Long-Term Retention of Organic Foreign Body in the Anterior Chamber: Case Report

Organik Yabancı Cismin Ön Kamarada Uzun Süreli Retansiyonu

Didem SERİN, MD, Assoc.Prof.,[a]
Şahap KÜKNER, MD, Prof.,[a]
Çetin BORAN, MD, Assoc.Prof.,[b]
Erkan TIRAK, MD[a]

Departments of
[a]Ophthalmology,
[b]Pathology,
Abant İzzet Baysal University
Faculty of Medicine, Bolu

Geliş Tarihi/*Received:* 02.10.2009
Kabul Tarihi/*Accepted:* 07.12.2009

Yazışma Adresi/*Correspondence:*
Didem SERİN, MD, Assoc.Prof.
Abant Izzet Baysal University
Faculty of Medicine,
Department of Ophthalmology,
Bolu,
TÜRKİYE/TURKEY
d_serin@yahoo.com

ABSTRACT We aim to present a patient with a well-tolerated piece of organic matter in his anterior chamber following an old, undetected corneal perforation. The patient was a 65-year-old man with a splinter in the anterior chamber noted during examination for a senile cataract. A branch had struck his left eye around the age of 40. There was no inflammation and the foreign body was tolerated for 25 years without any damage to the ocular structures. The foreign body was removed during cataract surgery and examined histopathologically. No complications were observed. The decision to remove a foreign body depends on its potential for subsequent complications. Even though an organic foreign body may remain silent for years in the anterior chamber, its potential for devastating complications should be kept in mind and each patient should be considered on an individual basis.

Key Words: Wounds and injuries; eye foreign bodies; case management

ÖZET Uzun süre önce meydana gelmiş ve farkedilmemiş korneal perforasyonu takiben ön kamarada iyi tolere edilmiş organik madde parçası taşıyan bir hastayı sunmayı amaçlamaktayız. Altmış beş yaşında erkek hastanın senil katarakt nedeniyle yapılan muayenesi sırasında ön kamarada bir kıymık dikkati çekti. Kırk yaş civarında sol gözüne bir ağaç parçası vurmuştu. Hiçbir inflamasyon bulgusu yoktu ve yabancı cisim 25 yıldır oküler yapılara zarar vermeden tolere edilmişti. Yabancı cisim katarakt ameliyatı sırasında çıkarıldı ve histopatolojik olarak incelendi. Hiçbir komplikasyon gözlenmedi. Bir yabancı cismi çıkarma kararı, sonra gelişebilecek potansiyel komplikasyon riskine bağlıdır. Organik bir yabancı cismin ön kamarada yıllarca sessiz kalabilmesine rağmen, yıkıcı komplikasyonlara yol açabilme potansiyeli akılda tutulmalıdır ve her hasta bireysel olarak düşünülmelidir.

Anahtar Kelimeler: Yaralar ve yaralanmalar; gözde yabancı cisimler; vaka yönetimi

Turkiye Klinikleri J Med Sci 2012;32(2):507-10

Intraocular foreign bodies (IOFB) account for 17-41% of penetrating ocular injuries and foreign bodies in the anterior chamber make up only about 15% of all IOFBs.[1,2] Around 15% of all IOFBs are non-metallic.[3] The reaction of the eye to retained organic foreign bodies in the anterior chamber has been reported to be unpredictable, varying from complete absence to a wide range of reactions, including endothelial decompensation, hyphema, chronic inflammation, cataract, and endophthalmitis.[2,4-10] The decision to remove an IOFB depends on its potential for subsequent complications. We report a patient with a previously unde-

doi: 10.5336/medsci.2009-15625

tected and well-tolerated piece of wood in his anterior chamber following an old undetected corneal perforation.

CASE REPORT

A 65-year-old man presented with a one-year history of blurred vision in his left eye. A branch had struck his left eye around the age of 40. He reported that he received no treatment and he had remained asymptomatic for 25 years. Best corrected visual acuity was 2/10 and intraocular pressure was 10 mmHg in the left eye. Biomicroscopic examination revealed a clear cornea except for a hardly perceptible paracentral scar corresponding to the possible entry site. There were no cells or flare, and the pupillary margin was regular with no posterior synechiae. An immobile, 2-mm foreign body was observed on the anterior surface of the iris at the 10 o'clock position (Figure 1) and it appeared as a highly reflective body on B-scan ultrasonography (Figure 2). Lens capsule was intact and a nuclear cataract was present. Fundoscopy in both eyes and ophthalmological findings in the right eye were unremarkable. After injection of viscoelastic substance through a superonasal incision, an intraocular forceps was used to free the partially embedded foreign body from the iris stroma and to remove it from the anterior chamber (Figure 3). The patient underwent routine phacoemulsification with placement of an intraocular lens. On pathological

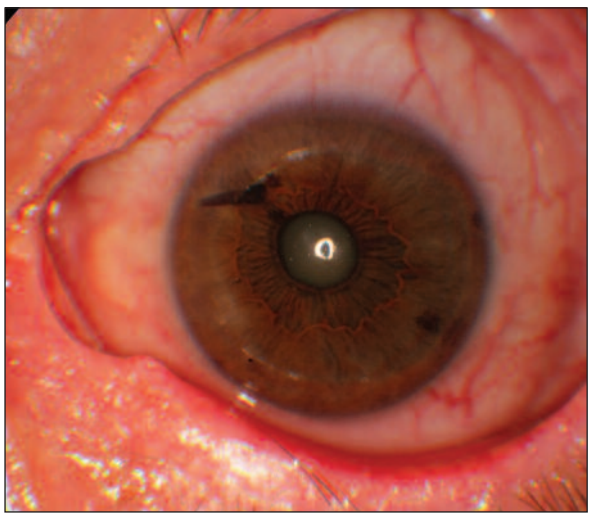

FIGURE 1: Picture showing the splinter in the anterior chamber.
(See for colored form http://tipbilimleri.turkiyeklinikleri.com/)

FIGURE 2: B-scan ultrasonography shows the highly reflective foreign body anterior to the lens (in a location corresponding to the anterior surface of the iris).

FIGURE 3: The 2-mm foreign body after it was removed from the anterior chamber.

sections, the foreign body had a pigmented surface and a fibered body containing cellular nuclei, consistent with a piece of organic matter. It was observed that the cells in the outermost part of the foreign body were loaded with a brown pigment which was observed in some of the fibers in the central part of the foreign body as well (Figure 4). Higher magnification revealed that fibers which contained pigment were identical to the other fibers that did not contain any, and nuclei were present in rows in the fibroid structures, suggesting that the pigment had somehow diffused into the cells (Figure 5). On histochemical analysis, the pigment stained negatively with Prussian iron stain, whereas positively with Fontana-Masson, which

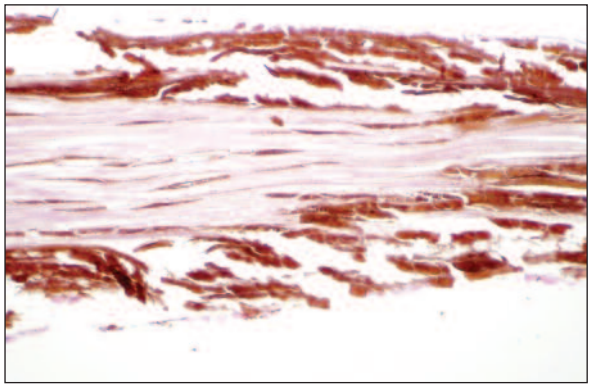

FIGURE 4: Histopathology reveals the foreign body has a pigmented surface and a fibered body, consistent with a piece of organic matter (hematoxylin and eosin, magnification x200).
(See for colored form http://tipbilimleri.turkiyeklinikleri.com/)

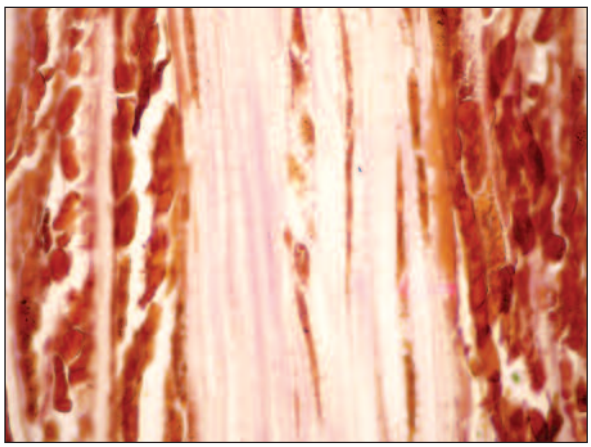

FIGURE 5: Higher magnification displays that fibers containing pigment are identical to the other fibers that do not contain any, and nuclei are present in rows in the fibroid structures, suggesting that the pigment has somehow diffused into the cells (hematoxylin and eosin, magnification x400).
(See for colored form http://tipbilimleri.turkiyeklinikleri.com/)

pointed to the presence of melanin in the cells. The rectangular shape of the cells, most prominent in the pigmented outermost part of the body, was consistent with vegetative cell structure (Figure 6). The postoperative period was uneventful and the patient reached full unaided visual acuity after one month. The patient gave informed consent to data accumulation.

DISCUSSION

Organic foreign bodies in the anterior chamber may generate a wide range of reactions, including endothelial decompensation, hyphema, chronic inflammation, iris cyst formation, cataract and endophthalmitis. However, some reports in the literature describe eyes remaining quiet for years with retained organic foreign bodies in the anterior chamber.[2,4-10]

The decision to remove a foreign body depends on its potential for subsequent complications, which in turn is determined by factors such as the foreign body's location, mobility, composition, and concurrent introduction of microorganisms. The site at which a foreign body comes to rest in the eye is determined by its velocity and the point of entry. Non-metallic foreign bodies usually have a lower velocity than the metallic ones, and tend to remain in the anterior chamber. The easy access to the foreign body in our patient minimized harm from intraocular surgery and the risk of inadvertent damage to intraocular structures was low. In addition, partial entrapment of the splinter by the iris prevented such a rough surfaced foreign body from moving freely and damaging the endothelium, the iris and the lens. Vegetative matter has the potential for introducing microorganisms into the eye; however, there is debate on whether the composition of the foreign body is related to development of endophthalmitis. While Jonas et al. found an association between wooden foreign bodies and endophthalmitis, Thompson et al. and Chaudhry et al., in larger series, found that eyes with wooden foreign

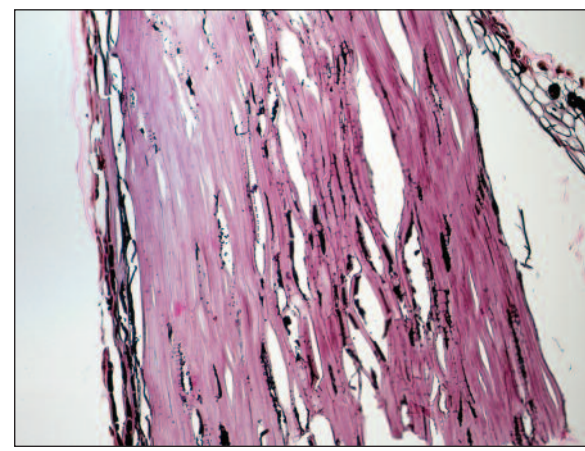

FIGURE 6: Histochemical analysis suggests the presence of melanin which stains positively with Fontana-Masson. The rectangular shape of the cells, most prominent in the pigmented outermost part, is consistent with vegetative cell structure (Fontana-Masson stain, magnification x200).
(See for colored form http://tipbilimleri.turkiyeklinikleri.com/)

bodies did not appear to be at increased risk of infection compared to eyes with metallic foreign bodies.[11-13] Some authors therefore prefer observation, whereas some advocate surgery, even in silent eyes, to lessen the risk of potential complications.[8] However, each patient with an intracameral foreign body should be considered on an individual basis. Our patient was not aware of either the perforation that had occurred 25 years before or the presence of the splinter in his anterior chamber. He tolerated vegetative matter for 25 years without any damage to the ocular structures. The presence of the foreign body was discovered coincidentally and it was removed at the same time as the cataract surgery.

Even though a wooden splinter may be well tolerated for years in the anterior chamber of the eye, which is an immune privileged organ, it may be advisable to remove it when detected because of the likelihood of delayed reactions. However, if removal of the foreign body carries risk of damage to other ocular structures, it may be allowed to remain in the eye. Close follow-up with special care to watch for endothelial cell damage is necessary and surgery is indicated in the presence of any inflammation.

REFERENCES

1. Gaudio AR. Intraocular foreign bodies. In: Albert DM, Jakobiec FA, eds. Principles and Practice of Ophthalmology. 2nd ed. Philadelphia: WB Saunders Company; 2000. p.2514-30.
2. Bhaduri G, Ghosh A. Vegetative intraocular foreign body of 25 years' duration. Indian J Ophthalmol 2003;51(2):184-5.
3. Greven CM, Engelbrecht NE, Slusher MM, Nagy SS. Intraocular foreign bodies: management, prognostic factors, and visual outcomes. Ophthalmology 2000;107(3): 608 12.
4. Yuen HK, Lam RF, Kwong YY, Rao SK, Lam BN, Lam DS. Retained presumed intraocular cotton fiber after cataract operation: long-term follow-up with in vivo confocal microscopy. J Cataract Refract Surg.2005;31(8):1582-7.
5. Islam N, Dabbagh A. Inert intraocular eyelash foreign body following phacoemulsification cataract surgery. Acta Ophthalmol Scand 2006;84(3):432-4.
6. Galloway GD, Ang GS, Shenoy R, Beigi B. Retained anterior chamber cilium causing endophthalmitis after phacoemulsification. J Cataract Refract Surg 2004;30(2):521-2.
7. Dahlan F, Milam DF Jr, Bunt-Milam AH. Long-term corneal retention of a plant foreign body. Cornea 1989;8(1):72-4.
8. Kargi SH, Oz O, Erdinc E, Teke MY, Firat E. Tolerated cilium in the anterior chamber. Ocul Immunol Inflamm 2003;11(1):73-8.
9. Gopal L, Banker AS, Sharma T, Parikh S, Bhende PS, Chopra S. Intraocular cilia associated with perforating injury. Indian J Ophthalmol 2000;48(1):33-6.
10. İmamoğlu Hİ, Türk A, Erdöl H, Akyol N. [An unusual corneal trauma: bee sting]. Turkiye Klinikleri J Ophthalmol 2008;17(4):282-5.
11. Jonas JB, Knorr HL, Budde WM. Prognostic factors in ocular injuries caused by intraocular or retrobulbar foreign bodies. Ophthalmology 2000;107(5):823-8.
12. Thompson JT, Parver LM, Enger CL, Mieler WF, Liggett PE. Infectious endophthalmitis after penetrating injuries with retained intraocular foreign bodies. National Eye Trauma System. Ophthalmology 1993;100(10):1468-74.
13. Chaudhry IA, Shamsi FA, Al-Harthi E, Al-Theeb A, Elzaridi E, Riley FC. Incidence and visual outcome of endophthalmitis associated with intraocular foreign bodies. Graefes Arch Clin Exp Ophthalmol 2008;246(2):181-6.