Embedded Episcleral Foreign Body Mimicking Nodular Anterior Scleritis

Zeynep Özbek*, Banu Lebe**, Mustafa Kayabaşı*, Ali Osman Saatci*

*Dokuz Eylul University Faculty of Medicine, Department of Ophthalmology, İzmir, Türkiye
**Dokuz Eylul University Faculty of Medicine, Department of Pathology, İzmir, Türkiye

Abstract

A 56-year-old man was referred to our clinic for unilateral nodular scleritis unresponsive to systemic corticosteroids. A localized, nodular hyperemia on the nasal bulbar conjunctiva surrounding a central cyst-like lesion together with vascular engorgement was observed on slit-lamp examination of the left eye. No abnormal fundoscopic findings were noted. Surgical exploration revealed an embedded episcleral brown colored, soft to touch, splinter-like organic foreign body (FB) which was confirmed by the histopathological examination. Nodular hyperemia resolved during the postoperative follow-up period, and mild scar tissue accompanied by scleral thinning developed in the left nasal bulbar conjunctiva. Ocular injury associated with FBs may cause significant ocular morbidity depending on the nature and location of the FB. Severe visual disability may occur if left untreated. Subconjunctival FBs are rare and may present with a clinical picture mimicking episcleritis or scleritis. History of trauma involving a FB should always be assessed for an accurate differential diagnosis and appropriate management of patients with anterior scleritis.

Keywords: Foreign body, nodular scleritis, ocular trauma

Introduction

Ocular injury involving a foreign body (FB) may impose significant ocular morbidity and visual disability depending on the extent of the injury as well as the nature and location of the FB.[1] A superficial FB in the conjunctiva or cornea can be easily detected and removed, and thus may not cause much harm if treated appropriately without delay.[2] Subconjunctival FBs are relatively rare, commonly missed, and may present as FB granuloma.[3] Even if they are visible, their extent in deeper tissue is difficult to assess.[4]

Scleritis is an inflammatory condition usually associated with systemic immunological disorders.[5] Anterior scleritis may be diffuse or nodular and is characterized by pain and hyperemia. Nodular scleritis is the second most common clinical presentation of anterior scleritis, accounting for approximately 20% of cases.[6] The differential diagnosis of anterior scleritis includes episcleritis and severe microbial conjunctivitis. Rarely, FB-induced episcleral granulomas can mimic nodular anterior scleritis.[7]

We hereby report a patient who was referred for nodular anterior scleritis unresponsive to systemic corticosteroids for 2 months who was found to have an embedded episcleral organic FB.

Case Report

A 56-year-old male agricultural worker was referred for unilateral nodular scleritis unresponsive to systemic corticosteroids. He was suffering from pain and hyperemia in his left eye for nearly 2 months. His history did not reveal any trauma or systemic disease. Systemic workup done before referral was unremarkable.

Best corrected visual acuity was 20/20 in both eyes on Snellen chart. There was localized nodular hyperemia on the nasal bulbar conjunctiva surrounding a central cyst-like lesion and moderate vascular engorgement in the left eye (Figure 1). The rest of the slit-lamp examination was unremarkable for both eyes. No suppuration or necrosis was noted. Conjunctival

Cite this article as: Özbek Z, Lebe B, Kayabaşı M, Saatci AO. Embedded Episcleral Foreign Body Mimicking Nodular Anterior Scleritis. Turk J Ophthalmol 2024;54:46-48

Address for Correspondence: Mustafa Kayabaşı, Dokuz Eylul University Faculty of Medicine, Department of Ophthalmology, İzmir, Türkiye
E-mail: mkayabasi94@gmail.com **ORCID-ID:** orcid.org/0000-0003-2059-0696
Received: 10.07.2023 **Accepted:** 18.11.2023

DOI: 10.4274/tjo.galenos.2023.37460

hyperemia did not resolve following the instillation of 2.5% topical phenylephrine (Mydfrin®, Alcon, Geneva, Switzerland). Intraocular pressures were 12 mmHg in the right and 13 mmHg in the left eye. Fundoscopy revealed no abnormal findings.

The patient was already receiving 15 mg/day systemic steroids (Deltacortril®, Pfizer, New York, United States). Topical moxifloxacin (Vigamox®, Novartis, Basel, Switzerland) 5 times a day and dexamethasone (Maxidex®, Alcon, Geneva, Switzerland) twice a day were added. Systemic work-up to rule out any systemic infectious or inflammatory background was negative. Since there was no response to topical and systemic therapy after 10 days, surgical examination and exploration of the inflamed area under local anesthesia was planned. The bulbar conjunctiva adjacent to the lesion was cut with Westcott scissors and carefully undermined. A brown colored, soft to touch, splinter-like FB (most likely organic in nature) was embedded in the episcleral tissue. An excisional biopsy of the conjunctiva and episclera involving the whole lesion was performed. The defect was covered with a conjunctival autograft. The patient was given ofloxacin (Exocin®, Allergan, Dublin, Ireland) and loteprednol (Lotemax®, Bausch & Lomb, Laval, Canada) 3 times a day postoperatively. Systemic corticosteroid treatment was tapered rapidly.

Histopathological examination confirmed the presence of a brownish organic FB and revealed some degree of surrounding lymphohistiocytic infiltrate with giant cells (Figure 2).

The patient was seen at 1 week, 1 month, 3 months, and 6 months postoperatively. Topical loteprednol was tapered gradually and switched to topical cyclosporine 0.05% (Restasis®, AbbVie, North Chicago, United States). Best corrected visual acuity was 20/20 and slit-lamp exam revealed no recurrent inflammation at the excision site during 6 months of follow-up. Full ophthalmological examination revealed no abnormal findings except for mild scar tissue at the nasal bulbar conjunctiva and mild scleral thinning in the left eye (Figure 3).

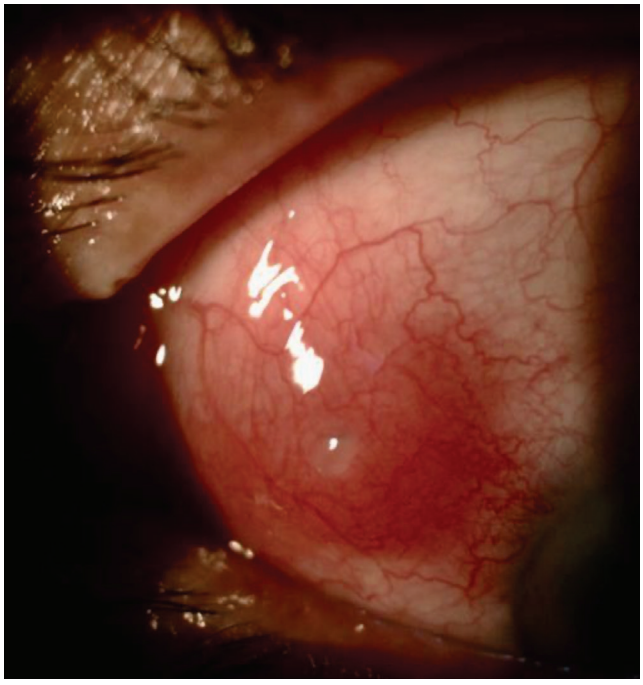

Figure 1. A focal nodular anterior scleritis-like appearance was observed on slit-lamp examination of the left eye at the first visit

Discussion

Intraocular FBs may present with various clinical manifestations and affect both the anterior and posterior segments of the eye.[1,8] Young male workers are the most frequently affected patient group due to work accidents.[8]

Detection of intrascleral/episcleral FBs may not be easy on slit-lamp examination due to the presence of a small penetrating wound covered by a large subconjunctival hemorrhage accompanied by minimal or no signs of inflammation.[1] However, underlying inflammation may ensue and the patients may present with a clinical picture resembling scleritis, as in our case.

FB granuloma formation on the episcleral/scleral surface is rare. A scleritis-like clinical presentation of FBs has been previously reported in the literature. Khoo et al.[7] reported a 45-year-old female who developed a suture-related granulomatous reaction related to a previous strabismus surgery and presented with a clinical manifestation of scleritis. Kapoor et al.[9] also published a 36-year-old male who presented with a scleritis-like clinical presentation after a motorcycle accident. Topical and systemic corticosteroid and antibiotic treatments were not able to control inflammation; therefore, surgical intervention and FB removal were necessary in both of these cases. An intraorbital wooden FB was detected in the second case. Coelho et al.[10] also reported a 76-year-old male who underwent nasal pterygium surgery and subsequently developed focal necrotizing scleritis secondary to FB entrapment under the conjunctival autograft. They treated the patient with FB removal and a conjunctival graft. Focal scleral melting continued to progress, and the patient was placed under

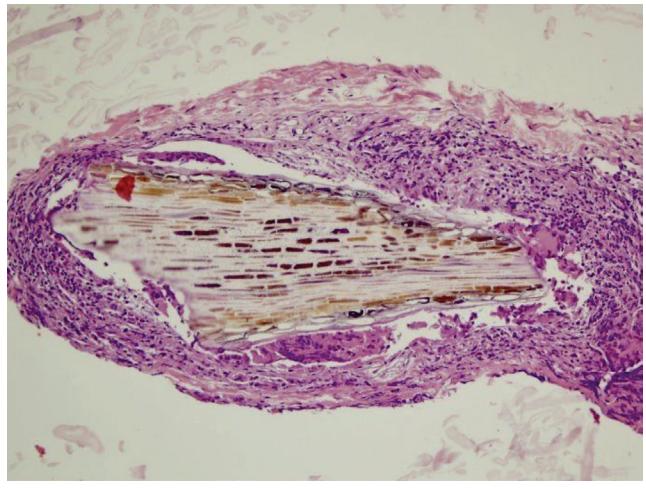

Figure 2. Histopathological examination of the episcleral biopsy revealed organic material (wood) surrounded by lymphohistiocytic infiltration and foreign body giant cells (original magnification x20, hematoxylin & eosin staining)

systemic corticosteroid therapy together with an amniotic membrane graft surgery. Sen et al.[11] reported a 5-year-old girl who was misdiagnosed as relapsing conjunctivitis for 1 year. During examination performed under general anesthesia, a 1.5 cm-long grass inflorescence located beneath the conjunctiva was discovered and successfully extracted.

FBs may be classified as metallic and non-metallic.[12] They both possess various risks if left untreated. Iron-containing metallic FBs have been associated with ocular siderosis, while the organic subgroup of non-metallic FBs can incite acute inflammation that is likely to become chronic with serious consequences.[13,14] Moreover, these organic materials encourage the growth of various microbes and can lead to severe infectious complications such as orbital cellulitis, periorbital abscess, central nervous system extension, endophthalmitis/panophthalmitis, orbitocutaneous fistula, granuloma formation, and injury to the optic nerve and extraocular muscles if left untreated.[15]

Episcleritis, which refers to inflammation of the superficial episcleral tissues and blood vessels, is the primary condition that needs to be differentiated from scleritis. When 2.5% topical phenylephrine is administered to the affected eye, superficial blood vessels will constrict and exhibit blanching in episcleritis, but deep hyperemia remains unaffected in scleritis.[16] Upon diagnosing scleritis, a comprehensive evaluation for potential infectious and immunological factors should precede the commencement of treatment. Furthermore, as exemplified by the present case, it is important to consider the potential presence of an FB.

Whenever the diagnosis of anterior scleritis is presumed, the presence of an FB should always be ruled out for an accurate differential diagnosis and appropriate management. Surgical exploration might be necessary in addition to careful history-taking and clinical examination to detect scleral/episcleral FBs in particular.

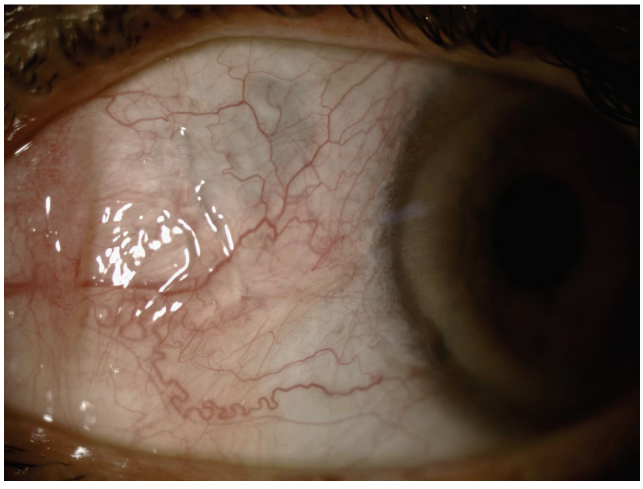

Figure 3. Slit-lamp examination of the left eye at the last visit showed mild conjunctival scar tissue with underlying scleral thinning

Ethics

Informed Consent: Obtained.

Authorship Contributions

Surgical and Medical Practices: Z.Ö., B.L., Concept: Z.Ö., M.K., A.O.S., Design: Z.Ö., A.O.S., Data Collection or Processing: M.K., Analysis or Interpretation: Z.Ö., B.L., Literature Search: M.K., Writing: Z.Ö., M.K.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

References

1. Shitole SC, Barot RK, Shah R, Bhagat N. A Rare Presentation of Two Cases of Metallic Intrascleral Foreign Body Entry through Upper Eyelid. J Clin Diagn Res. 2016;10:8-10.
2. Park YM, Jeon HS, Yu HS, Lee JS. A subconjunctival foreign body confused with uveal prolapse. Indian J Ophthalmol. 2014;62:730-731.
3. Jaja Z, Laghmari M, Daoudi R. Scleral granuloma revealing intraocular foreign body. QJM. 2015;108:251-252.
4. Suman S, Kumar A, Rathod HU. Subconjunctival foreign body with suspected scleral penetration. Trauma Case Rep. 2022;38:100613.
5. Galor A, Thorne JE. Scleritis and peripheral ulcerative keratitis. Rheum Dis Clin North Am. 2007;33:835-854.
6. Jabs DA, Mudun A, Dunn JP, Marsh MJ. Episcleritis and scleritis: clinical features and treatment results. Am J Ophthalmol. 2000;130:469-476.
7. Khoo LW, Srinivasan S, Roberts F. Foreign body episcleral suture granulomas mimicking nodular anterior scleritis. BMJ Case Rep. 2020;13:e237661.
8. Lit ES, Young LH. Anterior and posterior segment intraocular foreign bodies. Int Ophthalmol Clin. 2002;42:107-120.
9. Kapoor AG, Vijitha VS, Fernandes M. Retained intraorbital wooden foreign body presenting with combined anterior and posterior scleritis. BMJ Case Rep. 2020;13:e232237.
10. Coelho P, Menezes C, Rodrigues P, Gonçalves R, Maio T, Moreira J, Tenedório P. When an Easy Thing Goes Wrong: Foreign Body Induced Granuloma-Associated Scleritis Following Pterygium Surgery. Case Rep Ophthalmol. 2017;8:195-199.
11. Sen E, Elgin U, Koç F, Oztürk F. A 1.5 cm-long unknown subconjunctival grass inflorescence misdiagnosed as relapsing conjunctivitis for one year. Turk J Pediatr. 2011;53:699-701.
12. De Juan E Jr, Sternberg P Jr, Michels RG. Penetrating ocular injuries. Types of injuries and visual results. Ophthalmology. 1983;90:1318-1322.
13. Fineman MS, Sharma S, Shah GK, Brown GC, Eagle RC Jr. Ultrasound biomicroscopic diagnosis of an occult intrascleral foreign body: an unusual case of ocular siderosis. Retina. 2001;21:265-267.
14. Liu D. Common denominators in retained orbital wooden foreign body. Ophthalmic Plast Reconstr Surg. 2010;26:454-458.
15. Tite DJ, Batstone MD, Lynham AJ, Monsour FN, Chapman PJ. Penetrating orbital injury with wooden foreign body initially diagnosed as an orbital floor blowout fracture. ANZ J Surg. 2002;72:529-530.
16. Daniel Diaz J, Sobol EK, Gritz DC. Treatment and management of scleral disorders. Surv Ophthalmol. 2016;61:702-717.