Re: Yu et al.: Releasable encircling band for primary rhegmatogenous retinal detachment

Dear Editor:

The report by Yu et al\(^1\) raises an interesting question about the purpose of an encircling band in retinal detachment surgery. After the seminal observations of Gonin,\(^2\) surgeons tried various methods to close retinal breaks using materials available at the time, including scleral buckling. Early encircling procedures reduced the diameter of the eye by surrounding the globe with various belt-like devices that were placed over the sclera and tightened, creating buckles.

Schepens et al, early advocates of polyethylene tube (PET) encircling, recognized this technique to be among the most permanent, dependable and the “only operation to which cases of massive vitreous retraction responded.”\(^3\) However, a limitation was that the scleral imbrication was “necessarily narrow, and, consequently, a retinal break of large size cannot be adequately covered.”\(^4\) Furthermore, it was noted that these tubes, being hard and narrow, caused scleral necrosis and could erode into the eye.\(^4\)

This led to the development of the encircling silicone band that is in use today in conjunction with broad silicone implants that imbricate the sclera over retinal breaks. In their paper, Schepens et al\(^1\) specifically explain how to utilize the encircling band. They tell us that the broader elements, sutured in place with mattress sutures, indent the sclera over the breaks and that the “circling element serves chiefly to preserve the indentation by maintaining the newly established circumference permanently.”\(^5\) Otherwise, the indentation “would persist for only a few months.” They further state that adjusting the band after drainage should “apply gentle tension on the globe.”\(^6\) Again in 1994, Schepens writes, “It is important to remember that the encircling element should not be used to make the buckle higher. Rather, it should be used almost exclusively to ensure permanence and help to prevent postoperative relapses.”\(^6\)

Since the late 1960s, skillful surgeons using the principles noted were able to treat successfully primary, uncomplicated retinal detachments with one operation with a very low incidence of proliferative vitreoretinopathy >90% of the time.\(^6\) Understanding that the encircling element is to maintain and stabilize the essential buckle, rather than to create it, is critical to successful and uncomplicated surgery.

In the current report, Yu et al\(^1\) report a decreased rate of axial elongation and decreased anterior chamber shallowing in their study group treated with a releasable encircling band procedure. Their technique seems to rely mainly on the encircling band to create the scleral imbrication, with additional measures, such as segmental buckles, drainage of subretinal fluid, and anterior chamber paracentesis, being optional. No mention is made of final tension in the band, shortening of the band, intraocular pressure, or the height of the band-induced buckle at the end of the procedure.

Their data indicate that undesirable postoperative side effects (shallow anterior chamber, increased axial length and myopia) are the result of the tension of the band, and, by implication, the height of the band-induced scleral buckle, because around 3 months postoperatively these phenomena reverse as the absorbable suture dissolves, the tension of the band is released and the height of the buckle diminishes. These are very important data. They corroborate what surgeons have suspected for many years and should inform us about our surgical technique: the ideal scleral buckle is created with imbricating sutures straddling wider implants, with the band supporting and not creating the buckle.

Nevertheless, their single surgery reattachment rate at 6 months is excellent, even with the temporary buckle. Whether or not this is permanent and will persist for the lifetime of the patients remains to be seen, and we look forward to reports of their long-term results in the future.

Scleral buckling has not undergone significant advances in materials or techniques over the past 2 decades, and we commend the authors for their thoughtful contribution to this important retinal detachment repair technique. In the meantime, adhering to those principles developed by Schepens et al, especially with regard to the purpose and use of encircling elements, will minimize side effects and provide the best long-term outcomes for our patients.

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References