**Chronic Inflammation and Limbal Stem Cell Deficiency**
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A 7-year-old Hispanic female was referred to our rural health clinic by her primary care physician (PCP) for ocular involvement of suspected atopic dermatitis. She presented with significant rhinophyma, bilateral advanced meibomian glands dysfunction and corneal involvement including pannus and neovascularization.

Figures 1 and 2: Upper and lower lids revealing extensive erythema. Note area of bleeding on upper lid secondary to patient scratching in response to intense itching. Photos courtesy of the author.

Figures 3 and 4: Upper and lower lids revealing extensive meibomian gland dysfunction. Note area of chalazion on lower lid. Photos courtesy of the author.

Contained within the areas of neovascularization were focal areas of inflammation with an appearance similar to Salzman's nodules.
Given her age, treatment with tetracyclines or doxycycline was initially withheld. The patient responded well to lid hygiene treatment, omega-3 fatty acid supplements, topical antibiotics and steroid treatment, presenting with significantly decreased inflammation on follow-up. However, tapering the steroid resulted in a resumption of the inflammatory cascade and continued limbal stem cell (LSC) involvement and destruction. Though rare in Hispanics and children, ocular rosacea fit the presenting profile and this diagnosis was later confirmed through the PCP.

The patient was referred to a corneal specialist who confirmed the LSC involvement both clinically and by impression cytology. Unfortunately, due to insurance and other challenges, the patient presents only episodically at the corneal specialist, as well as our rural clinic, and is frequently lost to follow-up despite all attempts to maintain the child within the system over nearly a four-year period. The patient currently has a significant bilateral LSC involvement/destruction. Under care of the corneal specialist, the patient is being treated with Pred Forte BID OU, 4000 mg of flaxseed oil, extensive lid hygiene and oral dicloxacillin.

LSC deficiency will inhibit corneal epithelial self-renewal (which occurs approximately every nine to 12 months), resulting in persistent epithelial defects. LSC deficiency can be categorized into two major subdivisions: direct tissue destruction secondary to chemical, thermal, UV or other trauma, or the second category involving inflammatory damage such as aniridia, ocular pemphigoid, VKC or ocular rosacea. While limbal stem cell transplantation has been increasingly successful in treating direct tissue damage, patients with underlying immunologically driven LSC deficiency offer a significantly poorer prognosis for successful outcome. This is particularly worrisome for the young patient in this case presentation.

References:
1) Oltz M, Check J. Rosacea and its ocular manifestations. Optometry (2011) 82, 92-103.

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