

Contents

- Introduction to the BCSC xv
- Introduction to Section 7 xvii

- Objectives 1**

- PART I Orbit 3**

- 1 Orbital Anatomy 5**
 - Highlights 5
 - Dimensions 5
 - Topographic Relationships 5
 - Roof of the Orbit 6
 - Lateral Wall of the Orbit 7
 - Medial Wall of the Orbit 8
 - Floor of the Orbit 9
 - Apertures 10
 - Ethmoidal Foramina. 10
 - Superior Orbital Fissure 11
 - Inferior Orbital Fissure. 11
 - Zygomatofacial and Zygomatocotemporal Foramina 11
 - Nasolacrimal Canal 12
 - Optic Canal 12
 - Soft Tissues 12
 - Periorbita 12
 - Intraorbital Optic Nerve 12
 - Extraocular Muscles and Orbital Fat 12
 - Annulus of Zinn 14
 - Vasculature of the Orbit 14
 - Nerves. 17
 - Lacrimal Gland 19
 - Periorbital Structures 19
 - Nose and Paranasal Sinuses. 19

- 2 Evaluation of Orbital Disorders 23**
 - Highlights 23
 - History 23
 - Pain 23
 - Progression. 23
 - Periorbital Changes 24
 - Physical Examination 25
 - Inspection 25
 - Palpation. 27

Primary Studies	27
Computed Tomography	27
Magnetic Resonance Imaging	29
Comparison of CT and MRI	30
Stereotactic Navigation.	33
Ultrasonography	33
Secondary Studies	34
Venography	34
Arteriography	34
CT and MR Angiography	34
Pathology	35
Laboratory Studies	36
3 Congenital Orbital Anomalies	37
Highlights	37
Introduction	37
Anophthalmia	37
Microphthalmia	38
Treatment of Anophthalmia/Microphthalmia.	38
Craniofacial Clefting and Syndromic Congenital Craniofacial Anomalies	40
Congenital Orbital Tumors.	43
Hamartomas and Choristomas	43
4 Orbital Inflammatory and Infectious Disorders	47
Highlights	47
Infectious Inflammation	47
Cellulitis	47
Necrotizing Fasciitis	52
Mycobacterial Infection	54
Mucormycosis	54
Aspergillosis	56
Parasitic Diseases	56
Noninfectious Inflammation	57
Thyroid Eye Disease	57
Vasculitis	66
Sarcoidosis	68
Immunoglobulin G4–Related Disease	70
Nonspecific Orbital Inflammation.	72
5 Orbital Neoplasms and Malformations	77
Highlights	77
Vascular Tumors, Malformations, and Fistulas	77
Infantile (Capillary) Hemangioma.	77
Lymphatic Malformation.	78
Distensible Venous Malformation	80
Cavernous Venous Malformation	81

Arteriovenous Malformation	83
Arteriovenous Fistula	83
Orbital Hemorrhage	86
Neural Tumors	86
Optic Nerve Glioma	86
Neurofibroma	90
Meningioma	91
Schwannoma	93
Mesenchymal Tumors	94
Rhabdomyosarcoma	94
Miscellaneous Mesenchymal Tumors	96
Lymphoproliferative Disorders	99
Lymphoid Hyperplasia and Lymphoma	99
Plasma Cell Tumors	102
Histiocytic Disorders	103
Xanthogranuloma	104
Lacrimal Gland Tumors	106
Epithelial Tumors of the Lacrimal Gland	107
Nonepithelial Tumors of the Lacrimal Gland	109
Secondary Orbital Conditions	109
Globe and Eyelid Origin	109
Sinus Disease Affecting the Orbit	110
Metastatic Tumors	111
Metastatic Tumors in Children	111
Metastatic Tumors in Adults	113
Management of Orbital Metastases	115
6 Orbital Trauma	117
Highlights	117
Orbital Floor Fractures	117
Management	119
Other Orbital Fractures	122
Zygomatic Fractures	122
Orbital Apex Fractures	123
Orbital Roof Fractures	124
Medial Orbital Fractures	124
Midfacial (Le Fort) Fractures	126
Intraorbital Foreign Bodies	127
Orbital Compartment Syndrome	127
Traumatic Vision Loss With Clear Media	131
Mass Casualty Incidents	132
7 Orbital Surgery	133
Highlights	133
Surgical Spaces	133
Orbitotomy	134
Superior Approach	134

Inferior Approach 136
 Medial Approach 137
 Lateral Approach 140
 Orbital Decompression 141
 Postoperative Care for Orbital Surgery. 144
 Special Surgical Techniques in the Orbit 144
 Complications of Orbital Surgery 145

8 The Anophthalmic Socket 147

Highlights 147
 Introduction 147
 Enucleation and Evisceration. 149
 Evisceration 149
 Enucleation 149
 Intraoperative Complications of Enucleation and Evisceration. 151
 Orbital Implants 151
 Prostheses 153
 Anophthalmic Socket Complications and Treatment. 154
 Deep Superior Sulcus 154
 Conjunctival Changes in the Anophthalmic Socket 154
 Exposure and Extrusion of the Implant. 155
 Contracture of Fornices 156
 Contracted Sockets 157
 Anophthalmic Ectropion. 158
 Anophthalmic Ptosis 158
 Eyelash Margin Entropion 159
 Cosmetic Optics 159
 Exenteration 159
 Considerations for Exenteration. 159
 Types of Exenteration 160

PART II Periocular Soft Tissues 163

9 Facial and Eyelid Anatomy 165

Highlights 165
 Face. 165
 Superficial Musculoaponeurotic System
 and Temporoparietal Fascia 165
 Mimetic Muscles 167
 Facial Nerve 168
 Arterial Network 170
 Eyelids 171
 Skin and Subcutaneous Connective Tissue 173
 Muscles of Protraction. 175
 Orbital Septum 177
 Orbital Fat 177
 Muscles of Retraction 178

Tarsus	181
Conjunctiva	181
Additional Anatomical Considerations	182
Canthal Tendons	183
10 Eyelid Disorders and Neoplasms	187
Highlights	187
Congenital Anomalies	187
Blepharophimosis–Ptosis–Epicanthus Inversus Syndrome	187
Congenital Ptosis of the Upper Eyelid	188
Congenital Ectropion	188
Euryblepharon	189
Ankyloblepharon	189
Epiblepharon	190
Epicanthus	190
Congenital Entropion	192
Congenital Distichiasis	193
Congenital Coloboma	193
Cryptophthalmos	194
Congenital Eyelid Lesions: Infantile Hemangioma	194
Acquired Eyelid Disorders	195
Chalazion	195
Hordeolum	197
Eyelid Edema	198
Floppy Eyelid Syndrome	198
Eyelid Imbrication Syndrome	198
Trichotillomania	199
Eyelid Neoplasms	200
Clinical Evaluation of Eyelid Tumors	200
Benign Eyelid Lesions	201
Benign Adnexal Lesions	205
Benign Melanocytic Lesions	210
Premalignant Epidermal Lesions: Actinic Keratosis	214
In Situ Epithelial Malignancies	215
Premalignant Melanocytic Lesions: Lentigo Maligna	216
Malignant Eyelid Tumors	217
11 Reconstructive Eyelid Surgery	229
Highlights	229
Eyelid Trauma	229
Blunt Trauma	229
Penetrating Trauma	230
Secondary Repair	233
Dog and Human Bites	234
Burns	234

Eyelid and Canthal Reconstruction 235
 Eyelid Defects Not Involving the Margin 235
 Eyelid Defects Involving the Eyelid Margin 236
 Lateral Canthal Defects 242
 Medial Canthal Defects 242

12 Periocular Malpositions and Involutional Changes . . . 249

Highlights 249
 History and Examination 249
 Ectropion 250
 Involutional Ectropion. 250
 Paralytic Ectropion 253
 Cicatricial Ectropion. 253
 Mechanical Ectropion 253
 Entropion 254
 Congenital Entropion 254
 Involutional Entropion. 254
 Acute Spastic Entropion 256
 Cicatricial Entropion 256
 Symblepharon 259
 Trichiasis 259
 Management 259
 Blepharoptosis 260
 Evaluation 261
 Classification 264
 Management 270
 Eyelid Retraction 274
 Causes. 274
 Management 275
 Facial Paralysis 276
 Paralytic Ectropion 276
 Upper Eyelid Paralysis 277
 Facial Dystonia. 278
 Benign Essential Blepharospasm 278
 Hemifacial Spasm 280
 Involutional Periorbital Changes 280
 Dermatochalasis 280
 Blepharochalasis 281
 Blepharoplasty 281
 Upper Eyelid 281
 Lower Eyelid 281
 Preoperative Evaluation 282
 Techniques. 282
 Complications 283
 Brow Ptosis 284
 Management 284

13 Facial Rejuvenation 287
 Highlights 287
 Pathogenesis of the Aging Face 287
 Physical Examination of the Aging Face 288
 Nonsurgical Facial Rejuvenation 289
 Chemical Peels 289
 Laser Skin Resurfacing 289
 Cosmetic Uses of Botulinum Toxin 290
 Soft-Tissue Dermal Fillers 291
 Autologous Fat Grafting 292
 Surgical Facial Rejuvenation 292
 Lower Blepharoplasty 292
 Forehead Rejuvenation 294
 Midface Rejuvenation 296
 Lower Face and Neck Rejuvenation 296

PART III Lacrimal System 301

**14 Development, Anatomy, and Physiology
of the Lacrimal Secretory and Drainage Systems 303**
 Highlights 303
 Development 303
 Secretory System 303
 Drainage System 303
 Anatomy 304
 Secretory System 304
 Drainage System 305
 Physiology 307

**15 Abnormalities of the Lacrimal Secretory
and Drainage Systems 309**
 Highlights 309
 Developmental Abnormalities 309
 Lacrimal Secretory System 309
 Lacrimal Drainage System 309
 Congenital Lacrimal Drainage Obstruction 311
 Evaluation 311
 Punctal and Canalicular Agenesis and Dysgenesis 312
 Congenital Nasolacrimal Duct Obstruction 312
 Congenital Dacryocystocele 313
 Acquired Lacrimal Drainage Obstruction 318
 Evaluation 318
 Punctal Disorders 324
 Canalicular Obstruction 325
 Acquired Nasolacrimal Duct Obstruction 327
 Therapeutic Closure of the Lacrimal Drainage System 334

Trauma	334
Canaliculus.	334
Lacrimal Sac and Nasolacrimal Duct.	335
Infection	336
Dacryoadenitis	336
Canaliculitis	336
Dacryocystitis	337
Neoplasm	339
Lacrimal Gland	339
Lacrimal Drainage System	339
Additional Materials and Resources	341
Requesting Continuing Medical Education Credit.	343
Study Questions	345
Answers	351
Index	357