

---

## Preface

More than 40 years ago, the initial reports on fluorescein angiography of the ocular fundus were rejected by the major ophthalmology journals. In 1968, some 8 years after these pioneering works, Achim Wessing published the first German textbook on the subject. Since then, fluorescein angiography has become an established and standard examination technique in modern ophthalmology. The *Stereoscopic Atlas of Macular Diseases* by Donald Gass became the standard textbook for interpreting fluorescein-angiographic images.

Due to the procedure's low risk profile and a tendency for angiography to be misused as a method of documenting the course of diseases, fluorescein angiography has to some extent been overused in recent years. The landmark Early Treatment for Diabetic Retinopathy Study, providing a definition of "clinically significant macular edema," had already pointed out that angiography is only of value if a careful clinical examination has already raised a diagnostic or therapeutic question. The availability of new treatments for choroidal neovascularization (CNV) has more than doubled the number of angiographies carried out in tertiary centers in recent years. This in turn has led to increasing interest in the method of fluorescein angiography, as current treatment strategies and decision-making are largely based on the use of this technique as a "gold standard" for the classification of CNVs in accordance with the Macular Photocoagulation Study.

Apart from the advent of digital photography, the technical details of fluorescein angiography are still largely the same as the techniques described in the very first publications. Although stereoscopic techniques are necessary to differentiate the occult components of CNVs, this technique has not been met with widespread acceptance outside tertiary centers. Indocyanine angiography initially promised to become a new breakthrough technique for the diagnosis and treatment of choroid diseases in particular. However, following initial enthusiasm for the method, its use became limited to a few evidence-based indications. Optical coherence tomography is a noninvasive examination method that has clear advantages over fluorescein angiography with regard to the interpretation of diseases at the vitreoretinal interface and for qualitative and semiquantitative follow-up examinations of macular edema. However, it is not capable of replacing fluorescein angiography for treatment decision-making in the three most prevalent macular diseases encountered in everyday practice—age-related macular degeneration, diabetic macular edema, and retinal venous occlusions. The analysis of autofluorescence phenomena in the fundus promises to become one of the next examination methods that will come into use in routine clinical practice, particularly in nonexudative age-related macular degeneration and for early detection of hereditary retinal

dystrophies and acquired retinal degeneration. The non-invasiveness of this method means that it has clear advantages over fluorescein angiography, but further evidence-based analysis of its value for clinical decision-making is still required in larger studies.

Following the success of a one-day course on fluorescein angiography held annually in Berlin before the German Ophthalmological Society Conference, we asked the course lecturers, from various departments in Germany and Switzerland, to convert their thorough lectures and excellent images into concise chapters for this textbook. Every effort has been made to bridge the gap between the interpretation of angiograms and decision-making in a clinical setting, and to separate evidence-based indications for angiography from those of more academic interest. The typical angiographic findings in the most prevalent diseases are therefore shown here along with essential information regarding the pathogenesis, the causes of the angiographic phenomena, and implications for treatment. The aim of the book is to provide a compact guide for the beginner as well as for the more advanced clinician.

The majority of the images were taken by highly skilled and specialized photographers, particularly Gesa Bröskamp and Karin Ehrenberg (Berlin), Hugo Niederberger (St. Gallen), Ernst Kleinknecht, Susanne Schweyer, and Anette Keck (Tübingen) and Silke Weinitz (Siegburg). The autofluorescence images were provided by Agnes B. Renner and Hilmar Tillack (Berlin) and Silke Weinitz (Siegburg). We would also like to express our gratitude to all of the staff in the participating departments who were involved in the treatment of the patients. Particular thanks are also due to Antje-Karen Richter, Mona Chatterjee, and Elke Plach at Thieme Medical Publishers, who helped us put together the first edition of this book.

Following the success of the first German edition of the atlas, it was soon decided to translate it into English. All of the chapters were revised by the individual authors and editors, and new information was included—e.g., new treatment strategies for age-related macular disease and the use of infrared reflectance imaging and fundus autofluorescence in macular disease—as well as a large number of new images. All of the reference lists were also updated. We would like to thank Leslie Udvahelyi for the careful translation of the German text and Annie Hollins and Cliff Bergman at Thieme Medical Publishers for their support in the preparation of this English edition. Last but not least, we would like to thank all of the contributing authors for the dedication and care they have put into preparing their chapters.

Heinrich Heimann  
Ulrich Kellner  
Michael Foerster