Contents

PART I: TECHNOLOGY AND INTERPRETATION

Section 1: Methods and Techniques of *En Face* Optical Coherence Tomography Examination

1. **Principles of *En Face* Optical Coherence Tomography: Real Time and Post-processing *En Face* Imaging in Ophthalmology** 5
   Adrian Gh Podoleanu
2. ***En Face* Image Formation and Interpretation** 15
   Qienyuan Zhou, Jay Wei
3. **Frontal Scans Clinical Applications: Plane Sections and Scans Generated to Follow a Retinal Surface Contour** 22
   Bruno Lumbroso, Andre Romano, Marco Rispoli

Section 2: *En Face* Optical Coherence Tomography Structure and Histology

4. **Retinal Structures and *En Face* Optical Coherence Tomography Features** 39
   Bruno Lumbroso, Marco Rispoli
5. ***En Face* SD-OCT and Green Angiography** 50
   Maria Cristina Savastano, Bruno Lumbroso

PART II: *EN FACE* OPTICAL COHERENCE TOMOGRAPHY STUDY OF DISEASES AND DISORDERS

Section 3: Anterior Segment *En Face* Optical Coherence Tomography Examination

6. **Corneal and Anterior Segment *En Face* Optical Coherence Tomography** 61
   Bernardo Cavalcanti, Andre Romano, Pedram Hamrah
7. ***En Face* Optical Coherence Tomography Imaging of Corneal Limbal Stem Cell Niche** 77
   Edgar M Espana, Ali R Djalilian, Sonia H Yoo, Andre Romano

Section 4: Retina *En Face* Optical Coherence Tomography: General Syndromes

8. **Pigment Epithelium Detachments *En Face* Optical Coherence Tomography Analysis** 83
   Bruno Lumbroso, Marco Rispoli, Maria Cristina Savastano
9. **Cystoid Macular Edema** 108
   Bruno Lumbroso, Marco Rispoli
10. **Postoperative Macular Edema** 121
    Marco Rispoli, Bruno Lumbroso, Vanessa Pala
11. **Macular Retinoschisis** 128
    Bruno Lumbroso, Marco Rispoli
12. **Outer Retinal Tubulations** 133
    Benjamin Wolff, Alexandre Matet, Vivien Vasseur, José-Alain Sahel, Martine Mauget-Faÿsse

13. Localized Lesions of Outer Retina Layers 138
Bruno Lumbroso, Marco Rispoli

Section 5: Retina *En Face* Optical Coherence Tomography Examination: Macular Degenerations

14. *En Face* Spectral Domain Optical Coherence Tomography Imaging of Non-exudative Age-related Macular Degeneration 147
Zohar Yehoshua, Giovanni Gregori, Philip J Rosenfeld

15. Geographic Atrophy 152
Nalin J Mehta

16. Drusen and Retinal Pigment Epithelium Detachments 156
Nalin J Mehta

17. Spectral Domain Optical Coherence Tomography and Drusen: The *En Face* Modality 164
Chiara M Eandi, Camilla Alovisi, Federico Tridico, Federico M Grignolo

18. *En Face* Imaging of Reticular Pseudodrusen 170
Mahsa Sohrab, SriniVas R Sadda, Amani A Fawzi

19. *En Face* Optical Coherence Tomography in Age-related Macular Degeneration: Preliminary Results with Spectralis *En Face* Optical Coherence Tomography 175
Gabriel Coscas, Florence Coscas, Umberto De Benedetto, Eric Souied

20. Other Types of Acquired Macular Degenerations 192
Fernando M Penha, Anderson Teixeira, André Maia, Michel E Farah, Andre Romano

21. Torpedo Maculopathy 199
Salomon Y Cohen, Lise Dubois

22. *En Face* Optical Coherence Tomography in Retinal Dystrophies 203
Cinzia Mazzini, Andrea Sodi, Ugo Menchini

Section 6: Retina *En Face* Optical Coherence Tomography Examination: Other Macular Diseases

23. Central Serous Chorioretinopathy (By Means of Scans Adapted to RPE Concavity) 211
Luca Di Antonio, Leonardo Mastropasqua

24. Optical Coherence Tomography *En Face* in Central Serous Chorioretinopathy 227
Mathieu Lehmann, Benjamin Wolff, Vivien Vasseur, Nadine Manasseh Virginie Martinet, José Alain Sahel, Martine Mauget-Faÿsse

25. *En Face* Optical Coherence Tomography in Idiopathic Macular Telangiectasia 235
Martine Mauget-Faÿsse, Benjamin Wolff, Chrysanthi Basdekidou Alexandre Matet, Vivien Vasseur, Michel Paques, José-Alain Sahel

Section 7: Retina *En Face* Optical Coherence Tomography Examination: Vascular Diseases and Infections

26. Retinal Venous Occlusion 257
Min Wang, Gezhi Xu

27. Diabetic Maculopathy and *En Face* Optical Coherence Tomography 270
Lucia Pelosini, John Marshall

28. ***En Face*** **OCT Morphologic Changes in Diabetic Maculopathy** **284**
Bruno Lumbroso, Marco Rispoli

29. ***En Face*** **Optical Coherence Tomography Scan in Inflammatory Disorders** **302**
Swapnil Parchand, Vishali Gupta, Amod Gupta

30. **Outer Retina** ***En Face*** **OCT in Inflammotory Disorders** **318**
Massimo Accorinti, Bruno Lumbroso, Marco Rispoli, Marta Gilardi

31. ***En Face*** **Optical Coherence Tomography Scan in Parasitosis** **331**
Swapnil Parchand, Vishali Gupta, Amod Gupta

32. ***En Face*** **OCT Imaging in Ocular Toxoplasmosis** **337**
Andre Romano, Roberta Velletri, Rubens N Belfort, Rubens Belfort Jr

Section 8: Myopia and Pathologic Myopia

33. ***En Face*** **Optical Coherence Tomography in High Myopia** **343**
Gilda Cennamo, Raimondo Forte, Giuseppe de Crecchio

Section 9: Vitreoretinal Interface: Macular Holes, Pseudoholes and Lamellar Holes

34. **Vitreomacular Interface Alteration: A New Semiology with** ***En Face*** **Optical Coherence Tomography** **355**
Jean-Francois Le Rouic, Marco Rispoli

35. **Vitreoretinal Interface Before and After Macular Surgery** **366**
Marco Rispoli, Jean Francois Le Rouic

36. **Vitreoretinal Interface Aspects After Macular Hole Surgery** **376**
Micol Alkabes, Paolo Nucci, Carlos Mateo

37. **Idiopathic Macular Holes** **393**
Nalin J Mehta

38. **Macular Pseudoholes** **397**
Gezhi Xu, Min Wang

39. **Lamellar Holes** **404**
Bruno Lumbroso, Marco Rispoli, Chunhui Jiang

Section 10: Choroid

40. **Evaluation of Intrachoroidal Cavitation (Peripapillary Detachment) in Pathologic Myopia with** ***En Face*** **Optical Coherence Tomography** **411**
Gilda Cennamo, Giuseppe de Crecchio

41. ***En Face*** **Optical Coherence Tomography of Choroidal Nevi and Melanomas** **416**
Gilda Cennamo

Section 11: Glaucoma and Optic Nerve

42. **Inner Nuclear Layer Cystic Degeneration, in the Macular Area of Glaucomatous Patients, on** ***En Face*** **and B Scan Optical Coherence Tomography** **425**
Adil El Maftouhi, Michel Puech, Maddalena Quaranta-El Maftouhi

PART III: Clinical *En Face* OCT Future Developments

Section 12: Future Developments in *En Face* Optical Coherence Tomography

43. *En Face* Angiography of the Retinal, Choroidal and Optic Nerve Head Circulation with Ultrahigh-Speed Optical Coherence Tomography 435
Yali Jia, David Huang, James G Fujimoto, Joachim Hornegger, Martin F Kraus

44. Development and Advances in *En Face* OCT Using Spectral and Swept Source/Fourier Domain Technologies 443
James G Fujimoto, Jay S Duker

45. Adaptive Optics Fundus Imaging: Application to Age-related Macular Degeneration 461
Kyioko Gocho, Michel Paques

46. Near Adaptive Optics Quality Scanning Laser Ophthalmoscopy—Optical Coherence Tomography Imaging Using Ultra-high Resolution Confocal Microscopy and Ultra-high Speed Spectral Domain Optical Coherence Tomography 466
Richard Rosen, Rishard Weitz, Mark Hathaway

Index 477