



Figure 2-7. Manually expressing thick meibomian secretions. Severe eyelid margin hyperemia and telangiectasias suggest the presence of retained meibomian gland secretions.

and chemical injuries, Vitamin A deficiency, and even epidemic keratoconjunctivitis. Additionally, patients who habitually administer multiple ocular medications, such as glaucoma drops, or those with a history of contact lens use may experience goblet cell loss.^{78,79} Vitamin A deficiency affects a substantial number of children and pregnant/lactating women particularly in developing countries.⁸⁰ Gastric bypass procedures can cause Vitamin A deficiency leading to serious ocular complications, including xerophthalmia, nyctalopia, and ultimately blindness. The increasing incidence of obesity and gastric bypass procedures warrants patient and physician education regarding strict adherence to vitamin supplementation.⁸¹

Exposure Related

Excessive drying of the ocular surface due to anatomic defects, improper functioning, or malposition of the eyelids may result in exposure-related DTS. Failure of the eyelids to fully close or abnormal eyelid positioning exposes portions of the ocular surface to the external environment for an extended duration.⁸² Exposure of the ocular surface beyond a normal interblink interval can initiate or exacerbate dysfunction of the tear film.^{83,84}

Patients with Bell's palsy, Parkinson's disease, or other neurologic disorders may exhibit an incomplete or partial blink. In neurotrophic corneas, a blink reflex can be severely impaired. Even in the absence of apparent exophthalmos, Graves' disease is associated with reduced corneal sensitivity.⁸⁵ Situational dry eye occurs when attention to a task, such as driving, reading, or viewing television or hand-held devices, suppresses the blink reflex.⁸⁶ Lagophthalmos may be associated with complications resulting from blepharoplasty, scarring of the eyelid, and thyroid eye disease.⁸⁷

Dysfunctional Tear Syndrome Co-Conspirators

The term *co-conspirators* was proposed by the DTS panel to refer to conditions affecting the tear film and ocular surface that may masquerade or exacerbate DTS. These include superior limbic keratoconjunctivitis, Thygeson's superficial punctate keratitis, mucus fishing syndrome, contact lens related toxicity, chemical toxicity, allergic/atopic conjunctivitis, conjunctivochalasis, floppy eyelid syndrome, and corneal hyperalgesia. Medicamentosa is a commonly found co-conspirator with topical antiglaucoma drugs