

Salzmann Nodular Corneal Dystrophy: What Are Our Options?

BY SHERAZ M. DAYA, MD, FACP, FRCSEd, FRCOPHTH; MICHAEL B. RAIZMAN, MD; JONATHAN H. TALAMO, MD; AND SCOTT A. PERKINS, MD

CASE PRESENTATION

A 47-year-old woman is referred to you with a history of uncomplicated LASIK in 2004. Neither her old records or the surgeon of record is available. The patient states that her examination prior to LASIK was normal, the surgery was uneventful, and she enjoyed sharp vision until about 6 months ago. She denies a history of contact lens wear after LASIK and says that, other than mild dry eye disease, she noticed no problems until recently.

Her UCVA measures 20/30 OU. Her manifest refraction at presentation is $-1.25 +0.5 \times 67$ for a BCVA of 20/20 OD and $-0.75 +1.25 \times 50$ for a BCVA of 20/20 OS. She currently enjoys her uncorrected near visual acuity, which is 20/25 OD and 20/50 OS. The slit-lamp examination finds a normal right eye but reveals a large (3- × 4.5-mm) nodule of solid, opaque material nasally at the LASIK hinge in her left eye (Figure). The fundus examination is normal.

What would you offer to this patient for visual rehabilitation?

—Case prepared by Karl G. Stonecipher, MD.

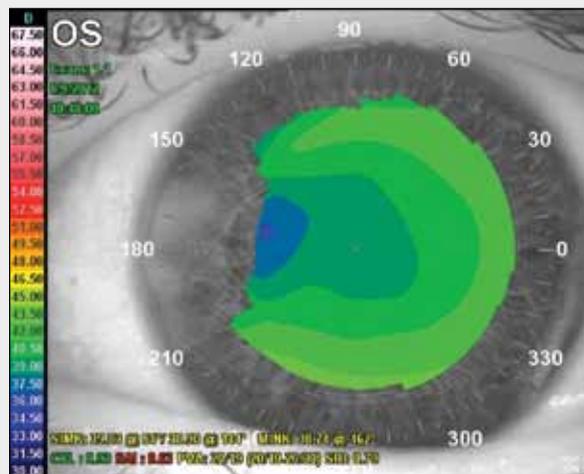


Figure. Imaging of the patient's left eye with the Magellan Mapper (Nidek, Inc.) shows a prominent, opaque nodule that extends from 150° to 210°. The expansion onto the cornea is creating astigmatism of 0.93 D at the steep axis of 54°. The surface asymmetry index is 0.63 (normal < 0.62).

SHERAZ M. DAYA, MD, FACP, FRCSEd, FRCOPHTH

This patient is myopic in both eyes, and her result has probably regressed a little over time. The astigmatism in her left eye is a result of the nasal Salzmann nodule. The topographic map shows irregular astigmatism with flattening in the area of the nodule.

I would find an edge and dissect off the nodule using a LASIK spatula or lamellar dissector. Because the nodule is located at the site of the hinge, I would be careful to avoid moving or tearing the flap. In my experience, Salzmann nod-

ules are easy to peel off. I would check the patient's refraction after re-epithelialization and monitor her to ensure she has refractive stability. I would expect her visual acuity to improve enough for her not to require further intervention.

MICHAEL B. RAIZMAN, MD

Assuming this is a Salzmann nodule, its removal will likely improve the patient's uncorrected distance vision. The nodule's location raises some concerns but should not prohibit its safe removal. The guiding principle is to take advantage of the structural integrity of Bowman layer and to leave a

smooth plane beneath the bluntly dissected nodule. In this case, the surgeon must carefully avoid disrupting the edge of the LASIK flap. Because the nodule is located at the hinge, most of the dissection can occur over the hinge, where no flap was cut. During removal of the nodule, if I disrupted the flap's edge, I might consider removing epithelium central and peripheral to the flap's edge, placing radial 10–0 nylon sutures, and removing them in a few days—after the epithelial defect resolved—to prevent epithelial ingrowth. If available, a tissue adhesive would serve the same function.

JONATHAN H. TALAMO, MD

This patient has developed subepithelial fibrosis that is inducing astigmatism (likely with a mildly irregular component) in her left eye. In the occasional LASIK case, I have seen Salzmann nodules develop at or near the flap's margin, typically 2 years or more after surgery. If there is no evidence of epithelial ingrowth (which it seems there is not in this case, because the nodular lesion abuts the nasal hinge of the flap), removal of the subepithelial fibrosis should be technically straightforward and will likely reduce the oblique astigmatism observed with manifest refraction.

I would recommend manually performing a superficial keratectomy by exposing the central edge of the subepithelial fibrotic material and then peeling it centripetally away from the corneal center so as not to risk elevating the flap. Next, I would apply the fragment of a Merocel sponge (Medtronic, Inc.) soaked in mitomycin C (MMC) 0.02% over the involved area for 30 seconds. I would then place a bandage contact lens. This intervention will likely reduce the astigmatism and solve the patient's complaints. If she is symptomatic from a residual refractive error a few months after the procedure and the eye appears to have healed normally, PRK with MMC could be considered, but I would be reluctant to lift the flap in this case.

SCOTT A. PERKINS, MD

Based on clinical appearances, this is a classic case of Salzmann nodular degeneration, a conclusion well supported by the topographic maps. The nodule is likely in the region of the LASIK hinge and, based on the history, appeared about 7 years after the patient's original LASIK procedure. The typical etiology of these nodules is often a previous ocular inflammatory condition, but they can also arise from contact lens wear, trachoma, or interstitial keratitis. Given the time of occurrence, the nodule's formation is not likely to be related to the LASIK procedure itself.

Although I often see Salzmann nodules in my cataract population, I have yet to encounter a single patient with this degeneration after LASIK despite my position in a high-volume laser refractive practice. The cause of the

astigmatism in this patient's left eye is likely primarily a result of the nodule, although she may also have an underlying residual refractive error, as is the case in her other eye.

This nodule will not resolve with a conservative measure such as lubrication or a bandage contact lens. Treatment can easily be performed at the slit lamp. I would use a 27-gauge needle to find its edge and then peel off the nodule with a forceps. Additional options are superficial keratectomy and phototherapeutic keratectomy, although neither is usually necessary in my experience. Depending on the patient's residual refractive error after healing for a few months, PRK could be performed. Because the nodule could affect the integrity of the hinge, I would avoid lifting the flap and performing a LASIK retreatment for fear of creating a free flap and a bigger problem. ■

Editor's note: this article discusses the off-label use of MMC.

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