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Editorial: The dry eye?

Dryness of the eyes has been known since the time of Hippocrates and was well recognised as a symptomatic condition which was difficult to alleviate. Profound impairment of tear flow does not usually produce any great problem in diagnosis, but the great names such as Schirmer and Sjögren have left their mark on ophthalmic thinking, and for far too many people it still remains a condition which is diagnosed by a piece of filter paper or because the patient is female, over 40, and has rheumatoid arthritis.

The basic concepts of the maintenance of a normal tear film were laid down on purely clinical grounds by Eugene Wolff 40 years ago, but it is only in the past 10 years that further interest in the physical chemistry of the tears has led to a big recrudescence of interest and a wide range of investigations by authors in many disciplines.

Because of its high surface activity and ability to create a water wettable surface, mucin became for a while the target of prime attention. However, more recently it has become clear that the complex interaction between mucin, epithelial surface, and the overlying tears requires consideration of each and every one of these components, and electron microscopic studies of the epithelium, together with the cell surface related factors, show promise of providing explanations for the formation of dry spots and similar localised abnormalities of tear film even in the presence of adequate quantities of lacrimal secretion. Further investigation of the eyelids is required to determine the role of mechanical factors related to lid movement and contour and also to assess the role of normal and abnormal Meibomian gland secretions in this complex series of interactions.

Following in the wake of descriptions of oculocutaneous adverse reactions to practolol came reports of various drugs which caused ocular symptoms or a suspicion of dryness of the eyes. These reports served to highlight deficiencies in the methods available for the diagnosis of a questionably dry eye, the subject of a paper in this issue by Mackie and Seal. Certainly the Schirmer test has for many years been regarded as of no value by most workers, serving only to confirm clear impressions of profound wetness or dryness of an eye. More refined techniques in examination of tears such as the lysozyme method need to be simplified further if they are to have any general application; and the difficulty in obtaining adequate samples of tears probably means that only specific microtechniques such as enzyme-linked immunoassay (ELISA) can finally give us the necessary details about the alterations in protein and other constituents of tears which may occur under the influence of drugs, and which may also help us to evolve that seemingly simple and yet elusive compound, the perfect artificial tear drop.

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