

Subretinal Bands in Proliferative Vitreoretinopathy

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Subretinal proliferation bands were first defined by Duke-Elder and Dobree in 1967.¹ Sternberg and Machemer² described the pathogenesis in 1984, which was confirmed histologically by Trese and Machemer³ in 1985. A subretinal proliferation band is a form of proliferative vitreoretinopathy (PVR) that occurs after a rhegmatogenous retinal detachment. In this process, retinal pigment epithelial (RPE) cells migrate from their normal monolayer into the subretinal space and undergo metaplasia into macrophages and myofibroblast-like cells that proliferate as sheets. Retinal glial cells also contribute (more often forming white nonpigmented sheets). These pigmented sheets contract and form subsequent holes within these sheets or scroll into subretinal bands. Lewis et al⁴ found that in 28% of 72 eyes with PVR, subretinal bands prevented retinal settling after initial repair and required surgical removal. Their definitive work illustrated that subretinal membranes are common in PVR (up to 47% of cases) and usually do not interfere with normal retinal reattachment surgery (72% of patients did not need the subretinal membranes removed for reattachment).

SUBRETINAL BAND SURGERY

In this article, we present a case of subretinal band removal. After evaluating the tautness of the subretinal band, a location is selected to maximize access and leverage on the band.

Diathermy is then applied flanking the subretinal band—never over it (Figure 1). One must be careful not to sever the subretinal band during diathermy. A bent lighted pick is then used to create a retinotomy and engage the subretinal band through the retina.



Figure 1. Diathermy is then applied to flank the subretinal band—never over it.



Figure 2. Hand-over-hand technique to release the subretinal band.

Using a hand-over-hand technique (Figure 2), the subretinal band is carefully removed as it releases from the retina (Figure 3). It is important to maintain a widefield viewing angle to evaluate the peripheral tractional forces exerted on the retina as the band is



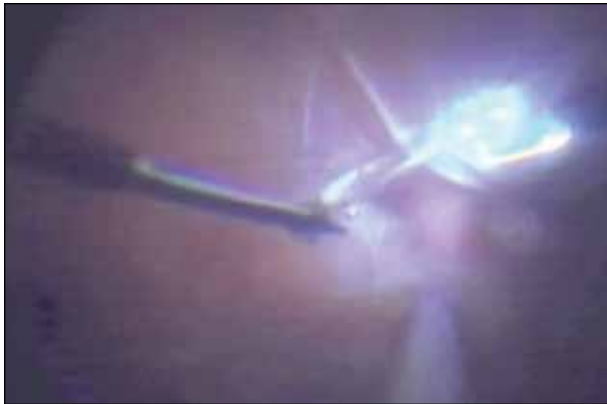


Figure 3. The subretinal band is carefully removed as it releases from the retina.



Figure 4. Eventually, the subretinal band will completely release from the retina.

being removed. Careful attention should be placed on maintaining a good grasp of the band and not breaking the band. If the band breaks and fixation of the band is lost, the subretinal band will retract, making it difficult to regain surgical access.

As the subretinal band releases gradually from the retina and more can be extracted through the retinotomy, carefully regrasp the subretinal band with forceps while not losing countertraction tension on the band. Eventually, the subretinal band will completely release from the retina (Figure 4).

KEY POINTS

Clinical key points include that although subretinal sheets never cause enough force to prevent retinal reattachments, subretinal bands can (but do not always) prevent retinal reattachment. When removing subretinal bands, it is important to select a location that maximizes access and leverage on the band and that is in an area where the band is thickest. Never use diatherm over a

band to create a retinotomy, as this can sever the subretinal band. Utilize a hand-over-hand technique using a bent lighted pick and forceps or a bimanual technique with chandelier illumination. When removing the band, maintain a wide viewing angle to visualize what peripheral traction force is being created on the retina, at the same time being careful not to lose access by breaking the band because tensile forces will cause the band to retract making it difficult to regain access. ■

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