Contents

1.	Principles of Optical Coherence Tomography-Angiography Bruno Lumbroso, Marco Rispoli	1
	Limitations of Optical Coherence Tomography-Angiography 2 Limitations of Optical Coherence Tomography 2 Retinal Fluorangiography and Optical Coherence Tomography-Angiography 3	
2.	Optical Coherence Tomography-Angiography: New Clinical Terminology James G Fujimoto, Bruno Lumbroso, Marco Rispoli Angio-OCT Clinical Terminology 5	5
3.	Split-Spectrum Amplitude-Decorrelation Angiography David Huang, Yali Jia	8
4.	Solving the Practical Problems of Optical Coherence Tomography-Angiography Marco Rispoli, Bruno Lumbroso Mistakes to be Avoided 10	10
5.	Optical Coherence Tomography-Angiography of a Normal Retina:The Anatomy of Blood Supply in the RetinaMaria Cristina Savastano, Bruno Lumbroso, Marco RispoliPosterior Pole12Macular Area12Arteries and Retinal Veins12	12
6.	Analysis and Synthesis: Analysis and Interpretation of a Pathological Optical Coherence Tomography-Angiography Bruno Lumbroso, Marco Rispoli Analytic Steps 16 Analysis of Neovascular Membranes 21 Synthesis 22	16
7.1	Clinical Applications: Aspects of OCT SSADA Angiography in Eye Disorders Bruno Lumbroso, Marco Rispoli, Maria Cristina Savastano, Adil El Maftouhi, Leonardo Mastropasqua, Luca Di Antonio, Giovanni Staurenghi Age-Related Retinal Anomalies 23 Retinal Anomalies and Coat's Disease 23 Retinal Anomalies in Angiomatosis 24 Retinal Superficial Anomalies in Macular Pucker 25	23

	Diabetic Patients without Retinopathy 30	
	Branch Retinal Vein Occlusions 30	
	Recent or Long-Lasting Retinal Ischemias 32	
	Diabetic Retinopathy 35	
	Proliferative Diabetic Retinopathy 45	
	CNV: Neovascular Membranes in ARMD 47	
	Neovascular Membranes in Myopic Eyes 48	
	Idiopathic Polypoidal Choroidal Vasculopathy 49	
	Geographic or Atrophic Macular Degeneration 59	
	Optic Disk Disorders 59	
7.2	Clinical Applications: Optical Coherence Tomography-Angiography of Choroidal Neovascularization in Age-Related Macular Degeneration	60
	Yali Jia, David Huang	
8.	Optical Coherence Tomography-Angiography of Optic Disk and	
	Peripapillary Retinal Perfusion in Glaucoma	64
	Yali Jia, David Huang	
9.	Fluorescein Angiography and Optical Coherence	
	Tomography-Angiography: Advantages and Disadvantages	68
	Bruno Lumbroso, Marco Rispoli	
	General Fluorangiography Advantages 68	
	General Fluorangiography Disadvantages 68	
	Fluorangiography Imaging Advantages 68	
	General Angio-OCT Disadvantages 69	
	General Advantages of Angio-OCT Imaging 69	
	Angio-OCT Imaging Advantages 69	
	Angio-OCT Disadvantages 69	
	Other Non Invasive Techniques 70	
10.	Reporting an Optical Coherence Tomography-Angiography	71
	Marco Rispoli	
	Analytic Steps 71	
	Case Reports 71	
11.	Future Ultrahigh Speed Swept-Source OCT Technology and OCT-Angiography	75
	Nadia K Waheed. Woo Jhon Choi, Jay S Duker, James G Fuiimoto	
	Swept-Source Optical Coherence Tomography for Ultrahigh Speeds 75	
	Optical Coherence Tomography-Angiography 77	
	Imaging the Choriocapillaris 77	
	Optical Coherence Tomography-Angiography in Diabetes 79	
	Optical Coherence Tomography-Angiography in Dry Age-Related Macular Degeneration 81	

Introduction

In the last few years, structural and functional optical coherence tomography (OCT) technology has seen new and revolutionary developments. The most important of which is arguably an OCT angiography (Angio-OCT). Angio-OCT is already playing an important role in clinical ophthalmology as a new, non invasive and dyeless diagnostic tool, which serves as an adjunct to, or even a replacement for fluorescein and indocyanine green (ICG) angiographies. Angio-OCT is bringing multiple technical and clinical improvements in the study of retinal diseases, glaucoma and optic nerve disorders. It enables rapid, high-resolution visualization of vascular structure in three dimensions as well as ease of repeated imaging.

In the *Clinical Guide to Angio-OCT (Non Invasive, Dyeless OCT Angiography)*, we offer a step-by-step guide for interpreting clinical images and data acquired by Angio-OCT. In this book, we present a logical method for interpreting ophthalmic images. The first phase is analytic. The second phase combines elementary components to synthesize the data, allowing an accurate diagnosis and treatment decision. We also update OCT terminology in order to have a standardized approach for assessing Angio-OCT features. The book explains similarities and differences between this new imaging method, and the classical fluorescein and ICG angiographies. Very soon new advances in technology will further improve Angio-OCT imaging, making day-to-day clinical work easier. We trust the book will help ophthalmologists, residents, ophthalmic technicians and optometrists to understand and appreciate the new possibilities offered by the latest Angio-OCT imaging technologies.

Bruno Lumbroso David Huang Yali Jia James G Fujimoto Marco Rispoli