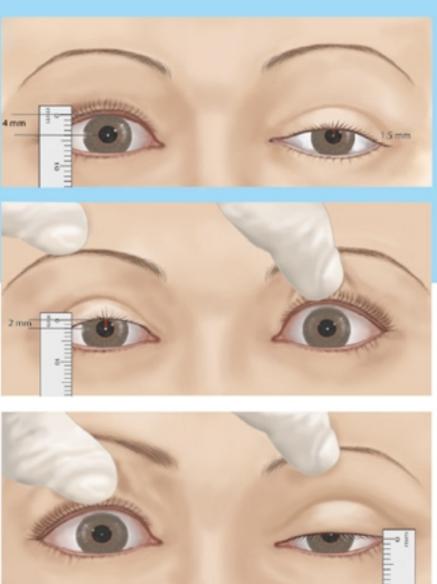
Ophthalmic Plastic Surgery of the Upper Face

Eyelid Ptosis, Dermatochalasis, and Eyebrow Ptosis

Michael A. Burnstine Steven C. Dresner David B. Samimi Helen A. Merritt







To access the additional media content available with this e-book via Thieme MedOne, please use the code and follow the instructions provided at the back of the e-book.



Ophthalmic Plastic Surgery of the Upper Face

Eyelid Ptosis, Dermatochalasis, and Eyebrow Ptosis

Michael A. Burnstine, MD

Clinical Professor of Ophthalmology (Part-Time) USC Roski Eye Institute, Keck Medicine of USC Eyesthetica, Oculofacial and Cosmetic Surgery Associates Los Angeles, California

Steven C. Dresner, MD

Clinical Professor of Ophthalmology (Part-Time) USC Roski Eye Institute, Keck Medicine of USC Eyesthetica, Oculofacial and Cosmetic Surgery Associates Los Angeles, California

David B. Samimi, MD

Adjunct Clinical Assistant Professor of Ophthalmology USC Roski Eye Institute, Keck Medicine of USC Eyesthetica, Oculofacial and Cosmetic Surgery Associates Los Angeles, California

Helen A. Merritt, MD

Adjunct Clinical Assistant Professor of Ophthalmology USC Roski Eye Institute, Keck Medicine of USC Eyesthetica, Oculofacial and Cosmetic Surgery Associates Los Angeles, California

538 illustrations

Thieme New York • Stuttgart • Delhi • Rio de Janeiro

Library of Congress Cataloging-in-Publication Data is available from the publisher

© 2020. Thieme. All rights reserved.

Thieme Publishers New York 333 Seventh Avenue, New York, NY 10001 USA +1 800 782 3488, **customerservice@thieme.com**

Thieme Publishers Stuttgart Rüdigerstrasse 14, 70469 Stuttgart, Germany +49 [0]711 8931 421, **customerservice@thieme.de**

Thieme Publishers Delhi A-12, Second Floor, Sector-2, Noida-201301 Uttar Pradesh, India +91 120 45 566 00, **customerservice@thieme.in**

Thieme Publishers Rio de Janeiro, Thieme Publicações Ltda. Edifício Rodolpho de Paoli, 25° andar Av. Nilo Peçanha, 50 – Sala 2508 Rio de Janeiro 20020-906 Brasil +55 21 3172 2297

Cover design: Thieme Publishing Group Typesetting by Thomson Digital, India

Printed in USA by King Printing Company, Inc. 54321

ISBN 978-1-62-623921-0

Also available as an e-book: eISBN 978-1-62-623922-7

Important note: Medicine is an ever-changing science undergoing continual development. Research and clinical experience are continually expanding our knowledge, in particular our knowledge of

proper treatment and drug therapy. Insofar as this book mentions any dosage or application, readers may rest assured that the authors, editors, and publishers have made every effort to ensure that such references are in accordance with **the state of knowledge at the time of production of the book**.

Nevertheless, this does not involve, imply, or express any guarantee or responsibility on the part of the publishers in respect to any dosage instructions and forms of applications stated in the book. **Every user is requested to examine carefully** the manufacturers' leaflets accompanying each drug and to check, if necessary in consultation with a physician or specialist, whether the dosage schedules mentioned therein or the contraindications stated by the manufacturers differ from the statements made in the present book. Such examination is particularly important with drugs that are either rarely used or have been newly released on the market. Every dosage schedule or every form of application used is entirely at the user's own risk and responsibility. The authors and publishers request every user to report to the publishers any discrepancies or inaccuracies noticed. If errors in this work are found after publication, errata will be posted at **www.thieme.com** on the product description page.

Some of the product names, patents, and registered designs referred to in this book are in fact registered trademarks or proprietary names even though specific reference to this fact is not always made in the text. Therefore, the appearance of a name without designation as proprietary is not to be construed as a representation by the publisher that it is in the public domain.



This book, including all parts thereof, is legally protected by copyright. Any use, exploitation, or commercialization outside the narrow limits set by copyright legislation without the publisher's consent is illegal and liable to prosecution. This applies in particular to photostat reproduction, copying, mimeographing or duplication of any kind, translating, preparation of microfilms, and electronic data processing and storage.

This book is dedicated to our patients (past, present, and future), to our mentors who have taught us, and to our residents and fellows who challenge us to be the best surgeons we can be. Their gifts to understanding upper facial concerns have been priceless.

Contents

Foreword

Preface

Acknowledgements

Contributors

Section I Introduction

1	Ptosis Classification <i>Michael A. Burnstine</i>
1.1	Introduction
1.2	Ptosis Classification
1.3	Preoperative Assessment
1.3.1	History of Present Illness
1.3.2	Physical Examination
1.4	Upper Eyelid Ptosis Classification
1.4.1	Aponeurotic Ptosis
1.4.2	Myogenic Ptosis
1.4.3	Mechanical Ptosis
1.4.4	Neurogenic Ptosis
1.4.5	Pseudoptosis

- **1.5 Eyebrow Ptosis Classification**
- **1.6** Clinical Decision-Making
- **1.7 Photographing the Patient**
- **1.8** Informed Consent
- **1.9 Principles of Surgical Correction**
- **1.10** When Not to Operate
- **1.11 Postoperative Complications**
- 1.12 Aesthetic Concerns for Upper Eyelid and Eyebrow Rejuvenation

- 2 Aesthetic Anatomy of the Upper Face Mica Y. Bergman, Margaret L. Pfeiffer
- 2.1 Introduction
- 2.2 Skin
- 2.3 Subcutaneous Tissue and Fat Compartments
- 2.4 Superficial Musculoaponeurotic System
- 2.5 Retaining Ligaments, Canthal Tendons, and Orbital Septum
- 2.6 Mimetic Muscles and Eyelid Retractors
- 2.7 Deep Fat Compartments

- 2.8 Nervous Innervation to the Upper Eyelid and Forehead
- 2.8.1 Sensory
- 2.8.2 Motor
- 2.9 Blood Supply
- 2.9.1 Forehead
- 2.9.2 Eyelid
- 2.10 Lymphatic Drainage
- 2.10.1 Forehead
- 2.10.2 Eyelid
- 2.11 Unique Considerations for the Upper Facial Surgeon: Facial Danger Zones
- 2.12 Unique Anatomical Considerations for the Eyelid Surgeon
- 2.12.1 Anterior Lamella
- 2.12.2 Middle Lamella
- 2.12.3 Posterior Lamella
- 2.12.4 Eye Protective Mechanisms References
- 3 Anatomic Considerations in the Aesthetic Surgery of the Upper Face Maria Suzanne Sabundayo, Hirohiko Kakizaki

3.1	Introduction
3.2	Racial Differences

- 3.2.1 Eyelid Skin
- 3.2.2 Upper Eyelid Crease
- 3.2.3 Epicanthal Fold
- 3.2.4 Tarsal Plate
- 3.2.5 Eyebrow Height and Contour
- **3.3 Gender Differences**
- 3.3.1 Eyelid Skin
- **3.3.2 Eyelid Dimensions**
- **3.3.3 Eyebrow Height and Contour**
- 3.4 Conclusions

Section II Mechanical Ptosis

- 4 Mechanical Ptosis: Etiology and Management Eric B. Hamill, Michael T. Yen
- 4.1 Introduction
- 4.2 Benign Eyelid Lesions
- 4.3 Malignant Eyelid Lesions
- 4.4 **Orbital Lesions**

- 4.5 **Periorbital Infections and Inflammation**
- 4.6 Other Considerations
- 4.7 Summary

- 5 Upper Blepharoplasty David B. Samimi
- 5.1 Introduction
- 5.2 Goals of Treatment
- 5.3 Risks
- 5.4 Benefits
- 5.5 Informed Consent
- 5.6 Indications
- 5.7 Contraindications
- 5.8 The Procedure
- 5.8.1 **Preoperative Checklist**
- 5.8.2 Instruments Needed
- 5.8.3 Sutures Used
- 5.8.4 Operative Technique: Step by Step
- 5.8.5 Expert Tips/Pearls/Suggestions
- 5.8.6 Postoperative Care Checklist

5.9 Complications and Their Management

- 6 **Double Eyelid Surgery** *Michael A. Burnstine*
- 6.1 Introduction
- 6.2 Anatomical Considerations
- 6.2.1 The Eyelid Crease and Fold
- 6.2.2 The Medical Canthal Area
- 6.2.3 The Lateral Canthal Area
- 6.3 Goals of Intervention/Indications
- 6.4 Risks of the Procedure
- 6.5 Benefits of the Procedure
- 6.6 Informed Consent
- 6.7 Contraindications
- 6.8 The Procedure
- 6.8.1 Instruments Needed
- 6.8.2 **Preoperative Checklist**
- 6.8.3 The Operative Technique
- 6.8.4 Expert Tips/Pearls/Suggestions
- 6.8.5 **Postoperative Care Checklist**

- 6.9 Complications and Their Management
- 6.10 Alternative Approaches to Double Eyelid Surgery References
- 7 A Guide to Eyebrow Contouring Options David B. Samimi
- 7.1 Introduction
- 7.2 Evolving Trends in Brow Beauty
- 7.2.1 History of Eyebrow Aesthetics
- 7.2.2 Volume and Facial Aging
- 7.2.3 Eyebrow Height and Proportions
- 7.3 Patient Assessment
- 7.3.1 History
- 7.3.2 Physical Exam Checklist
- 7.4 Risks of Surgery
- 7.5 Choosing the Best Procedure/Physician Decision-Making
- 7.6 Expert Tips/Pearls/Suggestions
- 7.6.1 Upper Eyelid Considerations
- 7.6.2 The Role of Nonsurgical Adjuncts
- 7.6.3 Managing Asymmetry
- 7.6.4 Minimizing Hair Loss

8	Direct Eyebrow Elevation Nathan W. Blessing, Wendy W. Lee
8.1	Introduction
8.2	Relevant Anatomy
8.3	Goals of Intervention, Indications, and Benefits of the Procedure
8.4	Risks of the Procedure
8.5	Preoperative Considerations and Patient Selection
8.6	Informed Consent
8.7	Relative Contraindications
8.8	Procedure
8.8.1	Instrumentation
8.8.2	Preoperative Checklist
8.8.3	Operative Technique
8.8.4	Expert Tips/Pearls/Suggestions
8.8.5	Postoperative Care
8.9	Complications and Their Management
	References
9	Internal Eyebrow Lift

Ana F. Duarte, Alice V. Pereira, Juan A. Delgado, Martín H. Devoto

- 9.1 Introduction
- 9.2 Anatomic Considerations of the Upper Facial Continuum
- 9.3 Goals of Intervention
- 9.4 Risks
- 9.5 Benefits
- 9.6 Informed Consent
- 9.7 Indications
- 9.8 Contraindications
- 9.9 Patient Assessment
- 9.9.1 Medical History
- 9.9.2 Ophthalmic History
- 9.9.3 **Ophthalmic Examination**
- 9.9.4 Anatomic Evaluation: The Eyelid and Eyebrow Subunits
- 9.10 **Preoperative Checklist**
- 9.11 The Procedure
- 9.11.1 Instrumentation Needed
- 9.11.2 Sutures

- 9.11.3 Operative Technique
- 9.12 Expert Tips/Pearls/Suggestions
- 9.13 **Postoperative Care Checklist**
- 9.14 Complications and Their management
- 9.14.1 Bleeding
- 9.14.2 Infection
- 9.14.3 Nerve Damage
- 9.14.4 Postoperative Lagophthalmos and Dry Eye
- 9.14.5 Residual Aesthetic Deformity
- 9.14.6 Skin Dimpling
- 9.15 Summary

- **10 Midforehead Browlift Technique** *Krishnapriya Kalyam, John B. Holds*
- **10.1** Introduction
- **10.2** Goals of Intervention/Indications
- **10.3** Risks of the Procedure
- **10.4 Benefits of the Procedure**
- **10.5** Informed Consent
- 10.6 Contraindications

- **10.7 Preoperative Assessment**
- **10.8** The Procedure
- 10.8.1 Instruments Needed
- 10.8.2 Operative Technique
- **10.9 Expert Tips/Pearls/Suggestions**
- **10.10** Postoperative Care Checklist
- **10.11** Complications and Their Management
- 10.12 Conclusion

- **11 Open Coronal Pretrichial Browlift Surgery** *Wesley L. Brundridge, Hans B. Heymann, Christopher M. DeBacker, David E. E. Holck*
- **11.1** Introduction
- 11.2 Unique Anatomical Considerations in Coronal Brow Lifting
- **11.2.1** The Eyebrow
- **11.2.2** The Anatomic Layers
- **11.2.3** The Muscles of Elevation and Depression
- **11.2.4** The Sensory Supply
- 11.2.5 The Facial Nerve
- **11.2.6** The Vascular Supply

- **11.3** Patient Evaluation
- **11.3.1** Forehead Length and Contour
- **11.3.2** Eyebrow Shape and Contour
- 11.3.3 Forehead Rhytids
- 11.3.4 Nasal Root
- **11.4** Goals of Intervention/Indications
- **11.5** Risks of the Procedure
- **11.6** Benefits of the Procedure
- **11.7** Contraindications
- 11.8 Informed Consent
- **11.9** The Procedure
- 11.9.1 Instruments Needed
- 11.9.2 Sutures Used
- **11.9.3 Preoperative Checklist**
- **11.9.4** The Operative Technique
- **11.10** Expert Tips/Pearls/Suggestions
- **11.11** Postoperative Care Checklist
- **11.12** Complications and Their Management
- 11.12.1 Expanding Hematoma
- 11.12.2 Scarring
- **11.12.3** Postoperative Brow Asymmetry

- 11.12.4 Facial Nerve Damage
- **11.12.5 Scalp and Forehead Numbness**
- 11.12.6 Alopecia
- **11.13** Alternative Approaches to the Open Browlift

References Bibliography

- 12 Pretrichial Temporal Browlift John J. Martin, Jr.
- 12.1 Introduction
- 12.2 Goals of Intervention/Indications
- 12.3 Risks of Procedure
- **12.4 Benefits of Procedure**
- 12.5 Contraindications
- 12.6 Informed Consent
- **12.7 Preoperative Evaluation**
- **12.8** The Procedure
- 12.8.1 Instrumentation
- 12.8.2 Preoperative Checklist
- 12.8.3 Surgical Technique
- **12.9 Expert Tips/Pearls/Suggestions**

- **12.10** Postoperative Care Checklist
- 12.11 Complications
- 12.11.1 Scarring
- 12.11.2 Suture Granuloma
- 12.11.3 Undercorrection
- 12.11.4 Overcorrection
- 12.12 Conclusion

- 13 Minimally Invasive Su-Por-Suture Temporal Brow Suspension: The Lift and Fill Technique Michael A. Burnstine
- 13.1 Introduction
- **13.2** Goals of Intervention/Indications
- **13.2.1** Risks of the Procedure
- **13.2.2** Benefits of the Procedure
- 13.2.3 Informed Consent
- 13.3 Contraindications
- **13.4** The Procedure
- 13.4.1 Instruments Needed
- **13.4.2** Preoperative Checklist
- **13.4.3** Operative Technique

13.5 **Expert Tips/Pearls/Suggestions Postoperative Care Checklist** 13.6 13.7 **Complications and Their Management** References **Endoscopic Upper Face and Eyebrow Lifting** 14 Francesco P. Bernardini, Alessandro Gennai, David B. Samimi Introduction 14.1 14.2 **Goals of Intervention** 14.3 Risks **Informed Consent** 14.4 14.5 Indications Contraindications 14.6 **The Procedure** 14.7 14.7.1 Preoperative Checklist 14.7.2 Instruments Needed 14.7.3 Closure 14.7.4 Local Anesthetic 14.7.5 Fat Grafting 14.7.6 Incision Placement 14.7.7 Operative Technique

- 14.8 **Postoperative Care Checklist**
- 14.9 Expert Tips/Pearls/Suggestions
- **14.10** Complications and Their Management
- 14.11 Conclusions

15 Nonsurgical Management Techniques: Fillers and Neuromodulators

Jean Carruthers, Helen A. Merritt

- 15.1 Introduction
- 15.2 Properties of Botulinum Toxins and Periocular Fillers
- **15.2.1 Botulinum Toxin Properties**
- **15.2.2** Periocular Fillers Properties
- 15.3 Single Therapy and Combination Treatments in the Upper Face
- **15.3.1 Glabellar Frown Lines**
- 15.3.2 Crow's-Feet
- **15.3.3 Horizontal Forehead Lines**
- **15.3.4** Brow Lifting and Shaping
- 15.3.5 Hypertrophic Orbicularis Oculi
- 15.3.6 Midface
- 15.3.7 Temple

15.4 Conclusion

References

- **16 Fat Augmentation of the Brow** Juliana Gildener-Leapman, Morris E. Hartstein
- **16.1** Introduction
- **16.2** Goals of Intervention
- 16.3 Risks of Fat Grafting
- **16.4 Benefits of Fat Grafting**
- 16.5 Informed Consent
- 16.6 Indications
- **16.7** Contraindications
- **16.8 Preoperative Checklist**
- 16.8.1 Instrumentation
- 16.8.2 Operative Technique: Step by Step
- **16.9 Expert Tips/Pearls/Suggestions**
- **16.10 Postoperative Care Checklist**
- **16.11** Complications and Their Management
- 16.12 Conclusion

Section III Involutional Ptosis

17	Involutional Ptosis: Etiology and Management Farzad Pakdel, Helen A. Merritt
17.1	Introduction
17.2	Etiology
17.3	Clinical Presentation
17.4	Evaluation
17.4.1	Evaluation of Eyelid
17.5	Management
	References
18	External Levator Advancement with Orbicularis- Sparing Technique <i>Magdalene Y. L. Ting, Jessica R. Chang, Sandy Zhang-</i> <i>Nunes</i>
18.1	Introduction/Goals of Intervention
18.2	Risks
18.3	Benefits
18.4	Informed Consent
18.5	Indications
18.6	Relative Contraindications

18.7 The Procedure

- **18.7.1 Preoperative Checklist**
- 18.7.2 Instruments Needed
- 18.7.3 Sutures Used
- **18.7.4** The Operative Technique: Step by Step
- **18.8 Postoperative Care Checklist**
- 18.9 Expert Tips/Pearls/Suggestions
- **18.10** Complications and Their Management
- 18.10.1 Undercorrection
- **18.10.2** Overcorrection
- 18.10.3 Lagophthalmos
- 18.10.4 Unsatisfactory Eyelid Contour or Eyelid Crease Asymmetry
- 18.10.5 Wound Infection
- 18.10.6 Retrobulbar Hemorrhage
- **18.11** Conclusion

- **19 Small Incision Anterior Levator Advancement** *Mark J. Lucarelli*
- **19.1** Introduction
- **19.2 Goals/Indications**

- **19.3** Risks of the Procedure
- **19.4** Benefits of the Procedure
- **19.5 Contraindications**
- **19.5.1** Absolute Contraindications
- **19.5.2** Relative Contraindications
- **19.6** Informed Consent
- **19.7** The Procedure
- **19.7.1** Instruments Needed
- **19.7.2 Preoperative Checklist**
- **19.7.3** Operative Technique
- **19.8 Expert Tips/Pearls/Suggestions**
- **19.9 Postoperative Care Checklist**
- **19.10** Complications and Their Management

- 20 Müller's Muscle-Conjunctival Resection Allen M. Putterman
- 20.1 Introduction
- **20.2** Special Preoperative Considerations
- 20.2.1 Margin Reflex Distance 1
- 20.2.2 Phenylephrine Test

- 20.2.3 Determining the Amount of Müller's Muscle-Conjunctival Resection
- 20.3 Risks
- 20.4 Benefits
- 20.5 Informed Consent
- 20.6 Contraindications
- 20.7 Instrumentation
- 20.8 **Preoperative Checklist**
- 20.9 Operative Technique
- 20.10 Expert Tips/Pearls/Suggestions
- 20.11 Postoperative Management
- 20.12 Complications and Their Management
- 20.13 Acknowledgment

- 21 Dresner's Modification of Müller's Muscle-Conjunctival Resection Steven C. Dresner, Margaret L. Pfeiffer
- 21.1 Introduction
- 21.2 Indications
- 21.3 Risks

- 21.4 Benefits
- 21.5 Informed Consent
- 21.6 Contraindications
- 21.7 Instrumentation
- 21.8 **Preoperative Checklist**
- 21.9 Operative Technique
- 21.10 Expert Tips/Pearls/Suggestions
- 21.11 Results
- 21.12 Complications and Their Management
- 21.13 Conclusion

- 22 Posterior White Line Advancement Katja Ullrich, Raman Malhotra
- 22.1 Introduction
- 22.2 Relevant Anatomy
- 22.3 Indications
- 22.4 Risks
- 22.5 Benefits
- 22.6 Informed Consent

- 22.7 Contraindications
- 22.8 Instrumentation
- 22.9 Preoperative Checklist
- 22.10 Operative Technique
- 22.10.1 The White Line Advancement for Aponeurotic Ptosis
- 22.10.2 Levatorpexy for Congenital Ptosis
- 22.11 Expert Tips/Pearls/Suggestions
- 22.12 Complications and Their Management
- 22.13 Conclusions

- 23 The Fasanella-Servat Procedure Steven C. Dresner, Margaret L. Pfeiffer
- 23.1 Introduction
- 23.2 Indications
- 23.3 Risks
- 23.4 Benefits
- 23.5 Informed Consent
- 23.6 Contraindications
- 23.7 Instruments Needed

- 23.8 **Preoperative Checklist**
- 23.9 Operative Technique
- 23.10 Expert Tips/Pearls/Suggestions
- 23.11 Results
- 23.12 Complications and Their Management
- 23.13 Conclusion

24 Combined Upper Blepharoplasty and Ptosis Repair

Steven C. Dresner, Eric B. Hamill, Margaret L. Pfeiffer

- 24.1 Introduction
- 24.2 Clinical Evaluation and Indications for Surgery
- 24.3 Combined Müller's Muscle-Conjunctival Resection and Blepharoplasty
- 24.4 Combined Fasanella-Servat and Blepharoplasty
- 24.5 Combined Levator Aponeurotic Advancement and Blepharoplasty
- 24.5.1 Indications
- 24.5.2 Contraindications
- 24.5.3 Instrumentation
- 24.5.4 **Preoperative Checklist**

24.5.5	Operative Technique
24.6	Expert Tips/Pearls/Suggestions
24.7	Postoperative Management
24.8	Complications and Their Management
25	Floppy Eyelid Syndrome Repair with Concomitant Ptosis Repair Krishnapriya Kalyam, John B. Holds
25.1	Introduction
25.2	Goals of Intervention/Indications
25.2.1	Risks of the Procedure
25.2.2	Benefits of the Procedure
25.3	Informed Consent
25.4	Contraindications
25.5	Preoperative Assessment
25.6	Operative Technique
25.6.1	Instruments Needed
25.6.2	Surgical Technique
25.7	Expert Tips/Pearls/Suggestions
25.8	Postoperative Care Checklist
25.9	Complications

- 26 Management of Lacrimal Gland Prolapse John D. Ng, Jennifer Murdock
- 26.1 Introduction and Anatomy
- 26.2 Goals of Intervention
- 26.3 Risks
- 26.4 Benefits
- 26.5 Contraindications
- 26.5.1 Surgical Procedure
- 26.5.2 Instruments Needed
- 26.5.3 Operative Technique: Step by Step
- 26.6 Expert Tips/Pearls/Suggestions
- 26.7 Postoperative Management and Complications References

Section IV Myogenic Ptosis

- 27 Myogenic Ptosis: Etiology and Management Jessica R. Chang
- 27.1 Introduction
- 27.2 Static Myogenic Ptosis

27.3 **Progressive Myogenic Ptosis**

References

28 Static Myogenic Ptosis: Evaluation and Management Jeremy Tan, Jill A. Foster

- 28.1 Introduction
- 28.2 Causes and Syndromic Associations of Static Myopathic Ptosis
- 28.2.1 Isolated Congenital Ptosis
- 28.2.2 Static Myopathic Ptosis with Associated Periocular Anomalies
- 28.2.3 Congenital Ptosis with Aberrant Innervation
- 28.2.4 Trauma
- 28.3 History
- **28.3.1** Personal History of Ptosis
- 28.3.2 Family History of Ptosis
- **28.4** The Physical Examination
- 28.4.1 The Eyelid and Adnexal Examination
- 28.4.2 The Eye Examination
- 28.5 Management
- 28.5.1 Observation
- 28.5.2 Timing of Surgical Intervention

- 28.5.3 The Surgical Approach
- 28.6 Conclusions

- 29 Surgical Management of Levator Function Less Than 4 mm Peter J. Dolman
- **29.1** Introduction
- 29.2 History of Frontalis Sling
- 29.2.1 Patterns of Sling
- 29.2.2 Sling Materials
- 29.2.3 Fixation of Sling to Eyelid Tarsus
- 29.3 Indications
- 29.4 Consequences
- **29.5** Unique Considerations in Frontalis Suspension
- 29.5.1 Congenital Cases
- 29.5.2 Acquired Cases
- 29.6 Risks of the Procedure
- **29.7 Benefits of the Procedure**
- 29.8 Relative Contraindications
- 29.9 Informed Consent

29.10 The Procedure

- **29.10.1 Surgical Supplies and Equipment**
- 29.10.2 Preoperative Checklist
- 29.10.3 Operative Technique
- 29.11 Expert Tips/Pearls/Suggestions
- 29.12 Postoperative Care Checklist
- 29.13 Complications and Their Management
- 29.13.1 Early Complications
- 29.13.2 Late Complications References
- 30 Surgical Management of Static Congenital Ptosis with Levator Function between 4 and 10 mm Jeremy Tan, Jill A. Foster
- **30.1** Introduction
- **30.2** The Anatomy of the Eyelid Crease
- **30.3 Preoperative Assessment**
- **30.3.1** Indications
- **30.3.2** Consequences of Levator Resection
- 30.3.3 Risks of the Procedure
- **30.3.4 Benefits of the Procedure**
- 30.3.5 Relative Contraindications
- 30.3.6 Alternatives

- **30.4** Informed Consent
- 30.5 Instrumentation
- **30.6** The Levator Resection Procedure
- **30.7 Expert Tips/Pearls/Suggestions**
- **30.8 Postoperative Care**
- **30.9** Complications and Their Management
- 30.10 Conclusion

31 Progressive Myogenic Ptosis: Evaluation and Management

Liat Attas-Fox, Francois Codere

- **31.1** Introduction
- **31.2** Causes of Progressive Myopathic Ptosis
- **31.2.1** Oculopharyngeal Muscular Dystrophy
- **31.2.2** Chronic Progressive External Ophthalmoplegia
- **31.2.3** Myotonic Dystrophies
- **31.2.4** The Masquerader of Progressive Myopathic Ptosis
- **31.3 History and Physical Examination**
- **31.3.1** The History
- **31.3.2** Physical Examination

- **31.4** Management of Progressive Myopathic Ptosis
- **31.4.1** Timing of Repair
- **31.4.2** Our Workhorse Procedure
- 31.5 Conclusions

- **32** Syndromic Blepharoptoses Christine Greer, Michael A. Burnstine, Diana K. Lee, Jonathan W. Kim
- **32.1** Introduction
- **32.2** Aberrant Innervation Syndromes
- 32.3 Static Myopathic Ptoses Involving the Extraocular Muscles
- 32.4 Progressive Myopathic Ptoses that Affect the Levator and Other Muscle Groups Presenting in Childhood
- **32.5 Progressive Myopathic Ptoses Seen in Adulthood**
- **32.6 Management and Conclusions**

References

Section V Neurogenic Ptosis

33 Neurogenic Ptosis: Diagnosis and Management *Kimberly K. Gokoffski, Vivek R. Patel*

33.1 Introduction **Neuroanatomic Considerations** 33.2 33.2.1 **Cortical and Supranuclear Pathways** 33.2.2 **Oculomotor Nerve** 33.2.3 Oculosympathetic Pathway **Neuromuscular Junction** 33.2.4 33.3 Localization 33.3.1 Supranuclear/Cortical Localization 33.3.2 Brainstem Localization

- 33.3.3 Spinal Cord and Paravertebral Ganglia Localization
- 33.3.4 Carotid Artery and Cavernous Sinus Localization
- 33.3.5 Nuclear Localization
- 33.3.6 Infranuclear Localization
- **33.4** Aberrant Innervation Syndromes
- 33.4.1 Compressive/Trauma
- 33.4.2 Marin-Amat's Syndrome
- 33.4.3 Synkinesis
- **33.5** Diseases of the Neuromuscular Junction
- 33.5.1 Myasthenia Gravis
- 33.5.2 Lambert-Eaton Syndrome
- **33.6 Congenital Presentations**

33.6.1 Third Nerve Palsy33.6.2 Congenital Horner's Syndrome33.7 Summary

References

Section VI Pseudoptosis

- 34 **Pseudoptosis: Evaluation and Management** *Helen A. Merritt*
- 34.1 Introduction
- 34.1.1 Dermatochalasis
- 34.1.2 Vertical Strabismus
- 34.1.3 Contralateral Eyelid Retraction
- 34.1.4 Enophthalmos
- 34.1.5 Ocular Abnormalities
- 34.1.6 Eyelid Protractor Overaction References

Section VII Additional Considerations in Upper Facial Surgery

- 35 Eyelash Ptosis Management Nicholas R. Mahoney
- 35.1 Introduction
- 35.2 Anatomical Considerations

- 35.2.1 Eyelash Cilia
- 35.2.2 Levator Aponeurosis and Eyelid Crease
- **35.3 Goals of Intervention/Indications**
- **35.4** Risks of the Procedure
- **35.5** Benefits of the Procedure
- 35.6 Informed Consent
- 35.7 Contraindications
- 35.8 Procedure
- 35.8.1 Instruments Needed
- 35.8.2 Preoperative Checklist
- 35.8.3 Operative Technique
- 35.8.4 Expert Tips/Pearls/Suggestions
- 35.8.5 Postoperative Care Checklist
- **35.9 Complications and Their Management**

- **36 Blepharoptosis Reoperation** *Michael A. Burnstine*
- **36.1** Introduction
- **36.2** Anatomical Considerations
- **36.3 Goals of Intervention/Indications**

- **36.4** Risks of the Procedure
- **36.5 Benefits of the Procedure**
- 36.6 Informed Consent
- 36.7 Contraindications
- 36.8 Procedure
- 36.8.1 Instruments Needed
- 36.8.2 Preoperative Checklist
- 36.8.3 Operative Technique
- 36.8.4 Expert Tips/Pearls/Suggestions
- 36.8.5 Postoperative Care Checklist
- **36.9** Complications and Their Management

- **37 Nonsurgical Management of Ptosis** *Christine Greer, Michael A. Burnstine*
- 37.1 Introduction
- 37.2 Mechanical Eyelid Elevation
- 37.2.1 Eyelid Crutches
- 37.2.2 Eyelid Taping
- 37.2.3 Haptic Contact Lens
- **37.3** Pharmacologic Eyelid Elevation

- 37.3.1 Topical Therapy
- 37.3.2 Neurotoxin Injections
- 37.4 Management of Ptosis in the Anophthalmic Patient
- 37.5 Management of Pseudoptosis with Filler Injection References
- **38 Unique Considerations in Upper Facial Surgery** *Margaret L. Pfeiffer, Jessica R. Chang*
- **38.1** Introduction
- **38.2 Perioperative Medications**
- **38.2.1 Blood-Thinner Considerations**
- 38.2.2 Classes of Blood Thinners
- **38.2.3 Balancing Thrombotic Risks and Bleeding Risks**
- **38.2.4** Time to Stop Blood Thinners Preoperatively
- **38.2.5** Supplements and Other Considerations
- **38.3** Perioperative Antibiotic Considerations
- 38.3.1 Current Practice Patterns in Oculofacial Plastic Surgery
- **38.3.2** Patterns and Rates of Surgical Site Infection
- **38.3.3 Preoperative Recommendations**
- **38.3.4 Perioperative Recommendations**
- **38.3.5 Postoperative Recommendations**

- **38.4 Energy Devices**
- 38.4.1 Types of Devices
- 38.4.2 Fire Risk and the Triad
- 38.4.3 Effects of the Plume
- 38.5 Conclusions

- 39 Staying Out of Trouble: Strategies Based on Recent OMIC Oculofacial Plastic Surgery Claims *Robert G. Fante*
- **39.1** Introduction
- **39.2 Particular Problem Areas in the Practice of Upper** Facial Plastic Surgery
- **39.2.1** Blepharoplasty and Ptosis Repair
- **39.2.2 Brow Lifting**
- **39.2.3** Invasive Skin Treatments
- **39.3** Fillers and Autologous Fat
- **39.4** Goals for the Upper Facial Surgeon
- **39.4.1 Establishing the Correct Diagnosis**
- **39.4.2 Knowing When to Say No to Treatment**
- **39.4.3 Effective Communication**
- **39.4.4** Surgical Plan and Execution
- 39.4.5 Patient Follow-Up

- **39.4.6 Actively Manage Complications**
- **39.4.7** Revisit Patient Expectations Frequently
- **39.5 The Unhappy Patient: Cosmetic Dissatisfaction and Patient Expectations**
- 39.5.1 Refunds
- **39.5.2** I'm Sorry Laws
- **39.6 Expert Tips/Pearls/Suggestions**
- **39.7** Coping with the Process of a Malpractice Claim
- 39.8 Conclusions

- 39.9 Appendix A
- **39.9.1 Informed Consent for Ptosis Surgery (Droopy** Eyelid Surgery)
- **39.10** Appendix B
- **39.10.1 Patient Cosmetic Surgical Agreement**

Index

Foreword

I am honored to have been invited by Dr. Michael A. Burnstine to write a foreword for this textbook. Drs. Michael A. Burnstine, Steven C. Dresner, David B. Samimi, and Helen A. Merritt have assembled a group of outstanding oculofacial plastic surgeons, to join them in the creation of an up-to-date, comprehensive publication on "the treatment of upper eyelid and brow ptosis."

There are many oculofacial plastic surgery textbooks, but most are on every aspect of the specialty. Although some of these textbooks have been on specific topics, there has been a void in blepharoptosis textbooks since the publications by Dr. Crowell Beard in the 1970s and 1980s. There have been many advancements in upper eyelid ptosis surgery since Beard's publications, so it is appropriate that Michael A. Burnstine and his associate editors fill this void.

It is important to include in a book like this the treatment of the upper eyelid dermatochalasis along with upper eyelid ptosis surgery, as these two issues have to be addressed commonly. Since, at times, the redundant upper eyelid fold is secondary to brow ptosis, it is also important to add to upper eyelid ptosis surgery the elevation of the brow to reduce the upper eyelid fold. Besides bringing us up-to-date on blepharoptosis surgery, there are two additional chapters on treatment of the upper eyelid dermatochalasis and seven chapters on treatment of brow ptosis, which has also seen many recent advancements. The focus of the textbook on upper eyelid and brow ptosis leads readers to now having one comprehensive book on ptosis that is the source of all the current knowledge in this subject. One unique interesting chapter in this book is, "Staying Out of Trouble: Strategies Based on Recent OMIC Oculofacial Plastic Surgery Claims." Using data gathered by an ophthalmic insurance claims company provides the reader with an invaluable wealth of useful medico-legal information, an often overlooked topic in most texts.

I am proud that Michael A. Burnstine, a previous Oculofacial Plastic Surgery Fellow, has continued to be involved in adding to the scientific literature. I congratulate him and his associate editors, Steven C. Dresner, David B. Samimi, and Helen A. Merritt, on their accomplishments in assembling this comprehensive up-to-date ptosis text book.

Allen M. Putterman, MD

Preface

Management of the upper face can be challenging. The idea for this text came as a response to teaching the finer points of eyelid ptosis management and upper facial rejuvenation to our residents and fellows of ophthalmology, facial plastic surgery, plastic surgery, and oral maxillofacial surgery. In the course of our clinical practice, we find that surgeons performing blepharoplasty and brow-elevating procedures frequently miss upper eyelid ptosis and/or brow malposition. In this book, we have world-class expert oculofacial plastic surgeons break down the steps for the comprehensive evaluation and management of upper facial changes: eyelid ptosis, dermatochalasis, and eyebrow ptosis.

In the ensuing chapters, we examine the clinical assessment of patients who present with upper eyelid and eyebrow concerns and provide a useful treatment protocol to address these issues. The surgical management chapters provide a stepby-step approach for the surgeons beginning their career, with finer tips embedded for the more experienced surgeons. We have designed this text to enable health care providers to offer optimal treatment to all patients who present with upper facial concerns.

Videos

A selection of videos is available on MedOne illustrating the concepts and procedures covered in this book.

Michael A. Burnstine, MD Steven C. Dresner, MD David B. Samimi, MD Helen A. Merritt, MD

Acknowledgements

We would like to thank our colleagues for their expert contributions, our families for their understanding during the creation of this book, and our Thieme editors for making this product the best that it could be.

Michael A. Burnstine, MD Steven C. Dresner, MD David B. Samimi, MD Helen A. Merritt, MD