Corneal and Conjunctival Squamous Epithelial Neoplasia Excision with Mitomycin C

Abstract:
A 51yo male presents with longstanding blur and discomfort OS. Corneal irregularities and central punctuate staining are present, and later evolve into a lesion with suspicious borders. Biopsy reveals corneal and conjunctival squamous epithelial neoplasia.

I. Case History
-A 51 year old Hispanic male presents with complaints of blurry vision OS x 1 year prior. Current medications included Restasis BID OU, omega-3 OTC supplementation and Systane prn OU. Some relief was noted with use of artificial tears and over the counter omega-3 supplementation, but the vision was still blurry.
-Previous ocular history - Dry eye syndrome OU.
-Previous medications or allergies.

II. Pertinent findings
-Clinical findings intial diagnosis as “corneal irregularity” by the corneal specialist. A regimen of Azasite was started QHS OU. It was also suggested the patient try a rigid gas permeable contact lens for use on the left eye to improve vision.
-After 1 month of follow-up improvement was noted in corneal appearance, but the patient now had complaints of worsening foreign body sensation and discomfort OS. Tobradex ung QHS was added.
-After another month of treatment, a follow-up appointment revealed the lesion now had suspicious borders and corneal scraping with biopsy was ordered due to suspected neoplasticity.
-Laboratory workup for diseases in the OSSN spectrum can reveal differing levels of pathology: Findings of the squamous epithelium include: hyperplasia (benign thickening of the squamous epithelium), dysplasia (abnormal epithelial maturation with partial thickness replacement of epithelium by atypical but not frankly malignant cells); intraepithelial neoplasia (partial or full thickness epithelial replacement with malignant anaplastic cells), or malignant epithelium invading through the substantia propria (frank malignancy). Our patient had the second type: dysplasia, which was described by the cytology report as a “low grade corneal/conjunctival squamous epithelial neoplasia.”

III. Differential diagnosis
-Differentials include: pterygium, pinguecula, pannus, epibulbar dermoid cyst, dyskeratosis, corneal degeneration, lipid deposition, viral keratitis, nevus, malignant melanoma, papilloma, and scar tissue.

IV. Diagnosis and discussion
Ocular surface squamous neoplasia is an umbrella term that encompasses dysplasia, carcinoma in situ, intraepithelial neoplasia, and squamous cell carcinoma (SCC) of the cornea and/or conjunctiva. Any of the disorders of the OSSN spectrum may be overlooked in quick slit lamp examinations in practice or written of as part of the spectrum of dry eye symptoms or as some other benign disorder (see differentials listed above). Conjunctival neoplasia is the most common conjunctival malignancy in the United States. It is composed of dysplastic and thickened epithelial cells with increased cell proliferation and irregularity. When tumor cells invade the epithelial basement membrane and substantia propria, the lesion can become an invasive squamous cell carcinoma and the patient is at risk for metastatic disease.

Risk factors for CIN include: advanced age, male sex, exposure to ultraviolet light, cigarette smoking, and exposure to the human papilloma virus. Chronic irritation has also been suggested as an etiology, due to the presence of OSSN in patients with ocular prosthetics and actinic keratoses.
V. Treatment, management
-Treatment: Lamellar keratectomy with mitomycin C application. After sterile draping, topical anesthetic was applied and the cornea scraped to remove the neoplastic cells. After their removal onto a Weck cell to be sent for cytology, a solution of 0.05% Mitomycin C was applied for one minute. The area was then irrigated with saline and a collagen shield soaked in a mixture of Vigamox and prednisolone acetate was applied. At post-surgical follow-ups the patient noted improvement each time, with return to a “normal” feeling approximately six months after the procedure.
-Management: Close follow-up for recurrence.

-Bibliography (for abstract):

VI. Conclusion
-CIN has a definite malignant potential, albeit quite slow. In ~3% of cases, the lesion becomes invasive. Early detection and treatment is important in preventing development of squamous cell carcinoma. It should be noted that Mitomycin C has only been used as an adjunctive to excision since 1994. It has been shown to decrease the recurrence rate for this disorder, a figure which is high (up to ~50% when there is pathologic evidence of residual tumor in the surgical margin and up to 33% with clear margins). This case has application to optometry students, residents and clinicians because it is part of a spectrum of disorders, all which may be quite common, but are also quite commonly missed in clinical practice. When it occurs at the limbus in particular, it is commonly mistaken for a pterygium or pinguecula and no treatment is initiated.