An Extruded Encircling Band Straddling the Cornea and Corneal Groove Formation

A. Osman Saatci, MD
Ismet Durak, MD
Sevgi Tongal, MD
Mehmet Ergin, MD

Abstract. The authors report a rare consequence of an anteriorly migrated encircling silicone band. The extruded encircling band, which “cheesewed” forward through the superior and medial rectus insertions straddled the cornea firmly and formed a corneal groove. Corneal groove is an extremely rare complication of scleral buckling surgery. [Ophthalmic Surg Lasers 1998;29:991–992.]

Although exoplant exposure after scleral buckling surgery is a known and rather common complication, anterior migration of a solid encircling element through the insertion of one or more rectus muscles is a rare complication.1,2 We describe a patient with an extruded encircling band that “cheesewed” forward through the superior and medial rectus insertions and caused a corneal groove.

CASE REPORT

A 72-year-old man from a rural area underwent successful retinal detachment surgery for a left rhegmatogenous retinal detachment under local anesthesia on May 21, 1993. An encircling band (#240, MIRA, Inc., Waltham, MA) and a tunnel sponge (#505 T, MIRA, Inc.) between the 8:30- and 12:30-meridian located under the superior and medial recti were secured to the sclera using 5-0 Dacron. None of the muscles were disinserted temporally during the surgery. Following the retinal reattachment, argon laser treatment was performed in the early postoperative course. The patient’s best-corrected visual acuity was 20/50 in the left eye 2 months later. He returned with partial sponge exposure (Fig. 1) and the tunnel sponge was removed under local anesthesia on October 17, 1994. However, the encircling band was left in place with additional suturing at the supronasal quadrant.

The patient was reexamined in December 1996, as he had chronic pain and mucopurulent discharge of 6 months’ duration in his left eye. On examination, his visual acuity was 20/400 in the left eye and the encircling band was straddling the cornea firmly (Fig. 2A). There was corneal vascularization and mild corneal clouding between the nasal limbus and the band. He had no double vision and ocular motility was full. Funduscopy revealed that the retina was still attached. The encircling band had apparently cheesewed through the medial and superior rectus muscle insertions.

Because the patient preferred a minimally invasive procedure, the band was cut, released, and partially removed under topical anesthesia. A corneal groove with intact corneal epithelium was observed, corresponding to the encircling band’s location (Fig. 2B). Treatment with topical antibiotic drops and artificial
tears was started. One week later, the corneal groove disappeared with residual corneal haze.

DISCUSSION

Anterior migration of a solid silicone band may occur if the band is tight, placed anteriorly to the equator, and/or insufficiently anchored to the sclera. Abnormal or altered muscles may also predispose to suture cut-out and contribute to forward migration of the explant. Transsection through the muscle or the so-called cheesewiring is a gradual process that allows time for the muscle to reattach spontaneously.

Lindsey et al. had only 2 patients with anterior migration of the buckling element of 53 who underwent removal of the buckling element during a 25-year period. Lanigan et al. described 5 patients in whom the explant cheesewired through the rectus muscle insertions. Only 2 of 5 eyes had ocular motility problems. The lack of ocular muscle dysfunction in the remaining 3 eyes might have been due to reattachment of muscle sheath/fibers relatively close behind the explant, but not too far back to interfere with function. Similarly, Maguire et al. reported 2 cases with an anteriorly migrated encircling band through all 4 rectus muscles without any ocular muscle dysfunction. They believed that the cut end of the muscle might develop a new insertion to the underlying sclera preserving ocular motility, such as what occurs in the suspension recession method in strabismus surgery.

Considering these cases, it is not surprising that no ocular motility disturbance was noted in the present case. To the best of our knowledge, no corneal groove formation following the anteriorly migrated silicon band has been previously described. Despite his symptoms, our patient's ignorance in seeking a remedy facilitated the corneal groove formation as the band straddled the cornea firmly.

Pearce and Roper-Hall reported a case slightly resembling our case. In their case, a silicone strap eroded through the sclera and the cornea and was located intracorneally, forming a tunnel extending between the 7-o'clock and the 11-o'clock meridians. Gonioscopically, the strap was lodged within the cornea and projected as a ridge into the anterior chamber. A mild iritis was also present. The authors argued that migration and erosion were encouraged by scleromalacia associated with the patient's rheumatoid arthritis, although there was no clinical evidence of this.

Our observation demonstrates a rare feature, corneal groove formation following the anterior migration of an encircling band after scleral buckling surgery.

REFERENCES