

Case Report

A Case of Corneoscleral Dellen after Medial Rectus Recession Combined with Pterygium Resection in Right Eye

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Abstract

Purpose: A case of corneoscleral dellen after medial rectus recession combined with pterygium resection was reported.

Methods: Case report

Results: A male patient aged 48 years had ghost for 1 year after acoustic neuroma resection. The patient was diagnosed with rectus paresis in the right eye. He successfully underwent medial rectus recession combined with pterygium resection. A corneoscleral dellen with a size of 2×2 mm was observed at 20 d postoperatively. The thinnest cornea was 147 μm, diagnosed as corneoscleral dellen, which was cured after undergoing corneal limbal stem cell transplantation with conjunctival flap.

Conclusion: Corneoscleral dellen is non-infectious corneoscleral ulcer caused by complex reasons. Most cases recovered by using artificial tears, antibiotic ointment and eye wrap, and other patients required corneal limbal stem cell transplantation with conjunctival flap, even keratoplasty. It is recommended that the patients with strabismus combined with pterygium underwent conjunctival flap transplantation at early stage to prevent the incidence of surgical complications. (*Eye Science* 2012; 27:198–201)

Keywords: corneoscleral dellen; strabismus surgery; pterygium

Corneoscleral dellen is considered a non-infectious corneoscleral ulcer caused by complex pathogenic factors, including exposure, neurotrophic and immune factors, etc. Few studies have noted corneoscleral dellen occurring post-ptyerygium resection¹.

Clinical information

A male patient aged 48 years who had suffered from double vision for 1 year was admitted to the Chinese University of Hong Kong Joint Shantou International Eye Center on 1 March 2012. He pre-

sented with double vision in both eyes after undergoing acoustic neuroma surgery 1 year previously. Eye examination showed the following: visual acuities in both eyes were 1.0, thickening bulbar conjunctiva and triangle-shaped vascular fibrous tissues extended over cornea by 2 mm in the inferior interpalpebral zone, transparent optical medium, and normal fundus examination. The Hirschberg test for eye position measurement showed that in the primary position of the eye, left concomitant esotropia was 10~15 degree, and the right eye was the master eye. A prism cover test revealed right 25△ esotropia (the first angle) and left 30△ esotropia while the right eye was gazing (the second angle), outward deficiency by 3 mm in the right eye, and normal eye movements in other directions. The double vision test noted frontal double vision in the primary position of eye, no double vision while horizontal left was turning, and apparent double vision when horizontal right was turning. Orbital CT yielded normal outcomes.

The diagnosis was the possibility of lateral rectus paresis in the right eye, and right abducens nerve paresis was proposed. The Hess test and double vision test both conformed to the diagnosis. Preoperative ocular surface imaging (Figure 1). The patient received medial rectus recession combined with pterygium resection in the right eye via surface anesthesia at 1 day after admission. The Parks cul-de-sac approach was employed, medial rectus recession was 6 mm posterior muscle insertion, normal position of eye, muscle was closed by 6-0 absorbable sutures, and the conjunctival incision was sutured using 8-0 absorbable sutures. The exposed area of sclera at 3 o'clock was 1 mm×2 mm (horizontal×vertical), and the conjunctiva was not completely covered. On 1 day postoperatively, the patient had normal eye po-

sition, and the symptom of double vision was alleviated. After discharge, he applied tobramycin eye drops, ointment and 0.1% fluometholone eye drops until 7 days postoperatively.

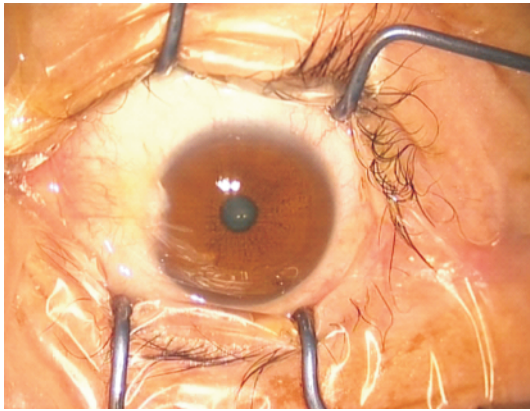


Figure 1 Ocular surface image before the first surgery showing pterygium invading over cornea by approximately 2 mm

The postoperative reexamination 7 days after surgery showed double vision in both eyes while turning right, visual acuity was 1.0 in both eyes, normal eye position, conjunctival hyperaemia on the operation side, the scleral exposure zone was similar to the postoperative zone, and the corneoscleral limbus showed no irregular changes.

The patient complained of a foreign-body sensation and consulted a doctor at 20 days postoperatively. Eye examination revealed visual acuity of 1.0, normal eye position, and conjunctival hyperaemia on the nasal side. In addition, 2 mm×2 mm of ulcer lesions were noted in the original site of corneoscleral pterygium in the right eye with a slight amount of secretion, the corneal stromal layer was significantly attenuated, the tissues at the ulcer edge were eroded, and neovascularization was observed in the cornea. As shown in Figure 2, the anterior segment OCT examination revealed that the inferior corneal limbus at the nasal side was attenuated and inner and surface layer dellen was observed. The thinnest cornea was only 147 μm, which is considered corneoscleral melting. Corneal sensation, break-up time, and tear secretion tests all had normal results.

The patient successfully underwent transplantation of conjunctival flap with corneal limbal stem cells.

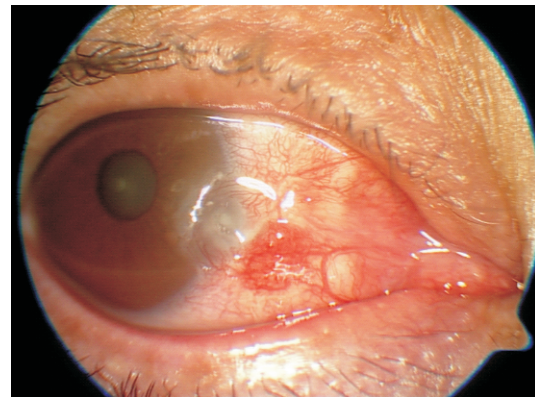


Figure 2 Ocular surface image at 20 days after the first surgery showing corneoscleral melting, dellen ulcer at 2.5 mm x 2.5 mm, a slight amount of secretion, tissue erosion on the edge of dellen, and neovascularization onto the cornea.

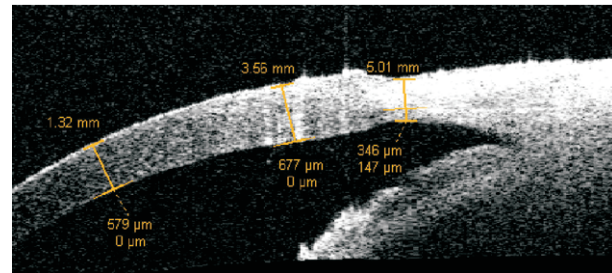


Figure 3 Anterior segment OCT showing inferior corneal limbus apparently attenuated, and inner and surface layers dellen was noted. The thinnest cornea at dellen site was 147 μm (measured according to the even extension of peripheral cornea whereas the actual thickness was possibly < 147 μm).

Corneal contact lens was used and the administration of hormone eye drops was discontinued postoperatively. The postoperative ocular surface imaging is shown in Figure 4. The reexamination at 1 week postoperatively noted conjunctival hyperaemia at the surgical side, and reasonable growth of the grafted flap. Anterior segment OCT revealed that the attenuated cornea had normal thickness, whereas the upper density was relatively low. The operative eye was well recovered at 20 days postoperatively (Figures 5 and 6).

Discussion

Potential pathogenic factors of corneoscleral dellen include dysfunction of local tear film^{2,3}, neurotrophic deficiency, dry eye, systemic immune diseases, long-term systemic or topical administration of hormone, radiotherapy, intake of immunosuppressive a-

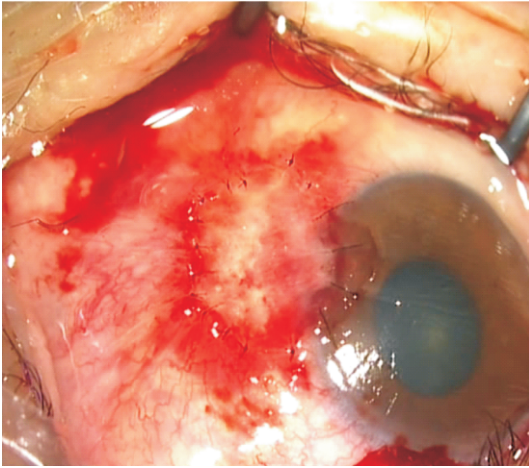


Figure 4 Ocular surface image after transplantation of conjunctival flap with corneal limbal stem cells

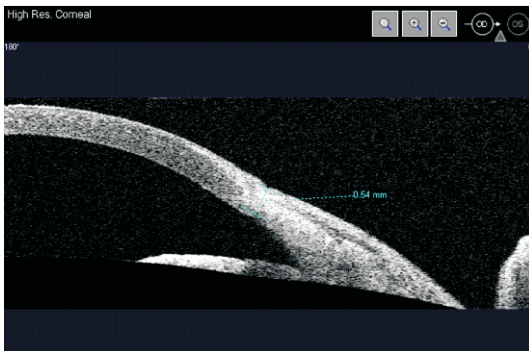


Figure 5 OCT image at 1 week after transplantation of conjunctival flap with corneal limbal stem cells

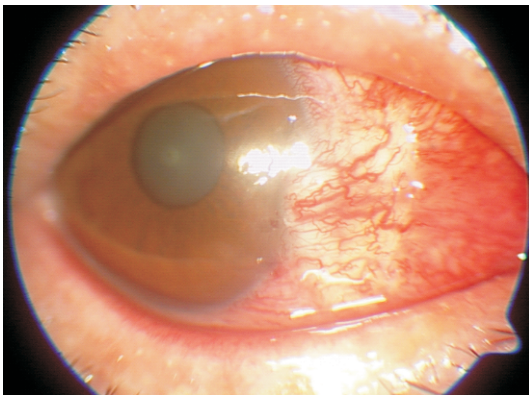


Figure 6 Ocular surface image on 20 days after conjunctival flap covering surgery

gents, trichiasis, blepharitis, excessive depth or width of corneal wound, topical suture stimulation, etc. Previous studies reported that corneoscleral dellen could be observed several days postoperatively, most of which could be cured by using artificial

tears, antibiotic ointment, and eye wrap during early stages^{1,2}. The factors below may have induced the incidence of corneoscleral melting in this case: 1) Tear film^{2,3}. Although the function of tear film was normal, tear film covering and abnormal distribution were noted at the conjunctival incision. 2) Topical use of hormone. Following the first surgery, 0.1% fluometholone eye drops were administered for 7 days. No studies have proved that short-term use of inefficient hormone can induce corneal wound melting. 3) Topical ischemia caused by pterygium resection combined with rectus recession. In theory, rectus surgery in one eye does not induce anterior segment ischemia. However, no studies have confirmed whether it can affect topical corneoscleral blood supply, thereby inducing corneoscleral dellen⁴. 4) Conjunctival suture was performed using 8-0 absorbable sutures and might cause absorption of topical suture, etc. In this case, we found that pterygium resection combined with transplantation of the conjunctival flap or amniotic membrane should be considered. Excessive size of corneal wounds should be avoided intraoperatively and the patient should be reminded of regular reexamination postoperatively. At 1-week post-surgery, the corneal wound should be carefully examined using a slit lamp. Previously used drugs, especially hormone agents, should not be administered when a tendency to corneoscleral melting is noted. During the early stage, antibiotic ointment and an epithelium growth agent should be provided, and vitamins should be supplemented systematically. The affected eye should be wrapped and the patient should have regular follow-ups. Transplantation of the conjunctival flap with corneal limbal stem cells should be performed in a timely manner according to the progression of the disease. Keratoplasty is as the only option when corneal perforation occurs. In addition, surgeons should communicate frequently with patients and their relatives to prevent as much as possible the incidence of complications.

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