines (Fig. 13.1) .....	87
10.5.2	Patient Position .....	68	13.5.2	CO <sub>2</sub> Laser Settings .....	88
10.5.3	Laryngoscope Placement .....	68	13.5.3	Safety Protocol .....	88
10.5.4	Suspension Device .....	70	13.6	Surgical Principles .....	88
10.5.5	External Counter-Pressure .....	71	13.6.1	Smoke Evacuation .....	88
10.5.6	Telescopic Evaluation of Vocal Fold Pathology .....	71	13.6.2	Protecting Surrounding Tissue from Laser Damage .....	88
10.5.7	Operating Microscope and Surgeon Ergonomics .....	72	13.6.3	Maintenance of a Clean Surgical Field .....	88
10.5.8	Microflap Approach to Submucosal Pathology .....	73	13.7	Complications and Their Treatments .....	89
10.6	Postoperative Care and Complications .....	75	13.7.1	Laser Fire .....	89
	Key Points .....	75	13.7.2	Tracheal Perforation .....	89
	Selected Bibliography .....	75		Key Points .....	89
				Selected Bibliography .....	89
<b>11</b>	<b>Perioperative Care for Phonomicrosurgery</b> ...	77	<b>14</b>	<b>Principles of Vocal Fold Augmentation</b> .....	91
11.1	Fundamental and Related Chapters .....	77	14.1	Fundamental and Related Chapters .....	91
11.2	Timing of Phonomicrosurgery .....	77	14.2	Vocal Fold Augmentation: Advantages, Disadvantages, and Clinical Utility .....	91
11.3	Surgical Indications and Contraindications ..	77	14.3	Surgical Indications and Contraindications ..	91
11.4	Considerations for the Day of Phonomicrosurgery .....	78	14.4	Characteristics of Vocal Fold Augmentation Materials .....	92
11.5	Postoperative Voice Rest .....	78	14.4.1	Overview .....	92
11.6	Postoperative Voice Care .....	78	14.4.2	Categories of Vocal Fold Augmentation Materials .....	92
11.7	Intralaryngeal Steroid Injection to Soften Postoperative Scar in the Vocal Fold .....	78	14.4.3	Description of Vocal Fold Augmentation Materials Characteristics .....	92
	Key Points .....	79	14.5	General Principles of Vocal Fold Augmentation .....	94
	Selected Bibliography .....	79		Key Points .....	95
				Selected Bibliography .....	96
<b>12</b>	<b>Management and Prevention of Complications Related to Phonomicrosurgery</b> .....	81	<b>II Phonomicrosurgical Voice Procedures</b>		
12.1	Fundamental and Related Chapters .....	81	<b>15</b>	<b>Vocal Fold Polyp</b> .....	99
12.2	Overview of Management and Prevention of Complications Related to Phonomicrosurgery ..	81	15.1	Fundamental and Related Chapters .....	99
12.3	Surgical Indications and Contraindications ..	81	15.2	Disease Characteristics and Differential Diagnosis .....	99
12.4	Postoperative Dysphonia .....	81	15.3	Surgical Indications and Contraindications ..	99
12.5	Medical Complications Associated with Phonomicrosurgery .....	82	15.4	Surgical Equipment .....	99
	Key Points .....	82	15.5	Surgical Procedures .....	100
	Selected Bibliography .....	83	15.6	Postoperative Care/Complications .....	103
<b>13</b>	<b>Principles of Laser Microlaryngoscopy</b> .....	85		Key Points .....	103
13.1	Fundamental and Related Chapters .....	85		Selected Bibliography .....	103
13.2	Laser Physics .....	85	<b>16</b>	<b>Vocal Fold Nodules</b> .....	105
13.2.1	Wavelength .....	85	16.1	Fundamental and Related Chapters .....	105
			16.2	Disease Characteristics and Differential Diagnosis .....	105
			16.3	Surgical Indications and Contraindications ..	105
			16.4	Surgical Equipment .....	105
			16.5	Surgical Procedure .....	106

16.6	Postoperative Care and Complications .....	107	21.4	Surgical Equipment .....	130
	Key Points .....	107	21.5	Surgical Procedure .....	130
	Selected Bibliography .....	107	21.6	Postoperative Care and Complications .....	133
<b>17</b>	<b>Vocal Fold Cyst and Vocal Fold Fibrous Mass</b> .....	109		Key Points .....	134
17.1	Fundamental and Related Chapters .....	109		Selected Bibliography .....	134
17.2	Diagnostic Characteristics and Differential Diagnosis .....	109	<b>22</b>	<b>Surgical Management of Vocal Fold Vascular Lesions</b> .....	135
17.3	Surgical Indications and Contraindications ..	109	22.1	Fundamental and Related Chapters .....	135
17.4	Surgical Equipment .....	109	22.2	Diagnostic Characteristics and Differential Diagnosis of Vocal Fold Varicosities .....	135
17.5	Surgical Procedure .....	109	22.3	Surgical Indications and Contraindications ..	136
17.6	Postoperative Care and Complications .....	111	22.4	Surgical Equipment .....	136
	Key Points .....	112	22.5	Surgical Procedure .....	136
	Selected Bibliography .....	112	22.6	Postoperative Care and Complications .....	138
<b>18</b>	<b>Polypoid Corditis</b> .....	113		Key Points .....	139
18.1	Fundamental and Related Chapters .....	113		Selected Bibliography .....	139
18.2	Disease Characteristics .....	113	<b>23</b>	<b>Vocal Fold Scar and Sulcus Vocalis</b> .....	141
18.3	Surgical Indications and Contraindications ..	113	23.1	Fundamental and Related Chapters .....	141
18.4	Surgical Equipment .....	114	23.2	Disease Characteristics and Differential Diagnosis .....	141
18.5	Surgical Procedure .....	114	23.3	Surgical Indications and Contraindications ..	142
18.6	Postoperative Care and Complications .....	116	23.4	Surgical Equipment .....	143
	Key Points .....	116	23.5	Surgical Procedure .....	143
	Selected Bibliography .....	117	23.6	Postoperative Care and Complications .....	150
<b>19</b>	<b>Vocal Fold Granuloma</b> .....	119		Key Points .....	150
19.1	Fundamental and Related Chapters .....	119		Selected Bibliography .....	150
19.2	Disease Characteristics and Differential Diagnosis .....	119	<b>24</b>	<b>Endoscopic Management of Teflon Granuloma</b> .....	151
19.3	Surgical Indications and Contraindications ..	119	24.1	Fundamental and Related Chapters .....	151
19.4	Surgical Equipment .....	119	24.2	Disease Characteristics and Differential Diagnosis .....	151
19.5	Surgical Procedure .....	120	24.3	Surgical Indications and Contraindications ..	151
19.6	Postoperative Care and Complications .....	121	24.4	Surgical Equipment .....	151
	Key Points .....	121	24.5	Surgical Procedure .....	151
	Selected Bibliography .....	121	24.6	Postoperative Care and Complications .....	153
<b>20</b>	<b>Vocal Fold Leukoplakia and Hyperkeratosis</b> ..	123		Key Points .....	153
20.1	Fundamental and Related Chapters .....	123		Selected Bibliography .....	154
20.2	Diagnostic Characteristics and Differential Diagnosis .....	123	<b>25</b>	<b>Endoscopic Excision of Saccular Cyst</b> .....	155
20.3	Surgical Indications and Contraindications ..	123	25.1	Fundamental and Related Chapters .....	155
20.4	Surgical Equipment .....	123	25.2	Disease Characteristics and Differential Diagnosis .....	155
20.5	Surgical Procedure .....	123	25.3	Surgical Indications and Contraindications ..	156
20.6	Postoperative Care and Complications .....	126	25.4	Surgical Equipment .....	156
	Key Points .....	126	25.5	Surgical Procedure for Saccular Cyst .....	156
	Selected Bibliography .....	127	25.6	Postoperative Care and Complications .....	157
<b>21</b>	<b>Surgical Treatment of Recurrent Respiratory Papillomatosis of the Larynx</b> ...	129		Key Points .....	158
21.1	Fundamental and Related Chapters .....	129		Selected Bibliography .....	158
21.2	Disease Characteristics and Differential Diagnosis .....	129	<b>26</b>	<b>Anterior Glottic Web</b> .....	159
21.3	Surgical Indications and Contraindications ..	129	26.1	Fundamental and Related Chapters .....	159

26.2	Disease Characteristics and Differential Diagnosis .....	159
26.3	Surgical Indications and Contraindications ..	159
26.4	Surgical Equipment .....	159
26.5	Surgical Procedure .....	160
26.6	Postoperative Care and Complications .....	164
	Key Points .....	164
	Selected Bibliography .....	164

### III Laser Microlaryngeal Surgery (Airway/Neoplastic Conditions)

<b>27</b>	<b>Bilateral Vocal Fold Paralysis</b> .....	167
27.1	Fundamental and Related Chapters .....	167
27.2	Disease Characteristics and Differential Diagnosis .....	167
27.3	Surgical Indication and Contraindications ..	167
27.4	Surgical Equipment .....	168
27.5	Surgical Procedure .....	168
27.6	Postoperative Care and Complications .....	171
	Key Points .....	173
	Selected Bibliography .....	173
<b>28</b>	<b>Posterior Glottic Stenosis: Endoscopic Approach</b> .....	175
28.1	Fundamental and Related Chapters .....	175
28.2	Diagnostic Characteristics and Differential Diagnosis .....	175
28.3	Surgical Indications and Contraindications ..	176
28.4	Surgical Equipment .....	176
28.5	Surgical Procedure .....	176
28.6	Postoperative Care .....	179
	Key Points .....	179
	Selected Bibliography .....	180
<b>29</b>	<b>Subglottic/Tracheal Stenosis: Laser/ Endoscopic Management</b> .....	181
29.1	Fundamental and Related Chapters .....	181
29.2	Disease Characteristics and Differential Diagnosis .....	181
29.3	Surgical Indications and Contraindications ..	181
29.4	Surgical Equipment .....	182
29.5	Surgical Procedure .....	182
29.6	Postoperative Care and Complications .....	185
29.7	T-Tube Stenting of SGS .....	185
29.8	Surgical Equipment .....	185
29.9	Surgical Procedure .....	185
29.10	Postoperative Care .....	189
29.11	Special Considerations in T-Tube Stenting ..	189
	Key Points .....	189
	Selected Bibliography .....	190
<b>30</b>	<b>Carcinoma of the Vocal Fold</b> .....	191
30.1	Fundamental and Related Chapters .....	191

30.2	Disease Characteristics and Differential Diagnosis .....	191
30.3	Surgical Indications and Contraindications ..	191
30.4	Surgical Equipment .....	191
30.5	Surgical Procedure .....	192
30.6	Postoperative Care and Complications .....	192
	Key Points .....	193
	Selected Bibliography .....	193

### IV Laryngeal Injection Techniques

<b>31</b>	<b>Vocal Fold Augmentation via Direct Microlaryngoscopy</b> .....	197
31.1	Fundamental and Related Chapters .....	197
31.2	Disease Characteristics .....	197
31.2.1	Material Selection .....	197
31.3	Surgical Indications and Contraindications ..	198
31.4	Surgical Equipment .....	198
31.5	Surgical Procedure .....	198
31.5.1	Principles of Deep Vocal Fold Augmentation .....	198
31.5.2	Vocal Fold Augmentation via Microlaryngoscopy .....	199
31.5.3	Endoscopic Vocal Fold Injection .....	199
31.5.4	Lipoinjection of the Vocal Fold .....	200
31.6	Postoperative Care and Complications .....	202
	Key Points .....	203
	Selected Bibliography .....	203
<b>32</b>	<b>Superficial Vocal Fold Injection</b> .....	205
32.1	Fundamental and Related Chapters .....	205
32.2	Disease Characteristics and Differential Diagnosis .....	205
32.3	Surgical Indications and Contraindications ..	205
32.4	Surgical Equipment .....	205
32.5	Surgical Procedure .....	205
32.6	Postoperative Care and Complications .....	206
	Key Points .....	207
	Selected Bibliography .....	207
<b>33</b>	<b>Peroral Vocal Fold Augmentation in the Clinic Setting</b> .....	209
33.1	Fundamental and Related Chapters .....	209
33.2	Disease Characteristics and Differential Diagnosis .....	209
33.3	Surgical Indications and Contraindications ..	209
33.3.1	Suitability for Peroral Vocal Fold Augmentation in the Clinic Setting .....	210
33.4	Surgical Equipment .....	210
33.5	Surgical Procedure .....	210
33.6	Postoperative Care and Complications .....	213
	Key Points .....	213
	Selected Bibliography .....	213

<b>34</b>	<b>Percutaneous Vocal Fold Augmentation in the Clinic Setting</b> .....	215	<b>37.5</b>	<b>Long-Term Surgical Issues</b> .....	239
34.1	Fundamentals and Related Chapters .....	215		Key Points .....	239
34.2	Disease Characteristics and Differential Diagnosis .....	215		Selected Bibliography .....	239
34.3	Surgical Indications and Contraindications ..	215	<b>38</b>	<b>Silastic Medialization Laryngoplasty for Unilateral Vocal Fold Paralysis</b> .....	241
34.3.1	Suitability for Percutaneous Vocal Fold Augmentation in the Clinic Setting .....	216	38.1	Fundamental and Related Chapters .....	241
34.4	Surgical Equipment .....	216	38.2	Disease Characteristics and Differential Diagnosis .....	241
34.5	Surgical Procedure .....	216	38.3	Surgery Indications and Contraindications ..	241
34.6	Postoperative Care and Complications .....	219	38.4	Surgical Equipment .....	241
	Key Points .....	219	38.5	Surgical Procedure .....	242
	Selected Bibliography .....	220	38.6	Postoperative Care and Complications .....	250
				Key Points .....	251
				Selected Bibliography .....	251
<b>35</b>	<b>Botulinum Toxin Injection of the Larynx</b> .....	221	<b>39</b>	<b>GORE-TEX® Medialization Laryngoplasty</b> .....	253
35.1	Fundamental and Related Chapters .....	221	39.1	Fundamental and Related Chapters .....	253
35.2	Disease Characteristics and Differential Diagnosis .....	221	39.2	Disease Characteristics and Differential Diagnosis .....	253
35.2.1	Botulinum Toxin Fundamentals .....	221	39.3	Surgical Indications and Contraindications ..	253
35.2.2	Spasmodic Dysphonia and Essential Tremor	221	39.4	Surgical Equipment .....	253
35.2.3	Different Botulinum Toxin Injection Approaches .....	222	39.5	Surgical Procedure .....	254
35.3	Surgical Indications and Contraindications ..	222	39.6	Postoperative Care and Complications .....	255
35.4	Equipment .....	223		Key Points .....	256
35.5	Procedure .....	223		Selected Bibliography .....	256
35.6	Postprocedure Care and Complications .....	227	<b>40</b>	<b>Arytenoid Adduction</b> .....	257
	Key Points .....	227	40.1	Fundamental and Related Chapters .....	257
	Selected Bibliography .....	227	40.2	Fundamentals of Arytenoid Adduction .....	257
			40.3	Surgical Indications and Contraindications ..	257
			40.4	Surgical Equipment .....	257
			40.5	Surgical Procedure .....	257
			40.6	Postoperative Care and Complications .....	262
				Key Points .....	262
				Selected Bibliography .....	262
<b>Part C</b>	<b>Laryngeal Framework Surgery</b>		<b>41</b>	<b>Cricothyroid Subluxation</b> .....	263
<b>36</b>	<b>Principles of Laryngeal Framework Surgery</b>	231	41.1	Fundamental and Related Chapters .....	263
36.1	Fundamental and Related Chapters .....	231	41.2	Disease Characteristics and Differential Diagnosis .....	263
36.2	Introduction .....	231	41.3	Surgical Indications and Contraindications ..	263
36.3	Surgical Indications and Contraindications ..	231	41.4	Surgical Equipment .....	263
36.3.1	Medialization Laryngoplasty .....	231	41.5	Surgical Procedure .....	263
36.3.2	Arytenoid Adduction .....	231	41.6	Postoperative Care and Complications .....	264
36.3.3	Cricothyroid Subluxation .....	232		Key Points .....	265
36.4	Patient Selection for Laryngeal Framework Surgery .....	232		Bibliography .....	265
36.5	Timing of Medialization Laryngoplasty .....	232	<b>42</b>	<b>Translaryngeal Removal of Teflon Granuloma</b> .....	267
36.6	Technical Notes and Pertinent Anatomic Landmarks for Medialization Laryngoplasty	232	42.1	Fundamental and Related Chapters .....	267
	Key Points .....	234	42.2	Disease Characteristics and Differential Diagnosis .....	267
	Selected Bibliography .....	234			
<b>37</b>	<b>Perioperative Care for Laryngeal Framework Surgery</b> .....	235			
37.1	Fundamental and Related Chapters .....	235			
37.2	Perioperative Issues in Laryngeal Framework Surgery .....	235			
37.3	Surgical Indications and Contraindications ..	235			
37.4	Suboptimal Results/Surgical Errors .....	236			
37.4.1	Revision Surgery .....	237			

42.3	Surgical Indications and Contraindications ..	267	46	<b>Glottic and Subglottic Stenosis: Cricotracheal Resection with Primary Anastomosis</b> .....	289
42.4	Surgical Equipment .....	268	46.1	Fundamental and Related Chapters .....	289
42.5	Surgical Procedure .....	268	46.2	Diagnostic Characteristics for Open Treatment of Subglottic Stenosis .....	289
42.6	Postoperative Care and Complications .....	271	46.3	Surgical Indications and Contraindications ..	289
	Key Points .....	271	46.4	Surgical Equipment .....	289
	Selected Bibliography .....	271	46.5	Surgical Procedure .....	289
<b>43</b>	<b>Excision of Combined Laryngocele</b> .....	273	46.6	Postoperative Management .....	292
43.1	Fundamental and Related Chapters .....	273		Key Points .....	292
43.2	Disease Characteristics and Differential Diagnosis .....	273		Selected Bibliography .....	293
43.2.1	Anatomy and Classification .....	273	<b>47</b>	<b>Tracheal Stenosis: Tracheal Resection with Primary Anastomosis</b> .....	295
43.2.2	Clinical Presentation and Differential Diagnosis .....	274	47.1	Fundamental and Related Chapters .....	295
43.3	Surgical Indications and Contraindications ..	274	47.2	Background Information and Diagnosis of Tracheal Stenosis .....	295
43.4	Surgical Equipment .....	275	47.3	Surgical Indications and Contraindications ..	295
43.5	Surgical Procedure .....	275	47.4	Surgical Equipment .....	295
43.6	Postoperative Care and Complications .....	277	47.5	Surgical Procedure .....	295
	Key Points .....	277	47.6	Postoperative Care and Complications .....	298
	Selected Bibliography .....	277		Key Points .....	298
				Selected Bibliography .....	298
<b>44</b>	<b>Repair of Laryngeal Fracture</b> .....	279	<b>48</b>	<b>The Gray Minithyrotomy for Vocal Fold Scar/Sulcus Vocalis</b> .....	299
44.1	Fundamental and Related Chapters .....	279	48.1	Fundamental and Related Chapters .....	299
44.2	Disease Characteristics .....	279	48.2	General Considerations .....	299
44.3	Surgical Indications and Contraindications ..	279	48.3	Surgical Indications and Contraindications ..	299
44.4	Surgical Equipment .....	280	48.4	Surgical Equipment .....	299
44.5	Surgical Procedure .....	280	48.5	Surgical Procedure .....	299
44.6	Postoperative Care and Complications .....	282	48.6	Postoperative Care and Complications .....	303
	Key Points .....	282		Key Points .....	304
	Selected Bibliography .....	282		Selected Bibliography .....	304
<b>45</b>	<b>Glottic and Subglottic Stenosis: Laryngotracheal Reconstruction with Grafting</b> .....	283	<b>Subject Index</b> .....		305
45.1	Fundamental and Related Chapters .....	283			
45.2	Disease Characteristics and Differential Diagnosis .....	283			
45.3	Surgical Indications and Contraindications ..	283			
45.4	Surgical Equipment .....	283			
45.5	Surgical Procedure .....	284			
45.6	Postoperative Care and Complications .....	287			
	Key Points .....	287			
	Selected Bibliography .....	288			