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Surgery for the Dry Eye

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W. Behrens-Baumann, Magdeburg

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Surgery for the Dry Eye

**Scientific Evidence and Guidelines
for the Clinical Management of Dry Eye
Associated Ocular Surface Disease**

Volume Editors

Gerd Geerling, Würzburg

Horst Brewitt, Hannover

101 figures, 71 in color, and 32 tables, 2008

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To our teachers in life: Parents, Professors, Patients and Partners

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Surgery for the Dry Eye?

*'Perhaps our eyes need to be washed by our tears once in a while,
so that we can see Life with a clearer view again.'* (A. Tan)

Our understanding of anatomy and physiology of the ocular surface has substantially expanded during recent decades. Especially the importance of the tear film for a healthy cornea and conjunctiva has become more and more obvious. All adnexal structures, the tear system, the lids and the orbit as well as neuronal and cellular components of the ocular surface itself are involved in tear production and maintenance. They mechanically and immunologically protect the cornea and conjunctiva, but also provide essential nutrients for the surface epithelia.

Any part of this complex functional unit may be altered either primarily or secondarily to other disease and this can lead to tear film and ocular surface changes called 'dry eye', which in turn often is an equally complex and multifactorial disorder. It includes mild forms, e.g. due to involuntional changes of the lacrimal apparatus – one of the most frequent diagnoses in everyday ophthalmic practice – as well as rarer, but also more severe forms of the disease, which may for example be due to thermal and chemical burns. The more severe the disease, the more challenging therapy usually is, since the indication is not only comfort, but may be tectonic and optical.

In this book all aspects of this complex disorder and its treatment are discussed, with a major part focusing on surgical concepts. To suggest that surgery in this context may be a therapeutic option makes eyebrows rise frequently.

- Is there an indication for surgery at all in dry eyes?
- Are all forms of dry eye suitable for surgery?
- Are there any techniques – other than punctal occlusion – available?
- Is there a substantial chance – if not to cure – to alleviate the consequences of dry eye with surgical means?

The anatomical and functional unit of the ocular surface and the ocular adnexae is the key to these questions. Especially in *secondary* ocular surface disease, due to abnormalities of the ocular adnexa major pathomechanisms include *exposure, abrasion and malnutrition* resulting from conjunctival scarring, fornix shortening and severe aqueous deficiency. These conditions can all lead to epithelial defects, which – due to impaired wound healing – persist and progress. Hence, dry eye cannot only lead to severe discomfort or pain but also to visual impairment or even blindness. Surgery in primary and secondary ocular surface disease/dry eye not only has to prevent disease progression but also has to attempt symptomatic and visual rehabilitation.

However, the same pathomechanisms involved in the evolution also often prevent successful surgical rehabilitation of the disease. Surgery for dry eyes therefore not only aims to enhance lubrication, but also to improve function of cornea, conjunctiva, eyelids and even the orbit, since these are vital parts of the ocular surface functional unit. Hence this book not only describes techniques of tear drainage occlusion or salivary gland transplantation, but also details procedures for fornix reconstruction, correction of lid malpositions and exposure keratopathy and techniques for visual rehabilitation of corneal blindness, e.g. keratoplasty or keratoprosthesis. The functional unit of the ocular surface and the common context of tear film abnormality provide the red thread to these forms of clinical management.

Up-to-date concepts and techniques of a panel of well-established international experts in the field lay the theoretic foundations and describe the interactions of the ocular adnexae and surface, provide up-to-date guidelines on the diagnosis and medical management of ocular surface disease in dry eye and underlying adnexal disorders. Currently available published evidence and evolving techniques to correct exposure, fornix shortening and aqueous deficiency are discussed, which we hope the reader and hopefully eventually the patient suffering from dry eye will find useful. Based on this potpourri of evidence and new concepts, we are convinced that the answer to the initial questions is a firm “Yes”!

Acknowledgements

This book is the result of a collaborative effort from ophthalmologists specialized in external eye disease and ophthalmic-plastic reconstructive surgery, as well as maxillo-facial surgeons and basic scientists. We are indebted to all authors for their excellent contributions, which have provided the interdisciplinary update of surgery in dry eyes we aimed for.

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'Put my tears into thy bottle. Are those things not noted in your book?' (Psalm 56, V 8)

*Gerd Geerling, Würzburg
Horst Brewitt, Hannover
April 2008*

