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Bilateral Serous Retinal Detachment Associated with Inferior Posterior Staphyloma Treated with Scleral Shortening and Vitrectomy

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Key Words
Bilateral serous retinal detachment · Inferior posterior staphyloma · Scleral shortening · Vitrectomy

Abstract
Purpose: We report a case of bilateral serous retinal detachment (SRD) associated with inferior posterior staphyloma (IPS) treated successfully with scleral shortening. ***Patient and Methods:*** A 63-year-old woman presented with bilateral visual loss due to an SRD with IPS. The best-corrected visual acuity levels were 0.6 (20/30) and 0.5 (20/40) in the right and left eye, respectively. The patient underwent vitrectomy and scleral shortening in the right eye. The lamellar scleral crescent was resected 4 mm in width from the 5- to 8-o'clock positions. Seven interrupted 5-0 polyester sutures were placed at the edge of the lamellar scleral crescent. After 25-gauge three-port vitrectomy, the sutures were tightened. Optical coherence tomography showed decreased curvature at the staphyloma border. The choroidal thickness decreased in the superior flat portion of the fundus and increased slightly in the staphyloma. The SRD resolved 3 months postoperatively. The best-corrected visual acuity in the right eye improved to 0.8 (20/25) 6 months postoperatively. Angiography 6 months postoperatively showed decreased diffuse dye leakage at the fovea in the right eye; indocyanine green angiography did not show marked changes. ***Discussion:*** Scleral shortening with vitrectomy changes the eye wall shape, may improve the retinal pigment epithelial integrity, and may be a treatment option for SRD with IPS.

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Introduction

Posterior staphyloma is a type of localized scleral ectasia in the posterior segment associated with myopia [1] in which the superior border of the inferior posterior staphyloma (IPS) lies across the macula and may be accompanied by atrophy of the retinal pigment epithelium (RPE), serous retinal detachment (SRD), choroidal neovascularization (CNV), or polypoidal choroidal vasculopathy [2–6]. Substantial percentages of eyes with IPS (37–41%) had SRDs that may be long-lasting and result in severe visual loss [3, 6]. Although laser photocoagulation, anti-vascular endothelial growth factor (anti-VEGF) drugs, and photodynamic therapy had been attempted, SRDs with IPS were refractory to those treatments [2, 7–9]. We report a patient with bilateral SRD with IPS treated successfully with scleral shortening and followed for 9 months.

Case Report

A 63-year-old woman reported bilateral visual impairment of 6 months' duration. At the first examination, the best-corrected visual acuity was 0.6 (20/30) in the right eye and 0.5 (20/40) in the left eye. The refractive error in the right eye was sphere –3.50 dpt and cylinder –0.50 × 60 dpt and in the left eye it was sphere –3.75 dpt and cylinder –1.25 × 93 dpt. A dilated fundus examination showed bilateral IPS with crescent borders and retinal detachments at the foveae. Both foveae were on the edge of the IPS. The axial length (AL) measured by laser interference biometry (IOLMaster 500, Carl Zeiss Meditec Inc., Dublin, Calif., USA) was 24.81 mm in the right eye and 24.70 mm in the left eye. There was no visual field defect. Optical coherence tomography (Heidelberg Engineering, Heidelberg, Germany) showed SRDs and shallow RPE detachments bilaterally. The retina and choroid protruded into the vitreous cavity at the upper IPS border. The choroidal thickness in the staphyloma decreased compared to that in the superior fovea. Fluorescein angiography (FA) showed a granular hyperfluorescence pattern and diffuse hyperfluorescence in the late phase along the superior staphyloma border. We did not observe obvious dye leakage or signs of CNV in either fovea. Late-phase indocyanine green angiography (ICGA) showed belt-like hypofluorescence on the superior staphyloma borders. We did not detect hyperfluorescence indicating CNV on late-phase ICGA images (fig. 1). The patient opted to undergo scleral shortening with vitrectomy and provided informed consent preoperatively after she had been informed that anti-VEGF therapy and photodynamic therapy were ineffective for this type of retinal detachment in eyes with IPS [7, 8], that scleral shortening may improve the anatomic abnormalities of posterior staphyloma, as well as about the possible adverse events associated with the procedure and the possible ineffectiveness even after successful scleral shortening with vitrectomy.

We performed the surgery with written informed consent. Shortly after the cataract surgery, a bridle suture was placed at each rectus muscle, and the lamellar scleral crescent was resected 4 mm in width from the 5- to the 8-o'clock positions. Seven interrupted 5-0 polyester preplaced mattress sutures (Marciline, Ethicon, West Somerville, N.J., USA) were placed at the edge of the lamellar scleral crescent. After vitrectomy with induction of posterior vitreous detachment (PVD), the mattress suture was tightened.

The curvature of the protrusion at the fovea flattened postoperatively. The SRD height gradually resolved and the RPE detachment decreased over 3 months postoperatively. The choroidal thickness decreased in the superior flat area of the retina but increased slightly in the staphyloma (fig. 2). The best-corrected visual acuity improved to 0.8 (20/25); the refrac-

tive error was sphere –1.50 dpt and cylinder –2.50 × 175 dpt. FA 6 months postoperatively showed that the diffuse foveal hyperfluorescence in the right eye decreased slightly (fig. 1). The area of belt-like hypofluorescence and the caliber of the choroidal vessels were the same as preoperatively on ICGA images. The AL shortened from 24.81 mm preoperatively to 24.19 mm at 9 months postoperatively. The SRD remained in OS.

Discussion

We describe an eye treated with vitrectomy and inferior scleral shortening in a patient with bilateral SRD associated with IPS.

SRDs accompanied by IPS are rare [2]. In those eyes, the SRD is refractory to several treatments. To the best of our knowledge, bilateral SRDs associated with IPS are very rare [5]. Scleral shortening or imbrication is performed to treat macular hole retinal detachment in eyes with high myopia [10]. The morphologic abnormality at the junction of the IPS is assumed to disrupt the choriocapillaris and pigment epithelium resulting in an SRD. Maruko et al. [6] reported that relative scleral thickening at the fovea might cause the SRD in tilted disc syndrome. The scleral shortening might cause the SRD to decrease because its procedure changed the foveal scleral thickening. After substantial discussion with the patient, we performed this procedure on her right eye. The AL was shortened by 0.62 mm and the angle of the staphyloma edge decreased postoperatively. The choroidal thickness also decreased, especially the outer upper border of the staphyloma. These changes may contribute to the resolution of SRDs. Because the perifoveal vitreous was detached in the current case, PVD induction may have contributed to the SRD resolution. The relationship between PVDs and SRDs associated with IPS is unclear. Since the effect of scleral shortening decreases over subsequent years, SRDs may recur. Further observation and accumulation of cases are needed.

Bilateral SRDs associated with IPS may be rare. With no adequate available treatment for this disorder, scleral shortening with vitrectomy was considered.

Statement of Ethics

The authors have no ethical conflicts to disclose.

Disclosure Statement

None of the authors have any financial/conflicting interests to disclose.

References

1 Curtin BJ: The posterior staphyloma of pathologic myopia. Trans Am Ophthalmol Soc 1977;75:67–86.
2 Cohen SY, Quentel G, Guiberteau B, Delahaye-Mazza C, Gaudric A: Macular serous retinal detachment caused by subretinal leakage in tilted disc syndrome. Ophthalmology 1998;105:1831–1834.
3 Nakanishi H, Tsujikawa A, Gotoh N, et al: Macular complications on the border of an inferior staphyloma associated with tilted disc syndrome. Retina 2008;28:1493–1501.
4 Mauget-Faysse M, Cornut PL, Quaranta El-Maftouhi M, Leys A: Polypoidal choroidal vasculopathy in tilted disk syndrome and high myopia with staphyloma. Am J Ophthalmol 2006;142:970–975.

5 Theodossiadis PG, Grigoropoulos V, Emfietzoglou J, Theodossiadis GP: Optical coherence tomography study of tilted optic disk associated with macular detachment. Graefes Arch Clin Exp Ophthalmol 2006;244:122–124.
6 Maruko I, Iida T, Sugano Y, Oyamada H, Sekiryu T: Morphologic choroidal and scleral changes at the macula in tilted disc syndrome with staphyloma using optical coherence tomography. Invest Ophthalmol Vis Sci 2011;52:8763–8768.
7 Milani P, Pece A, Pierro L, Seidenari P, Radice P, Scialdone A: Bevacizumab for macular serous neuroretinal detachment in tilted disk syndrome. J Ophthalmol 2010;2010:970580.
8 Donati MC, Miele A, Abbruzzese G, Giuntoli M, Giansanti F, Menchini U: Treatment of macular serous neuroretinal detachment in tilted disk syndrome: report of 3 cases. Eur J Ophthalmol 2013;23:267–270.
9 Yamagishi T, Koizumi H, Yamazaki T, Kinoshita S: Choroidal thickness in inferior staphyloma associated with posterior serous retinal detachment. Retina 2012;32:1237–1242.
10 Matsuo T, Shiraga F, Takasu I, Okanouchi T: Scleral infolding combined with vitrectomy and gas tamponade for retinal detachment with macular holes in highly myopic eyes. Jpn J Ophthalmol 2001;45:403–408.

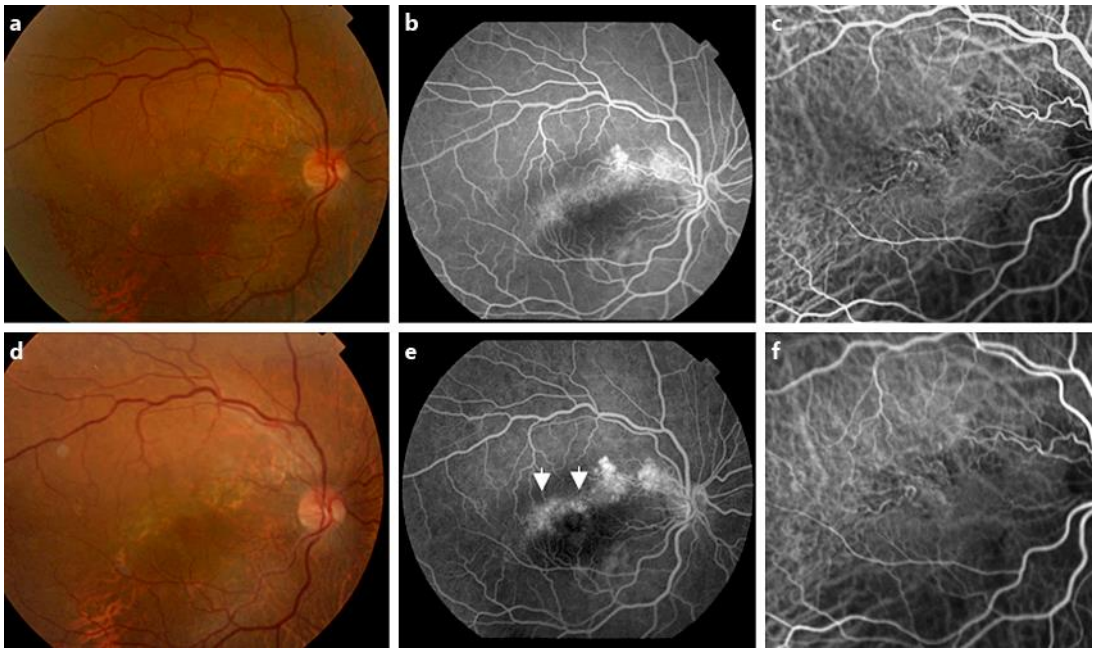

Fig. 1. A fundus color photograph (**a**), FA (**b**), and ICGA (**c**) at the first examination. A fundus color photograph (**d**), FA (**e**), and ICGA (**f**) 6 months postoperatively. A preoperative FA image shows hyperfluoresence at the border of the inferior posterior staphyloma. **b** No granular leakage point is seen. The area of the hyperfluorescence has decreased at 6 months (**e**, arrows). The ICGA image (**c**) obtained preoperatively shows belt-like hypofluorescence. Six months postoperatively, the ICGA image (**f**) shows no marked changes.

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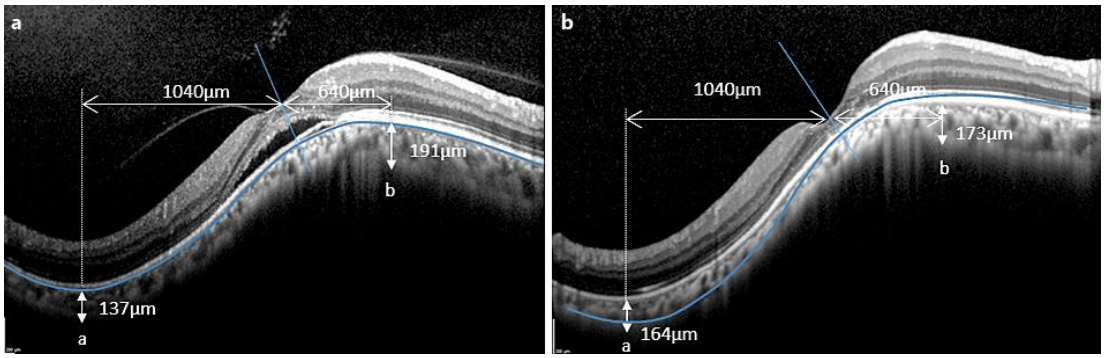

Fig. 2. Changes in the choroidal morphology. Optical coherence tomography images obtained preoperatively (**a**) and postoperatively (**b**). The choroidal thicknesses are compared at the same distance from the fovea center. The choroidal thickness in the staphyloma has increased postoperatively, whereas the choroidal thickness in the upper staphyloma has decreased. Choroidal thicknesses at the fovea did not change.