Establishing a Baseline for Meibomian Gland Morphology in Children

Many of the frequently occurring corneal and external disease processes we see in children are related to meibomian gland dysfunction. Children with recurrent chalazia, blepharitis, and dry eye are observed to have obstructions in the orifices of these glands within the eyelid margins. Eversion of the eyelids demonstrates dilated yellow channels easily visible with the naked eye. The use of noncontact infrared meibography to evaluate the morphology of pediatric meibomian glands is reported by Wu et al. in this issue. The authors describe this noninvasive and patient-friendly examination method that visualizes the silhouette of meibomian glands through infrared illumination of the everted eyelid from the conjunctival side. Using this method, glands can be counted and digitally analyzed for changes in meibomian gland acini with the help of ImageJ software (developed by the National Institutes of Health; available at http://rsb.info.nih.gov/ij/download.html).

The number of meibomian glands in the upper eyelid was found to be greater in adolescents than in young children, whereas that in the lower eyelid was not significantly different between the two groups. The relative width of the meibomian gland ducts within the upper eyelid was greater in adolescents than in children, but that of the lower eyelid showed no difference. The percent area of meibomian gland acini in the upper eyelid was greater in adolescents than in children.

The authors developed a new method to assess the relative diameter of the meibomian gland ducts. Five glands in the central eyelid and the temporal intervals between the glands were selected to represent the whole eyelid. This technique can be used to evaluate the diameter of meibomian glands instead of measuring every glandular duct. The method can also be used in conjunction with meibography, and the parameters can be used to analyze morphological changes in meibomian glands.

I find myself diagnosing dry eye syndrome in children more frequently and often attribute this to less frequent blinking secondary to the intense use of small electronic devices. It would be helpful to have scientific data to support or negate this hypothesis. The authors conclude that the new meibomian gland parameters they propose may be related to some specific meibomian gland disorders. This information should be helpful in the diagnosis, treatment, and follow-up examination of obstructive meibomian gland dysfunction. Hopefully, studying the morphology of these glands in pediatric external eye disease will provide evidence-based results.

Rudolph S. Wagner, MD
Editor

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