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Case Report

Management of Painful Blind Eye with Bilateral Symblepharon: A Case Report

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Keywords

Case report · Eye disease · Symblepharon · Visual impairment

Abstract

Introduction: Symblepharon is a challenging condition characterized by a painful blind eye. The main goal of treatment is to alleviate discomfort and improve the patient's physical and mental well-being. ***Case Presentation:*** An Indonesian male, 38 years old, complained of vision loss and ocular pain in his right eye 1 month ago. The pain frequently manifests as a rapid, piercing, or scorching feeling that extends from the right eye to encompass the entire head. Both of his eyes exhibited symblepharon and xerophthalmia. At the age of 11, he experienced a previous occurrence of raised and blister-like skin lesions. Following his recovery, a gradual formation of membranes occurred, covering both of his eyes. His right eye had light perception for visual acuity, and the intraocular pressure was determined to be soft upon examination. The B-scan ultrasound revealed the presence of a long-term inflammatory or scarring process and a decrease in the length of the axis. The patient underwent surgery without experiencing any improvement. A psychological evaluation identified a headache caused by an eye condition, and we administered antipyretic, anticonvulsant, antidepressant, and multivitamin treatments. The patient saw a reduction in pain intensity from a level of 9 to 5 after undergoing treatment for a duration of 1 week. Patients who have previously undergone surgical treatment for symblepharon should have a comprehensive evaluation when they encounter symptoms of vision loss and ocular discomfort. ***Conclusion:*** The psychological factor is essential for the treatment's success. Treatment of the underlying cause is essential, and the patient must understand the irreversible loss of visual function. A management plan primarily aims to mitigate the adverse impact on the overall well-being and standard of living.

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Introduction

Symblepharon refers to the adhesion that occurs between the palpebral conjunctiva and bulbar conjunctiva. The condition is characterized by abnormalities in the tear film and tear meniscus, decreased number of conjunctival goblet cells, obstruction in eyelid movement, diplopia due to limited ocular motility, entropion, trichiasis, and lagophthalmos [1, 2]. The term "blind, painful eye" refers to a terminal condition where vision cannot be restored and the discomfort in the eye is not easily relieved [3]. Patients may present with blind, painful eyes as a result of a wide range of causes [4]. Patients suffering from blind, painful eyes may describe their discomfort as excruciating, throbbing, triggered by blinking, or photophobic. The primary goal of management is to reduce pain and ensure the patient's physical and mental comfort [3, 5]. This study aimed to describe an Indonesian male with bilateral symblepharon and blind, painful right eye. The CARE Checklist has been completed by the authors for this case report, attached as online supplementary material (for all online suppl. material, see https://doi.org/10.1159/000541251).

Presentation of Case

An Indonesian male, 38 years old, presented with a complaint of painful blind right eye for the past 3 months. The pain score, as measured by numeric rating scale (NRS), showed 10. This level of pain is often described as a rapid, piercing, and scorching sensation. Occasionally, it may be perceived as intense and abrupt akin to electric shock. The pain came from the right eye and extended into the head. In addition, he encounters tactile stimuli that would typically not elicit pain, yet he nevertheless perceives discomfort. However, he did not have pain in his left eye. The patient complained that both of his eyes were covered by membranes 27 years ago when he was a child. Previously, he had a medical record of papular and vesicular lesions on his skin when he was 11 years old. The lesion usually appears first on the chest, back, and face and subsequently extends to cover the entire body. Gradually, he experienced the sensation of membrane covering and adhering to both of his eyes. He had no history of past illness including hypertension, diabetes, or allergic reaction to drugs. There is no record of any eye ailment in the family's medical history. The patient's examination of systems was otherwise unremarkable, with no reported oral or nasal sores, trouble swallowing, or skin rashes. He has a previous medical record of eye surgery to correct the membrane in both eyes. The patient also refused to undergo surgery again.

During the ophthalmology examination, the visual acuity in the right eye was determined to be the ability to see light without being able to project it, while the visual acuity in the left eye was determined to be the ability to perceive hand movement. The intraocular pressure in the left eye is within the normal range, while the right eye feels soft when palpated. The slit lamp examination of the right eye showed conjunctival subepithelial fibrosis, a membrane covering the surface of the eye, shortening of the superior and inferior fornix, the presence of symblepharon in the central and lateral regions of the upper and lower fornix, and phthisis bulbi. Left eye had conjunctival subepithelial fibrosis, with a membrane covering ocular surface. There was also superior and inferior fornix foreshortening and symblepharon centrally and laterally in the upper lower fornix. The corneal examination revealed a notable positive reflex. Another anterior segment examination was difficult to evaluate (Fig. 1). The anterior portion exhibited xerophthalmia in both the right and left eyes, with a differential diagnosis of ocular cicatricial pemphigoid and postherpetic neuralgia.

The fundus reflex was absent during the evaluation of the posterior region. The B-scan ultrasound of the right eye revealed an echogenic lesion located in the vitreous, characterized

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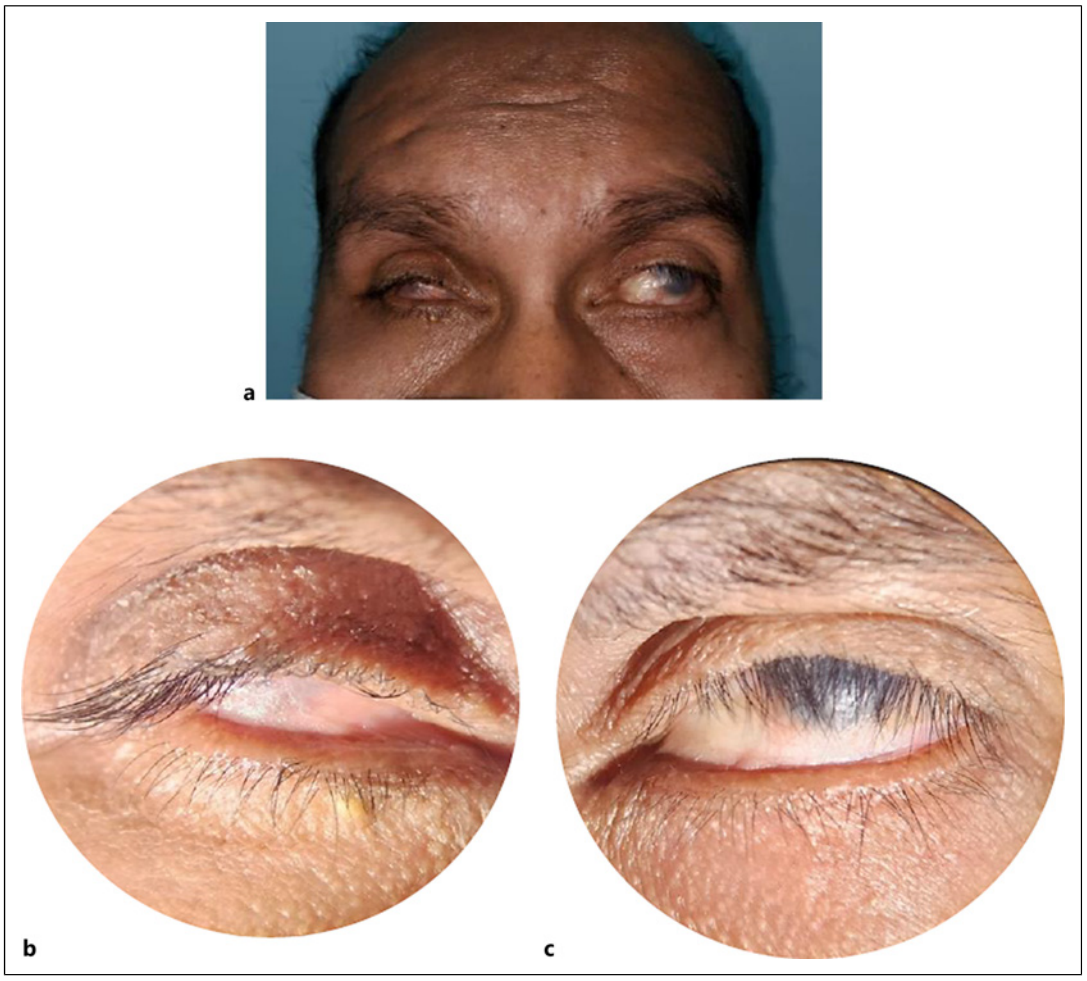

Fig. 1. Clinical features of anterior segment of both eyes showed xerophthalmia, conjunctival subepithelial fibrosis, membrane-covered ocular surface, superior and inferior fornix foreshortening (**a**) and symblepharon centrally and laterally in the upper lower fornix (**b**), and phthisis bulbi on right eye (**c**).

by particle and membranous shapes with a density of 60–90% retina, choroid, and sclera complex. The lesion showed minor mobility and is indicative of a persistent inflammatory or cicatricial process. The axial length was 22. The B-scan ultrasonography of the left eye revealed a vitreous that is echogenic and free, with the retina in its proper position and axial length of 24 (Fig. 2). The laboratory result was within normal limit. The immunology tests, including ANA, C3, and C4, showed normal results (Table 1). The results of the HIV test indicated a negative outcome; however, the IgG rubella and CMV tests showed positive results. Herpes simplex virus and varicella zoster immunoglobulin M/immunoglobulin G testing was not carried out because our country's health insurance system does not cover these tests. The B-scan ultrasonography can detect chronic inflammation or scarring.

During the neurologic examination, there were no signs of meningeal, good physiological reflex, no pathological reflex, good motoric and sensory examination. We diagnosed that the patient was experiencing a headache caused by disorder of the eye. We treated the patient with medication for headache, including paracetamol 400 mg, diazepam 1 mg, amitriptyline 25 mg twice a day, and vitamin B1 B6 B12 twice a day. A week after the patient consumed medication, he felt reduced pain from a score of 9 to 6. The headache was significantly reduced, but the eye pain still persisted.

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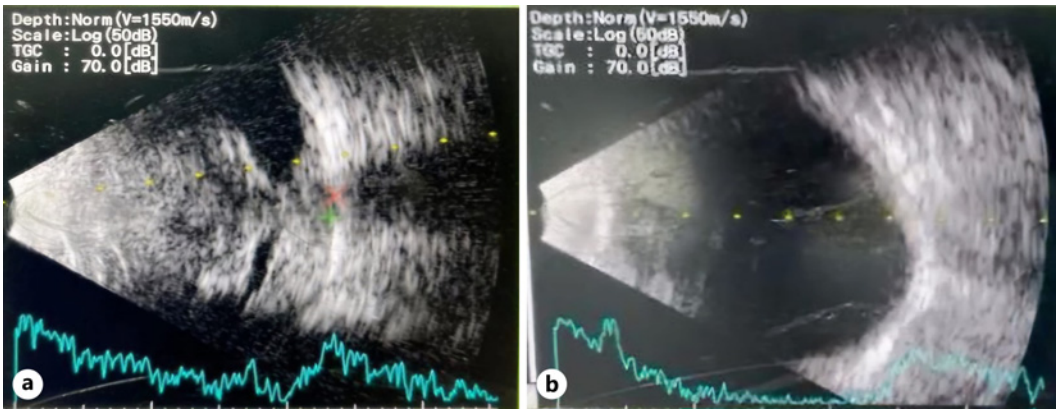

Fig. 2. B-scan ultrasound in the right eye showed an echogenic lesion at the level of the vitreous, particle and membranous shapes with a density of 60–90% RCS complex, mild mobility, presenting chronic inflammation process or cicatrix. **a** Axial length was 22. **b** Left-eye B-scan ultrasound showed vitreous echogenic free and retinal on place with axial length 24. RCS, retina, choroid, and sclera.

Discussion

Symblepharon is a pathologic overgrowth of conjunctival fibrovascular tissues associated with uncontrolled wound healing or inflammation. Although symblepharon development may not immediately endanger the eye, it can lead to significant ocular morbidity. Impaired eyesight due to inadequate moistening of the ocular surface is commonly observed in cases with symblepharon and fornix foreshortening. Vision impairment caused by physical obstruction (i.e., ankyloblepharon) or limited ocular motility leading to diplopia can be quite debilitating. Many patients with ocular surface disorders suffer from bilateral conjunctival scarring and its sequelae like ocular pain and vision loss. Unsurprisingly, vision loss can have a substantial negative impact on a patient's quality of life. Patients with bilateral vision loss have been shown to suffer from higher rates of anxiety and clinical depression. Consequently, ocular surface reconstruction via removal of conjunctival scarring and symblepharon can be a huge step forward in reestablishing the ocular surface and achieving a better quality of vision and life [6, 7].

No treatment is required if symblepharon does not carry the aforementioned pathogenic elements. However, patients with pathogenic symblepharon, as defined above, should be treated to avoid progressive and permanent damage that may result in chronic inflammation and potentially even limbal stem cell deficiency. The surgical procedure to correct symblepharon involves lysis of cicatrix followed by reconstruction with such a tissue substitute as conjunctiva, oral mucosa, or amniotic membrane (AM) to cover palpebral or bulbar conjunctival defects, or both. To prevent readhesion, the aforementioned methods can be supplemented with additional measures such as insertion of a conformer, symblepharon ring, or silicone sheet implant, or postoperative application of β-irradiation10 or mitomycin C [8]. Furthermore, studies have demonstrated that employing anchoring sutures to secure the released conjunctiva deep into the fornix can be beneficial for fornix reconstruction [9, 10].

In the early stages of management, adhesions can be prevented by freeing the fornix area with lubricant several times a day. The use of soft contact lenses can also help prevent adhesions [11]. Surgical procedures are performed in chronic cases, which can be in the form of symblepharectomy in mild cases or full-thickness conjunctival graft/flap, partial-thickness buccal mucous membrane graft, or AM graft in cases of severe symblepharon [12].

Table 1. Laboratory results

Laboratory testing	
Hematocrit, %	13.6
White blood count, $10^3/\mu L$	42.3
Platelet, $10^3/\mu L$	5.92
APTT, s	370,000
PPT, s	28.3
AST, U/L	12.9
ALT, U/L	33
Triglycerides	90 (H)
Total cholesterol	187 (H)
BUN	237 (H)
Creatinine serum, mg/dL	1.1
Random blood sugar, mmol/L	88
HbA1c, %	5.5
Na/K/Cl, mmol/L	147/4.4/112
ANA test	0.5
C3, mg/dL	132
C4, mg/dL	21
HBsAg	NR
Toxoplasma IgM/IgG	NR/NR
CMV IgM/IgG	NR/R
Rubella IgM/IgG	NR/R

APTT, activated partial thromboplastin time; PPT, plasma prothrombin time; AST, aspartate transaminase; ALT, alanine aminotransferase; BUN, blood urea nitrogen; HbA1c, hemoglobin A1c; Na, natrium/sodium; K, kalium; Cl, chlorine; ANA, antinuclear antibodies; HBsAg, hepatitis B surface antigen; IgM, immunoglobulin M; IgG, immunoglobulin G; CMV, cytomegalovirus; NR, nonreactive; R, reactive.

Conjunctival autograft is an ideal option, although it is not feasible in cases of bilateral symblepharon. If there is no conjunctiva or tarsus available, a full-thickness buccal mucous membrane graft is a simple and convenient option to consider. Partial-thickness buccal mucous membrane grafts have a higher tendency to contract compared to full-thickness grafts, making them less suited for fornix reconstruction. Hard palate grafts are characterized by their substantial thickness, and the occurrence of contractures is rare. However, the oral mucosa lacks goblet cells and thus cannot add to the tear film. The AM graft is a thin graft that resembles the conjunctiva. This graft will re-epithelialize the conjunctival cell population and prevent postoperative scarring. However, successful AM grafting requires a healthy conjunctiva to maintain the graft and adequate lacrimal function to keep the graft moist and prevent inflammation in the conjunctiva [12].

A painful blind eye may result from any disease that causes blindness or a phthisical (shrunken, scarred, and nonfunctioning) eye. Acute causes include chemical or physical trauma, and chronic conditions include corneal decompensation and advanced and intractable glaucoma, especially neovascular glaucoma. The eye contains specialized nerve terminals called nociceptors, which detect mechanical, thermal, irritating, and inflammatory stimuli. These nociceptors are part

of the trigeminal nerve and send signals to the brain when there is injury or damage to the eye tissues. These nerve terminals are part of the peripheral nervous system, whereas the brain and spinal cord form part of the central nervous system. The brain interprets the impulses as various degrees of discomfort, including pain, burning, or stinging, and the body response can include increased tearing, blinking, protective movements, and verbal expressions [3, 13].

There are two types of eye pain such as (1) physiological (normal) pain resulting from damage to eye tissues and (2) inflammation (e.g., from uveitis) that can lead to increased sensitization of the nociceptors, resulting in persistent pain that is magnified beyond the actual extent of tissue damage. Neuropathic pain arises from injury to the nociceptors or other components responsible for sensing, transmitting, and processing pain signals between the peripheral nervous system and the brain. This abnormal signaling response can cause sensations of discomfort and pain in response to nonpainful stimuli [14, 15].

The first line of noninvasive treatment typically consists of topical eye drops that may include lubricants, anti-inflammatory drugs (both steroidal and nonsteroidal), as well as immunomodulators. Eye drops containing atropine (a cycloplegic) are commonly used to reduce possible ciliary spasm. A combination of pressure-lowering, steroid, and cycloplegic drops used in the long term can help to reduce pain for patients with a painful blind eye resulting from neovascular glaucoma. Steroid drops, lubricants, and, in some cases, therapeutic contact lenses are useful for patients with corneal issues, for example, a painful blind eye after multiple failed corneal transplants. Retrobulbar injection of absolute (100%) alcohol to eliminate the sensory ciliary nerves has also been employed as pain management [15].

If the cause of the pain is a damaged or nonhealing corneal surface, invasive treatment procedures such as an AM graft or conjunctival advancement (Gunderson) flap will bring relief. Surgical correction and even implantation of electrode devices have been used for neuropathic ocular surface-related disorders. Evisceration, which involves the removal of the eyeball contents while leaving the sclera, the outer layer of the eyeball behind, and enucleation (complete removal of the eyeball), is the final alternative that can provide permanent relief [16].

In conclusion, understanding the causes of symblepharon is a crucial aspect in the treatment and control of this condition. When dealing with symblepharon cases involving painful and blind eyes that have already been operated on, it is important to take into account the psychological aspect. In order to alleviate the patient's discomfort and enhance their quality of life, it is crucial to explore psychological therapy approaches.

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Statement of Ethics

This study protocol was reviewed, and the need for approval was waived by the Ethical Committee Team in Dr. Soetomo General Academic Hospital, Surabaya, Indonesia. Written informed consent was obtained from the patients for publication of the details of their medical case and any accompanying images.

Conflict of Interest Statement

All authors declare that they have no conflict of interest.

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Author Contributions

Octarina Ervianti and Sutjipto collected data and critically revised the manuscript. Octarina Ervianti drafted the manuscript.

Data Availability Statement

The data that support the findings of this study are not publicly available due to privacy reasons but are available from the corresponding author upon reasonable request.

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