

Case Report

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A Rare Case of Bilateral Double Primary Pterygium

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Abstract

Background: Pterygium is a common ocular surface disease characterized by fibrovascular conjunctival tissue invading the cornea. Lesions typically present as unilateral or bilateral single pterygia. Double pterygia within the same eye are uncommon, and bilateral double primary pterygia are extremely rare.

Case presentation: We report a case of bilateral double primary pterygia obstructing the visual axis and causing severe visual impairment in an elderly male patient. A 93-year-old man presented with progressive severe visual loss over 5 years. Ocular examination revealed mild bilateral conjunctival congestion, with fibrovascular proliferations originating from both nasal and temporal conjunctiva. The nasal and temporal pterygial heads converged on the corneal surface. The right pterygium encroached upon the pupil, while the left lesion completely covered the visual axis, leading to marked visual impairment. The patient underwent simultaneous bilateral bare-sclera pterygium excision, with measurable improvement in visual function after surgery.

Discussion: Bilateral double primary pterygium is a rare clinical entity. Excision combined with conjunctival autograft remains the gold standard for pterygium surgery with the lowest recurrence rate. Nevertheless, single-session resection of multiple lesions represents a reasonable option for elderly patients with bilateral double pterygia. This strategy reduces the total number of surgical procedures, alleviates patient discomfort, shortens recovery time, and lowers medical costs.

Conclusion: Bilateral double primary pterygium can be safely managed with single-session bilateral bare-sclera excision without conjunctival autograft in elderly patients, enabling effective visual rehabilitation.

Keywords: Nasal and Temporal pterygium; Pterygium excision; Bare-sclera pterygium surgery

Introduction

Pterygia are triangular fibrovascular degenerative overgrowths of the bulbar conjunctiva that progressively invade the cornea [1]. Major risk factors include chronic ultraviolet (UV) exposure, advanced age, and male sex [1-4]. Pterygia most frequently develop within the interpalpebral fissure and predominantly arise from the nasal conjunctiva. Double pterygia (coexisting nasal and temporal lesions) are infrequent, and bilateral double primary pterygia are

exceptionally rare [5].

Common symptoms of pterygium include intermittent conjunctival redness, ocular irritation, foreign body sensation, dryness, and tearing, as well as progressive visual deterioration. Visual loss arises primarily from three mechanisms: encroachment on the visual axis, pterygium-induced astigmatism, and tear film instability. Surgical intervention is indicated for patients requiring

symptomatic relief, visual improvement, or cosmetic correction. Multiple surgical techniques are available with varying recurrence rates, including primary conjunctival closure, conjunctival rotational grafts, limbal-conjunctival autograft, free conjunctival autograft, conjunctival flaps, and amniotic membrane transplantation.

Young age, fleshy thick pterygia, and severe preoperative inflammation are well-established risk factors for postoperative recurrence. Various adjuvant therapies have been adopted to reduce recurrence risk. Isolated bare-sclera excision without adjuvant treatment carries a relatively high recurrence risk [2,6,7], whereas conjunctival autograft combined with topical 0.05% cyclosporine eye drops achieves optimal recurrence control [1,8]. However, few controlled trials specifically compare surgical strategies among patients older than 70-80 years. One previous study even demonstrated that different pterygium surgeries did not significantly improve symptoms or quality of life in patients complicated with conjunctivochalasis [9]. Herein, we describe an elderly male farmer with bilateral double primary pterygia who received simultaneous bare-sclera excision with satisfactory postoperative outcomes.

Case Presentation

A 93-year-old male presented to our ophthalmic clinic with chief complaints of progressive, painless bilateral visual decline lasting five years. The patient had a long history of outdoor occupational labor without regular ultraviolet-protective eyewear. No prior ophthalmic medical records were available. There was no family history of pterygium. He denied ocular trauma, prior eye surgery, systemic hypertension, diabetes mellitus, or chronic medication use.

His best-corrected visual acuity (BCVA) was counting fingers at 30 cm (CF/30 cm) in the right eye (OD) and light perception (LP) in the left eye (OS). Slit-lamp examination of the right eye identified

a fleshy fibrovascular nasal pterygium extending 5.5 mm from the limbus onto the cornea. A smaller temporal pterygium extended 2.5 mm from the temporal limbus toward the visual axis (Fig. 1A1). The left eye exhibited more advanced lesions: the nasal pterygium extended 6.5 mm from the limbus, and the temporal pterygium extended 4.5 mm. The two pterygial heads converged centrally on the cornea and obscured the visual axis (Fig. 1A2). Bilateral age-related cataracts were also noted. The remaining anterior and posterior segment examinations were unremarkable.

After written informed consent was obtained, the patient underwent simultaneous bilateral pterygium excision under monitored local anesthesia; surgery was performed on the right eye first, followed immediately by the left eye.

For each lesion, standard bare-sclera excision was performed. The pterygial head was carefully dissected from the corneal epithelium using a crescent blade and toothed forceps. Fibrovascular tissue and subconjunctival Tenon's capsule were meticulously removed. Hemostasis was achieved without cautery. The corneal surface was gently polished with a scalpel blade. Conjunctival margins were trimmed and anchored to bare sclera using interrupted 10-0 nylon sutures. A bandage contact lens was placed at the end of surgery.

On postoperative day 1, the patient only reported bilateral ocular redness and foreign body sensation. BCVA improved to 20/200 OD and 20/400 OS (Fig. 1B1, Fig. 1B2).

The postoperative regimen included topical 0.5% moxifloxacin and 1% prednisolone acetate four times daily for four weeks, followed by gradual tapering. The three-month follow-up revealed no evidence of recurrence, infectious complications, or corneal thinning. The patient reported substantial subjective improvement in visual function.

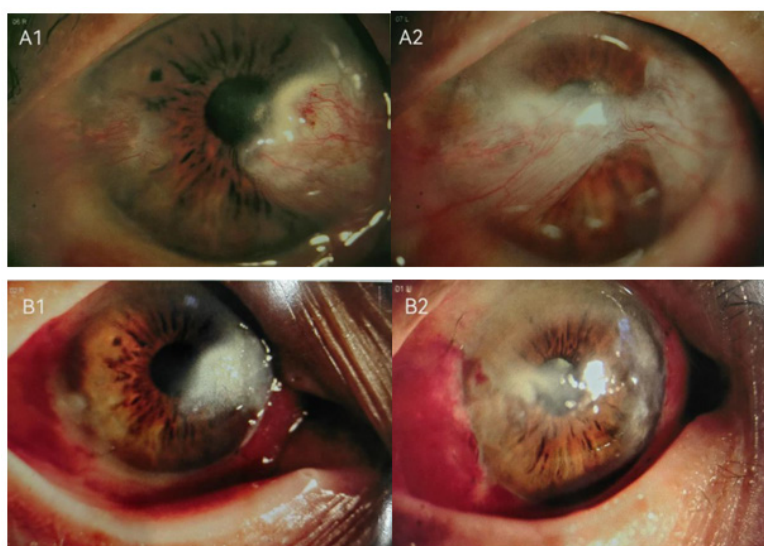


Figure 1: Comparison of anterior segment images of the pterygia before and after surgery. Preoperative images of the patient's right (A1) and left (A2) eyes. One-day postoperative images of the patient's right (B1) and left (B2) eyes.

Discussion

Pterygium is one of the most prevalent ocular surface disorders worldwide. Nevertheless, bilateral double primary pterygia remain extremely rare [5]. Our patient harbored both nasal and temporal pterygia bilaterally. This atypical phenotype indicates widespread conjunctival actinic damage and chronic inflammation, consistent with his lifelong unprotected outdoor labor.

Double pterygia likely share the same pathogenic triggers as conventional single pterygium but involve more extensive conjunctival tissue [3,4]. It is hypothesized that chronic intense UV radiation induces diffuse conjunctival elastotic degeneration and persistent inflammation in susceptible individuals, permitting multifocal fibrovascular proliferation [10-12]. This case demonstrates that pterygium may manifest as multifocal disease in certain patients, requiring individualized surgical planning.

Surgical management of double pterygia poses unique challenges. Excision combined with conjunctival autograft (CAG) is regarded as the gold standard for primary pterygium, with superior recurrence control compared with amniotic membrane transplantation or primary closure [1,2,13,14]. Vertical split conjunctival autograft has been successfully applied for double-head pterygium in previous reports [5]. In our patient, we performed simultaneous excision of nasal and temporal lesions without conjunctival autograft. This approach simplifies the surgical procedure, shortens operative time, and avoids graft-related complications such as overlapping graft tissue or secondary conjunctival defects.

Young age is an established risk factor for postoperative recurrence [14], which supported our decision to omit conjunctival autograft in this nonagenarian patient. Adjuvant therapies may further lower recurrence risk [15-17]. Prospective comparative studies are required to evaluate recurrence rates among elderly patients older than 70-80 years treated with different surgical approaches and adjuvant pharmacotherapy.

A staged surgical strategy, prioritizing resection of the larger vision-threatening pterygium first, represents an alternative option. However, with careful surgical planning and meticulous dissection, single-session resection of all lesions is clinically feasible and beneficial. This approach minimizes repeated hospital visits, reduces patient discomfort, shortens overall recovery, and lowers financial burden. The absence of recurrence at the 3-month follow-up indicates that bare-sclera excision provides a simple, effective therapeutic option for elderly patients. Longer surveillance remains mandatory, given that pterygium recurrence can develop months to years postoperatively.

Conclusion

Bilateral double primary pterygium is a rare clinical presentation. For elderly patients, single-session bilateral bare-sclera pterygium excision without conjunctival autograft is an effective treatment strategy. This technique allows simultaneous resection of multifocal lesions to improve visual function and cosmetic outcomes. Long-term follow-up is essential to monitor

disease recurrence. This case expands the existing literature and may guide management strategies for similar complex pterygium variants.

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Statement of Ethics

This study was performed in accordance with the Declaration of Helsinki. This study protocol was reviewed and the need for approval was waived by Taizhou Zhangqin Eye Hospital, Bright Eye Hospital Group. Written informed consent was obtained from the patient for publication of this case report and all accompanying anterior segment clinical photographs. The patient understood that the published materials would not contain any identifiable personal information, and all data and images have been de-identified to protect privacy.

Conflict of Interest Statement

None.

Funding Sources

None.

Author Contributions

Yun-Zheng Cui: Data curation, Investigation, Writing – original draft.

Gui-Yong Shi: Investigation, Writing – review & editing.

Qin Zhang: Investigation, Writing – review & editing.

Ji-Ping Cai: Conceptualization, Methodology, Supervision, Writing – review & editing.

All authors approved the final manuscript and agreed to be accountable for all aspects of the work.

Data Availability Statement

All data generated or analyzed during this study are included in this article and its supplementary material files. Further enquiries can be directed to the corresponding author.

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