

Preface

Diabetic retinopathy is the most common retinal vasculopathy. Retinal vein occlusions make up the next most common category. They can dramatically affect the lives of affected patients by decreasing visual acuity, often severely, and sometimes bilaterally. Retinal vein occlusions are commonly the sequelae of systemic vascular risk factors such as hypertension and diabetes. They also have interesting relationships to ocular factors, such as primary open-angle glaucoma, and rarely, to systemic disorders of coagulation. Knowledge of the causes and consequences of retinal vein occlusions has increased dramatically in the past 50 years.

Advances in treatment are more recent. The first modestly effective treatments were grid laser for macular edema and scatter laser for posterior segment neovascularization associated with branch retinal vein occlusion. Both were proven effective in the mid-1980s. In the 1990s, after long-standing controversy concerning the proper role for panretinal laser photocoagulation after ischemic central retinal vein occlusion, it was shown that treatment upon appearance of neovascularization, and not as prophylaxis, was the rational strategy.

In the past 10 years, intravitreal injections of various drugs have been introduced, proven for several indications, and have attracted the most research. This change from laser to pharmacotherapy began with triamcinolone, a modestly effective drug for central retinal vein occlusion with macular edema, but saddled with a high rate of cataract and induced intraocular pressure elevation. Progress has since accelerated using drugs that block vascular endothelial growth factor. These agents are more effective, have fewer side effects, and ameliorate macular edema and neovascularization in all types of retinal vein occlusions, but are expensive. We are just beginning to address the economic issues surrounding their use.

In 2012, there is a sufficient, but scattered, body of information on diagnosis and treatment of retinal vein occlusions to justify a textbook dedicated to the topic. The goal of this book is to bring the various threads together into a resource useful to clinicians, students, residents, and fellows for self-study or a formal course.

The book is organized by major topics that have relevance for all retinal vein occlusions. Thus, there are chapters on pathoanatomy, pathophysiology,

genetics, and epidemiology, within which common aspects of the topic are covered. Significant differences among the types of retinal vein occlusion exist. Therefore, in subsections, aspects of the broad categories are covered that apply to one type of retinal vein occlusion or another.

A certain degree of duplication is present by design. For example, Chap. 7 includes the fact that 11% of hemicentral retinal vein occlusions develop disc neovascularization, but the same fact will be found in Chap. 10. Many users will read the book piecemeal, often stimulated by a clinical encounter of the day, and redundancy accommodates topical use of the book. Even in the context of a linear course, appropriate redundancy reinforces learning. I have tried not to cross the line separating helpfully redundant from boring.

Few areas in ophthalmology are as rife with controversy as retinal vein occlusion. From the interpretation of tests to the treatments used, consensus has been difficult to achieve. Part of the difficulty stems from different standards in classification, from the rigorous to the lax. For example, one classification scheme for central retinal vein occlusion uses six variables. Among them, electroretinography and quantitation of any relative afferent pupillary defect are critical. But few clinicians use either of these methods, either because they are rarely available (electroretinography) or because the time and expense of the method have been judged excessive relative to the value added (neutral density quantitation of the relative afferent pupillary defect before dilation). Chapter 4 is devoted to classifying retinal vein occlusions, the source of so many disagreements. Because a goal of the book is to be practical, unfeasibly purist perspectives are identified.

Behind the scenes in the study of retinal vein occlusion, there are intensely held views. Here are five of many topics over which discussion has waxed hot:

- The role of the central retinal artery in central retinal vein occlusion
- Whether central retinal vein occlusion in the young represents a phlebitis
- Whether central retinal vein occlusion represents a compartment syndrome
- The rationale for intravenous injection of tissue plasminogen activator
- The efficacy of laser panretinal photocoagulation in preventing neovascular glaucoma in ischemic central retinal vein occlusion

The charged aspects of the subject become unveiled most clearly in letters-to-the-editor or in discussions following presentations.

Apart from their human interest, these disputes are scientifically useful because they crystallize areas that need more investigation. They propel work to confirm or falsify hypotheses. Another goal of this book is to exemplify this spirit. In each chapter, an attempt is made to present a careful reading and evenhanded evaluation of the evidence. However, after covering each topic, an assessment of the evidence is given without pulling punches. In some cases, a sidebar elaborates on an area of debate. Time will sift the correct from the incorrect.

This book was written by a practicing retina specialist with his peers in mind. Clinical ophthalmology is fascinating in part because of the interplay between general principles and particular examples. We depend on clinical

trials, which provide a skeleton upon which proper care can be based, but particularities prevent straightforward application of trial results to real patients. The judgment of the clinician can be honed by exposure to a variety of cases with a discussion of relevant literature as it relates to the particular patient. The final chapter takes this approach to make concrete the lessons of earlier chapters.

Your feedback and comments are requested and appreciated to improve the book.

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<http://www.springer.com/978-1-4614-3438-2>

Retinal Vein Occlusions

Evidence-Based Management

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2012, XIII, 387 p. 167 illus., 140 illus. in color.,

Hardcover

ISBN: 978-1-4614-3438-2