CASE REPORT

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# A Case of Acquired Anterior Scleral Staphyloma and Corneal Perforation After Pars Plana Vitrectomy and Treatment with Amniotic Membrane

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**ABSTRACT** This is a case report of a 26-year-old female patient who presented with poor vision due to a vitreous lens drop of her right eye. The patient underwent pars plana vitrectomy. However, scleral fixation was postponed due to corneal edema. She presented to the clinic 2 months later with complaints of eye pain. The patient was found to have a corneal perforation and iris prolapse. Emergency surgery was performed, and after the iris tissue were repositioned, the corneal defect was sutured and an amniotic membrane was transplanted onto the defect. The corneal defect healed, and the anterior staphyloma did not progress. The patient's underlying condition was suspected to be a congenital connective tissue disorder. Anterior staphyloma may develop after vitrectomy in patients with congenital tissue disease, and amniotic membrane closure may be preferred in these patients for better healing process.

**Keywords:** Anterior staphyloma; congenital connective tissue diseases; amniotic membrane; corneal perforation

Staphyloma is an abnormal protrusion of uveal tissue from a weak spot of the eye.[1] Acquired anterior scleral staphyloma usually occurs secondary to corneal perforation and after untreated or treatment-refractory keratitis.[2] Although serious complications after vitreoretinal surgery (VRS) are rare, serious ocular complications can be seen due to collagen tissue disease.[3] In this case report, the follow-up and treatment of a patient who developed anterior corneal and scleral staphyloma after VRS due to a crystalline lens drop into the vitreous is presented in the light of current information.

## CASE REPORT

A 26-year-old female patient who could not express herself was brought by her family with the complaint of low vision. In the patient's anamnesis, it was learned from her family that she had febrile convulsions as a child and that she had difficulty in mobilizing as she got older. The patient, whose visual acuity could not be evaluated, had right corneal edema and aphakic in the slit-lamp examination. In the anterior segment examination of the left eye, the lens was subluxated. Intraocular pressure was 16

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mmHg for the right eye and 12 mmHg for the left eye by applanation tonometry. Although bilateral fundus examination was normal, her crystalline lens that had drop into the vitreous was detected on the right eye. The patient was admitted to clinic with the recommendation of lens extraction with VRS. Preoperatively, 5% hyperosmolar salt solution and methylprednisolone drops were started topically 5x1 daily. After the regression of corneal edema, removal of the crystalline lens localized in the fundus and lens implantation with scleral fixation techniques were planned under general anesthesia. Classic triple 23-gauge trocar ports were inserted obliquely 3.0 mm behind the limbus. After core vitrectomy, the totally dropped lens was cleaned with the help of a vitrector and base of the vitreous was cleared. During the operation, it was deemed appropriate to delay scleral lens fixation due to recurrent corneal edema. Balanced salt solution was preferred as tamponade, and after the trocar entrances were closed, subconjunctival antibiotics and steroids were administered, and the operation was terminated. After the operation, antibiotics, steroids and artificial tears were continued and the patient was discharged with a weekly follow-up. Unfortunately, the patient who was not brought to the controls regularly, was consulted to our clinic via the emergency service with the complaint of pain operated eye 2 months later. It was observed that the patient had a corneal perforation of the operated right eye and the iris prolapsed between the wound lips (Figure 1). Under emergency conditions, the patient was hospitalized and re-operation was planned. After the iris tissues were repositioned during the surgery, the corneal defect was sutured with 10.0 monofilament. Therefore, an amniotic membrane was transplanted onto the corneal defect covering staphyloma and cornea with the help of tissue adhesive and the operation was terminated (Figure 2). It was observed that the anterior chamber was formed postoperatively but it was shallow and the Seidel test was negative (Figure 3). In the follow-up, the corneal defect closed and anterior staphyloma did not progress (Figure 4). Oral tetracycline 100 mg once a day added to the current topical antibiotic and steroid treatment. The patient's current condition was associated with congenital connective tissue diseases, but unfortunately, the etiology could not be investigated, since the patient's family wanted to discharge the patient when additional examination and consultation were planned.

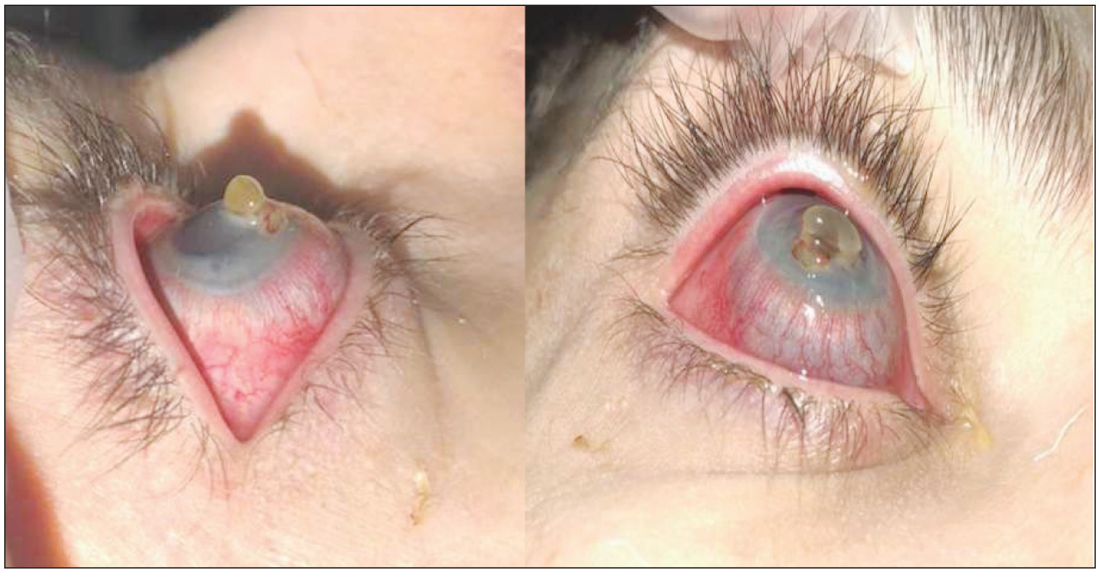

**FIGURE 1:** The corneal perforation in the operated right eye and the iris prolapse between the wound lips.

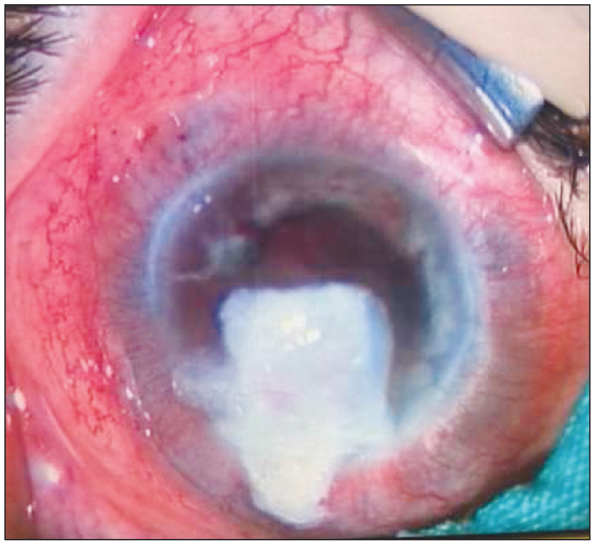

**FIGURE 2:** The transplantation of amniotic membrane with the tissue adhesive to corneal defect.

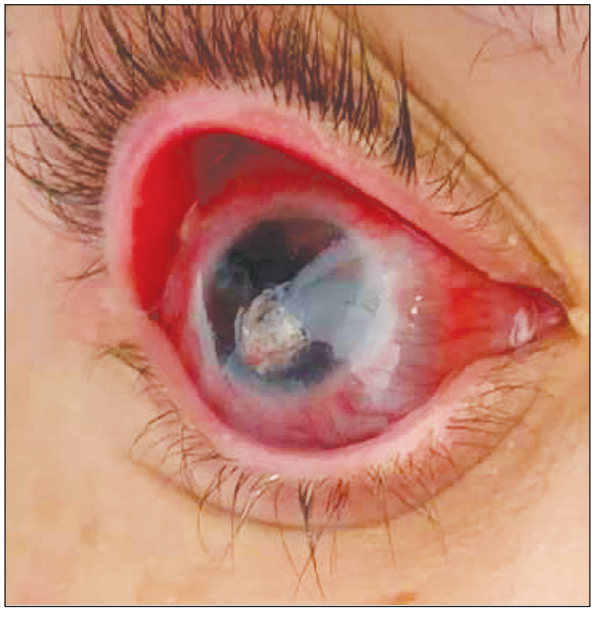

**FIGURE 3:** The formed anterior chamber, postoperatively.

Written informed consent was obtained from the patient's family to publish their information and images as a case report.

## DISCUSSION

Non-congenital anterior scleral staphylomas are most commonly caused by untreated perforated ulcers.[2] Acquired anterior scleral staphyloma occurs in low- and middle-income countries due to the lack of appropriate post-traumatic care, cases of infectious keratitis, or poor patient adherence to treatment.[4] In people with metabolic diseases such as homocystinuria, this risk can be seen between 13-25%.[5]

Possible complications after VRS include endophthalmitis, hypotonia, retinal tear or detachment, reoperation, cataract, glaucoma, macular edema, metamorphopsia, and changes in refractive error.[6] Cases of anterior staphyloma have been reported, albeit rarely, after surgery.[7] The fact that our patient had a crystalline lens in the vitreous and could not express herself indicated the presence of a possible congenital connective tissue disease. Anterior staphyloma appears to have developed in our patient due to the surgery performed with underlying connective tissue disease. Ocular surgical procedures should be carefully considered when collagen tissue diseases are suspected.[3]

Penetrating keratoplasty, sclerokeratoplasty and dural patch can be applied as treatment options in anterior staphyloma.[8] Another point to note is, in cases with collagen tissue disorders, glaucoma may develop due to the disorder of the tissue structure and the aqueous humor flow path is disrupted.[7]

Amniotic membrane is a highly biocompatible material that acts as a natural scaffold used for regenerative purposes, thanks to the stem cells and

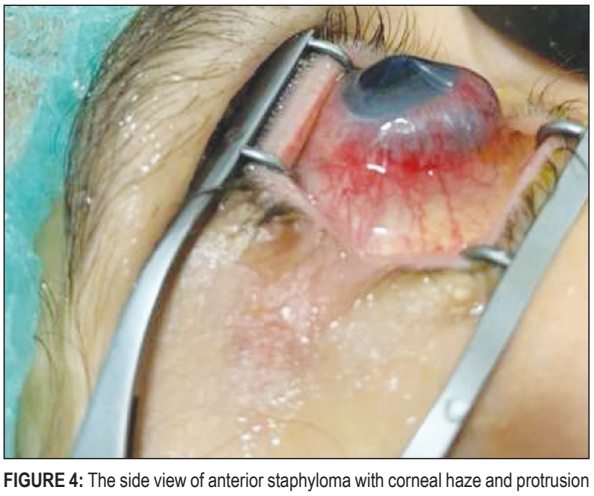

**FIGURE 4:** The side view of anterior staphyloma with corneal haze and protrusion of right eye.

growth factors it contains. It has been used for years to prevent tissue resorption and increase healing in ocular surface diseases and can be preferred for this purpose in anterior staphyloma with corneal wound.[9] It can be preferred for the treatment of anterior staphyloma, especially if there is corneal involvement, and as seen in our case, its effect on healing is observed.

In patients with suspected collagen tissue disease during VRS, attention should be paid to wound entry sites and vitreous cleaning should be done carefully. Also, persistent secondary aphakic glaucoma together with anterior scleral staphyloma may develop as a rare but serious postoperative complication in patients who underwent surgery for lens dislocation and suspected collagen tissue disease.[7] Before and after surgery, physicians should be prepared for such complications, patients and their relatives should be informed about drug use, and patient follow-up should be done strictly.

In conclusion, it should be kept in mind that patients presenting with undiagnosed congenital connective tissue diseases such as lens drop findings may develop anterior staphyloma after surgeries like VRS. As seen in our case, amniotic membrane can be used in the treatment of anterior staphyloma and corneal wound due to its contribution to healing.

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### *Conflict of Interest*

*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.*

### *Authorship Contributions*

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