A Simple Method For Scleral Buckling Procedure in A Patient with Extreme Scleral Thinning

Aşırı Skleral İncelmesi Olan Bir Hastada Skleral Çökertme için Basit Bir Yöntem

Eyyüp KARAHAN[1], Süleyman KAYNAK[2]

ABSTRACT

Rupture of the sclera is a rare but serious complication of retinal detachment surgery. Pre-existing scleral pathology is a major risk factor for globe rupture during scleral buckling procedures. In this case report, we performed a wide silicone tire to cover the scleral thinning area which unexpectedly encountered intraoperatively, so the retinal detachment surgery completed successfully without any complication.

Key Words: Scleral thinning, scleral buckle, silicon tire.

ÖZ

Sklera rüptürü, retina dekolmanı cerrahisinin nadir ama ciddi bir komplikasyonudur. Sklerada var olan bir patoloji skleral çökertme esnasında sklera rüptürü olması açısından önemli bir risk faktörüdür. Bu olgu sunumunda cerrahi esnasında farkedilen skleral incelme alanı geniş silikon bantla kapatıldı ve böylece cerrahi herhangi bir komplikasyon olmadan başarıyla tamamlandı.

Anahtar Kelimeler: Skleral incelme, skleral çökertme, silikon bant.

INTRODUCTION

Scleral thinning is a well-reported complication following pterygium excision, retinal detachment (RD) repair, systemic vasculitis, high myopia, and trauma.[1-3] Rupture of the sclera is a rare but serious complication of RD surgery. It is generally associated with unfavorable anatomic and visual outcomes.[4] Pre-existing scleral pathology is a major risk factor for globe rupture during scleral buckling procedures.[4] Severe complications such as globe distortion, proliferative vitreoretinopathy, and subretinal hemorrhage can result from globe rupture during scleral buckling.[4] When significant scleral pathology is unexpectedly encountered intraoperatively, conversion of the scleral buckling procedure into a scleral graft procedure followed by delayed RD repair is well-defined.[5] In our case report we recommend a simple method to protect the scleral thinning area and complete the surgery in the same session.

1- M.D. Special Egepol Hospital, Eye Clinic, Izmir/TURKEY
KARAHAN E., karahaneyup@yahoo.com
2- M.D Professor, Dokuz Eylül University Faculty of Medicine, Department of Ophthalmology, Izmir/TURKEY
KAYNAK S., skaynak@retina-gm.com

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Yazışma Adresi/Correspondence Adress: M.D. Eyyüp KARAHAN
Special Egepol Hospital, Eye Clinic, Izmir/TURKEY

Phone: +90 505 525 21 78
E-mail: karahaneyup@yahoo.com

CASE REPORT

A 21year-old male presented with a one month history of vision loss in the right eye. The patient had Marphan Syndrome without any other systemic disesase. Best-corrected visual acuity (BCVA) in the right eye was hand motion. He had lens subluxation and an acute glaucoma attack suddenly with severe pain one month before because of the pupillary blocking and managed with medical and surgical treatment respectively. In surgery, under general anaesthesia, he had been performed intracapsular lens extraction with transscleral polimethylmethaacrylat intraocular lens (IOL) fixation in another center. First examination revealed, 10.0 sutures on corneoscleral incision and conjunctival healing with 10.0 prolen sutures located on 0-180 quadrants used for transscleral fixation. Iris was atrophic and pupilla was fixed dilated probably due to glaucoma attack which already seen before with very high pressure. Transscleral IOL was seen properly centralized and no tilting. Fundus examination of the right eye revealed a macula involving total rhegmatogenous retinal detachment, with a tear extending from seven to nine o′clock. Fundus examination of the left eye was unremarkable.

A scleral buckling procedure under general anesthesia was planned for retinal detachment repair. Limbal conjunctival peritomy and blunt episcleral dissection were performed. The rectus muscles were exposed and looped. When the rectus muscles were retracted, extreme scleral thinning was discovered. Scleral thinning and staphyloma was extended from six o‘clock to the eleven o′clock position on the equatorial area (Figure 1). After completing the scleral circling band positioning, we evaluated that it is very risky to fixate the band on the superotemporal quadrant with suture. Due to a high risk for globe rupture, 6 mm tire was inserted under the band which fit the curvature and the size of the scleral defect (Figure 2). The silicone tire was placed underneath the lateral and superior rectus muscles to cover the whole thinned area. The sutures were passed around the silicone tire in which the sclera was less thinned and quite stabile which can be sutured safely with 5.0 dacron. Scleral buckle procedure was completed without any complication with drainage of subretinal fluid in a very safe scleral area. At the end of the surgery, retina was completely reattached.

At the 3 th month follow-up, BCVA of the right eye was 20/200. Intraocular pressure was 12 mmHg. The globe had normal shape, retina was totally attached with proper buckling around the equator.

DISCUSSION

Scleral pathology, is a rare but serious risk factor for glob rupture during circling for RD surgery.[4] Ultrasound examination, optic coherence tomography, computed tomography or magnetic resonans imaging can be useful to determine a scleral pathology preoperatively if any scleral defect is suspected. However, there is no routine administration of any investigation before a routine retinal detachment surgery.

Rupture of the sclera is associated with unfavorable anatomic and visual outcomes compared with retinal detachment surgery completed without any scleral penetration. Tabandeh et al.,[4] reported 14 patients with scleral rupture during RD surgery. Four eyes of 14 patients had scleral pathologies, including thin sclera, history of scleritis with scleral thinning and active necrotizing scleritis. Statistical analysis was identified reoperation for failed surgery and scleral pathology as significant risk factors for scleral rupture during surgery.

Different grafts have been recommended for management of scleral defects. These include facia lata, cartilage cadaveric aortic tissue, tibial periosteum, synthetic Gore-Tax, skin, amniotic membrane, autologous sclera, homologous sclera.[2,6,7]

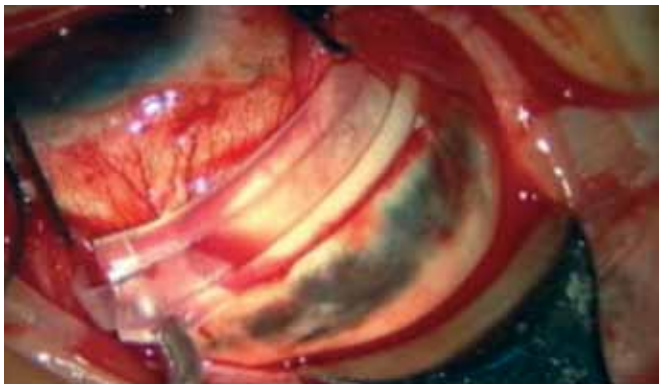

Figure 1: *Scleral thinning extended from six o‘clock to the eleven o'clock.*

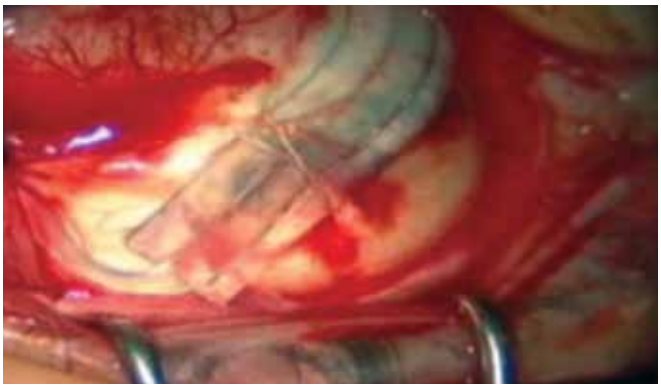

Figure 2: *Silicone tire inserted under the band .*

Stunf et al.,[5] reported a surgical management of an unexpected scleral pathology found at the scleral buckling procedure in a retinal detachment patient. The surgery was converted into a scleral graft procedure, as extreme scleral thinning was found intraoperatively. An alcohol-preserved donor scleral graft was used. The second surgery for definitive retinal surgery was postponed for two weeks later. Conversion of the scleral buckling procedure into a scleral graft procedure was recommended as safe and effective for unexpected scleral pathology.

In present case, we realized an unexpected scleral thinning and staphyloma on the equatorial area at one quadrant of sclera. So we decided to support the scleral staphyloma area with a proper tire that fit under the scleral circling band buckled the sclera 12 mm. distant to the limbus. We believe that the most important problem in these cases is rupture of the sclera and to find the proper scleral area to pass the dacron sutures for fixating the scleral buckling material. Therefore, with the decision on to support the staphyloma, we could complete the proper surgery just only one session without any complication. It should be emphasized that passing the silicone tire band under the lateral and superior rectus muscles was performed to support the thinned area that was reached beneath the lateral and superior rectus muscles. To perform the thin encircling band with the wide of 2 mm alone was decided to be a risk for the thinned area. So, to cover the whole thinned area, silicone tire was extended to beneath the lateral and superior rectus muscles.

To the best of our knowledge, this is the first study recommend the silicone tire for the management of unexpected scleral pathology in a scleral buckling procedure.

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