Volume 11

Maloney Vision Institute
Clinical Update

GRANULAR CORNEAL DYSTROPHY AND PTK

INTRODUCTION

A 32-year-old male was referred to our office by his doctor for assessment of a presumed stromal dystrophy. He complained about blurred vision at distance and near. His best corrected visual acuities were OD: + 1.25 -1.75 x 021 20/50+ and OS: +1.50 -1.00 x 120 20/50-. External examination revealed a granular dystrophy of the cornea OU of moderate severity. The granules were classical in clinical appearance, central and predominantly anterior and mid-stromal. There was intervening superficial haze primarily responsible for the acuity loss (Figure #1).

The patient underwent phototherapeutic keratectomy in his right eye, followed two months later by treatment of his left eye. One month later, his refraction and best corrected visual acuities were OD: -0.25 -0.75 x 165 20/25 and OS: -1.50 -0.25 x 100 20/30+, OU: 20/20. Biomicroscopic evaluation showed a reduced density of supercial haze in each eye (Figure #2).

DISCUSSION

Granular dystrophy is an autosomal dominant, bilateral, non-inflammatory condition that results in deposition of discrete, focal, white granular deposits in the anterior stroma of the central cornea by adulthood. Corneal changes generally first become visible after puberty, but vision may not be affected until the fourth to fifth decade. The granules themselves do not significantly impair acuity, but as the disease progresses superficial corneal haze develops that significantly worsens vision. Granular dystrophy is also associated with recurrent corneal erosions in some patients.

Historically, granular corneal dystrophy was treated with penetrating keratoplasty. Not only does this subject the patient to the risks of rejection, but the dystrophy recurs over time in the donor tissue.

The excimer laser has revolutionized the treatment of corneal dystrophies because it can remove, layer by layer, the abnormal deposits that result. The treatment, called phototherapeutic keratectomy or PTK, is primarily directed at removing the abnormal subepithelial tissue that causes the visual loss. Careful examination of the postoperative cornea (Figure 2) reveals that the mid stromal granules are untreated, but the cornea between the granules is much clearer. The most common mistake surgeons make is to attempt to remove anterior and midstromal opacities. Removing these opacities is usually unnecessary and can cause a disabling hyperopic shift. PTK is also a useful treatment for Reis-Buckler's dystrophy, lattice dystrophy and can effectively treat recurrent corneal erosions and basement membrane dystrophy.

The postoperative care for PTK is no different than that of photo-refractive keratoplasty. The epithelium typically heals in 3 days under a bandage contact lens. A mild topical steroid and antibiotic are prescribed for the first week only.

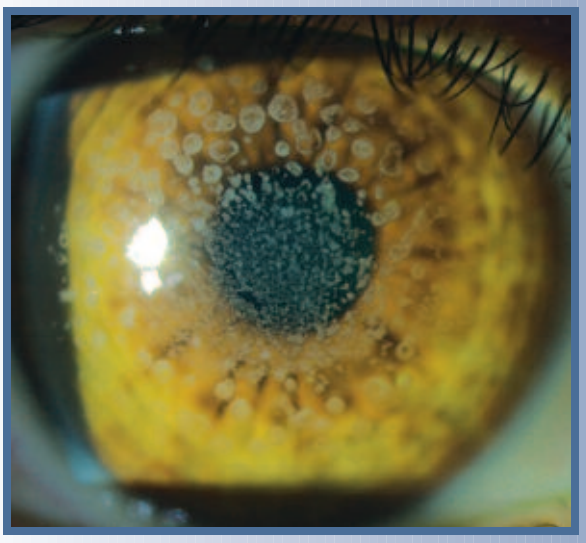

Figure 1:
Preoperative photograph of the right eye. The discrete, white granular deposits in the midperiphery are characteristic of granular dystrophy. There is also confluent central subepithelial haze causing a decrease in best-corrected acuity to 20/50.

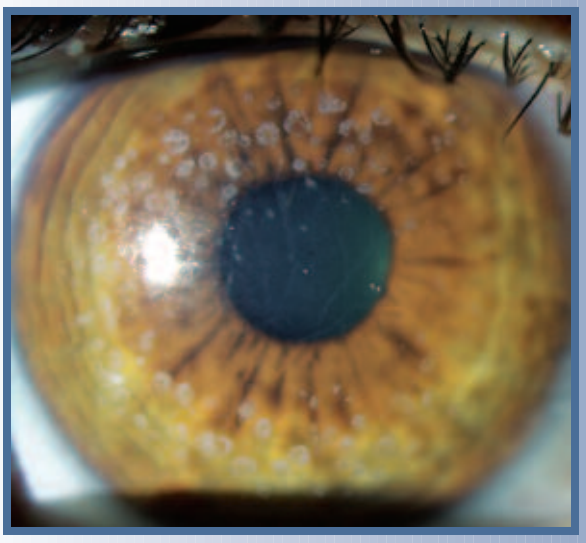

Figure 2:
Postoperative photo of the right eye. Phototherapeutic keratectomy has removed the central subepithelial haze, improving best corrected acuity to 20/25.

If you have questions or need further information, please contact Dr. Robert Maloney at rm@maloneyvision.com or Dr. Farid Eghbali at dreghbali@maloneyvision.com. You can also call us at (310) 208-3937 or send a fax to (310) 208-0169.