

Case report

Recurrent iridocyclitis due to cotton fiber in anterior chamber

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Abstract

Background: Cotton is commonly used during ophthalmic surgical procedure. Cotton fibers may get attracted to the instruments due to electrostatic forces and become adhered to the surface. With the introduction of these instruments during the surgical procedure cotton fiber may get entry into the eye. In the literature they have been infrequently reported due to insignificant effect on the ocular structures. We present a case of recurrent iridocyclitis due to cotton fiber in the anterior chamber. Patient was relieved of his symptoms after removal. **Case:** A 78-year-old male presented with pain, redness and blurring of right eye vision since last six months. The patient had undergone phacoemulsification with implantation of hydrophilic intraocular lens (IOL) six years earlier. Postoperative follow up was uneventful from his records till last 6 months. Slit-lamp examination revealed a cotton fiber in the anterior chamber touching the endothelium. Keratic precipitates were seen on the endothelium. Removal of the cotton fiber resulted in subsidence of inflammation. **Conclusion:** We recommend use of plastic eye and trolley drapes, lint free instrument wipes and use of needle cap to support the globe during creation of side port while performing phacoemulsification instead of cotton buds to avoid entry of cotton fiber into the anterior chamber.

Keywords: Cotton fiber in anterior chamber, recurrent iridocyclitis

Introduction

Cotton is commonly used during ophthalmic surgical procedure in making cotton tipped applicators, drapes and gauze. Cotton gauze is kept separately in petridishes. However, they are autoclaved with routine operating instruments. Cotton fibers may get attracted to the instruments due to electrostatic forces and become adhered to the surface. With the introduction of these instruments during the surgical procedure cotton fiber may get entry into the eye. The cotton fibers moves with the current of the fluid and become adherent to the surface of iris, settle down on the surface

of IOL, trapped between posterior capsule and IOL or sometimes seen at side port. Studies have shown presence of foreign material on the surface of instruments used during the cataract surgeries (Dinakaran et al, 2002). Brockhurst (1954) first reported cotton fibrils in the anterior chamber after cataract surgery. Long-term follow-up by Yuen et al. showed no evidence of endophthalmitis, iridocyclitis and corneal endothelial loss by retained cotton fibrils in the anterior chamber (Yuen et al, 2005). Cotton fibers are seen adhered to the corneal side port, anterior surface of the pupillary edge, and between the posterior capsule and IOL (Shimada et al, 2008). Cotton fibers are not readily seen under diffuse illumination of the microscope, but are detected during postoperative follow-up on slit lamp examination.

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Here, we report a case of recurrent iridocyclitis due to cotton fiber in the anterior chamber, six years after operation for cataract. The patient was relieved of signs and symptoms of iridocyclitis after the removal of cotton fiber. Therefore, patients with cotton fiber in the ocular structures should be kept under supervision as cotton fiber can give rise to reaction years after cataract surgery.

Case report

A 78-year-old male had an uneventful cataract surgery with implantation of hydrophilic IOL in right eye six years earlier. Postoperative follow-up was uneventful from his previous records. The patient presented with pain, redness, watering and blurring of vision in the right eye since last six months. Clinical examination revealed visual acuity of his right eye 20/80, and left eye 20/200. Slit lamp examination of right eye showed mild ciliary congestion. A cotton fiber was seen on the mid peripheral part of the iris, extending to the corneal endothelium. The fiber was pigmented at places (Figure 1A). The corneal endothelium showed fine keratic precipitates (Figure 1B). Corneal edema was absent. Grade-2 cells and flare was seen in the anterior chamber. The iris color and pattern was normal. The intraocular lens was placed in the capsular bag and did not show any pigments on its surface. The left eye had immature senile cataract.

Fundus examination by indirect ophthalmoscopy showed clear media with normal appearing optic disc. The macula was showing pigmented areas, and the fovea was dull. Retinal examination of left eye was normal. Intraocular pressure of both eyes by applanation tonometer was normal.

The patient was prescribed prednisolone acetate 1% eye drop four times a day and homatropine 2% eye drop thrice a day for a week in his right eye.

In view of the recurrent attacks of iridocyclitis, a decision was taken for the removal of cotton

fiber under topical anesthesia. A proparacain hydrochloride 0.5% eye drop

(Paracain, Sunways Pvt Ltd, Mumbai, India) was instilled thrice at an interval of five minutes. A 2.2 mm clear corneal incision was created temporally. Sodium hyaluronate 1.4% (Cohevisc, Appasamy ocular devices, Puducherry, India) was injected to form the anterior chamber. Intraocular lens holding forceps was used to pick up the cotton fiber. The fiber was lifted from the surface of iris and holding one end with the forceps and gently removing from the anterior chamber facilitated removal. Viscoelastic was removed from the anterior chamber. Stromal hydration of main incision was performed. The fiber was subjected to light microscopic observation. The fiber resembled identical to the cotton fibers in cotton swabs and gauze.

Postoperatively, the patient was treated with a schedule of moxifloxacin 0.3% and prednisolone acetate 1% eye drop four times a day for a week. The patient did not develop any sign of iridocyclitis, and the visual acuity was 20/80 at six months follow up.



Figure 1A: Cotton fiber in anterior chamber (Yellow arrow)



Figure 1B: Keratic precipitates (Red arrow)

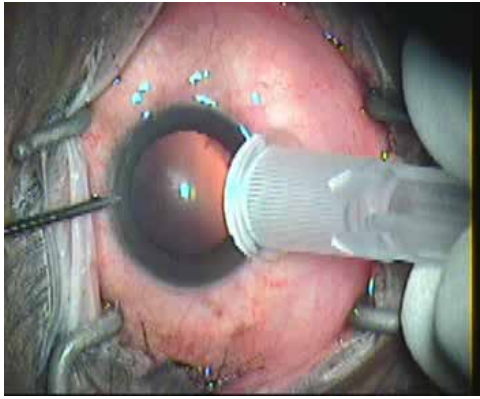


Figure 2: Needle cap used to stabilize the globe instead of cotton tipped applicator

Discussion

A cotton fiber is an organic foreign material reported infrequently due to its insignificant effects on the ocular structures (Brockhurst et al, 1954). Cotton fibers are sometimes difficult to detect intraoperatively under the operating microscope due to corneal edema, glare from pooling of irrigating solutions, and the suboptimal contrast provided by the diffuse illumination beam of the surgical microscope (Yuen et al, 2005). Shimada (2008) in a prospective analysis of 422 eyes, have found out the frequency of detecting cotton fibers in the anterior chamber during cataract surgery was 6.4%. They found out cotton fibers adhered to the corneal side port in 5 eyes, the anterior surface of the pupillary edge in 1 eye and between the posterior capsule and IOL in 1 eye. The 7 eyes were followed regularly for up to 1 year, and no inflammatory changes were observed in the anterior chamber. Yuen (2005), studied a series of 19 patients with retained cotton fiber in the ocular structures with a follow-up of over 40 months, but did not find any toxic effects on the corneal endothelium, uveitis, cystoid macular edema and endophthalmitis.

Experimental study on rabbit eye also showed that cotton fiber produces minimal inflammation in the form of scanty mononuclear cells (Peiffer et al, 1983).

Our case had signs of iridocyclitis six years after cataract surgery. To our knowledge, this is the longest period after surgical procedure that inflammation in the form of iridocyclitis is reported. Brown reported a case of corneal edema secondary to an entrapped cotton fiber four decades after intracapsular cataract extraction (Brown et al, 1968). Yuen (2005), evaluated cases with cotton fibers entrapped in the surgical wound using confocal and specular microscopy. No keratocyte activation or serial corneal endothelial cell loss was noted. Therefore, it appears that these foreign bodies cause negligible corneal toxicity. Our case did not present with corneal edema inspite of its attachment to the corneal endothelium. However, cotton fiber was pigmented at places. The decision to remove cotton fiber was taken in view of recurrent iridocyclitis. One end of the cotton fiber was attached to the corneal endothelium and other was to the surface of iris, sodium hyaluronate was used to protect endothelium during the surgical procedure. We resorted to removal by lens holding forceps, as we want to make sure that cotton fiber is removed completely. Irrigation and aspiration cannula may be used. However, with the flow of fluid fiber moves in the anterior chamber and may get trapped behind the iris.

Macular involvement in this case could be due to spread of inflammation to the choroid and the retina. The left eye retinal evaluation was normal.

Yuen (2005) in their study on 19 cases of retained intraocular cotton fibers have shown decision to remove cotton fiber should be based on potential risk benefit.

With advancement in cataract surgical techniques, care must be taken to avoid organic foreign bodies entering the eye. Use of plastic eye and trolley drapes, lint free instrument wipes, separate tray use for the sterilization of cotton tipped applicators and gauzes, no use of



petri dishes on the trolley and the use of open end of needle cap to stabilize the globe instead of cotton buds during phacoemulsification under topical anesthesia, are some of the measures suggested to prevent cotton fiber entering the eye (Figure 2).

References

Brockhurst RJ (1954). Cotton fibrils in the anterior chamber after surgery. *AMA Arch Ophthalmol*; 52:121–124.

Brown SI (1968). Corneal edema from a cotton foreign body in the anterior chamber. *Am J Ophthalmol*; 65:616–617.

Dinakaran S, Kayarkar VV (2002). Debris on processed ophthalmic instruments: a cause for concern. *Eye*; 16:281–284.

Shimada H, Arai S, Kawamata T, Nakashizuka H, Hattori T, Yuzawa M (2008). Frequency, source, and prevention of cotton fibers in the anterior chamber during cataract surgery. *J Cataract Refract Surg*; 34:1389-92.

Peiffer RL, Safrit HD, White E, Eifrig DE (1983). Intraocular response to cotton, collagen, and cellulose in the rabbit. *Ophthalmic Surg*; 14:582–587.

Yuen HKL, Lam RF, Kwong YYY, Rao SK, Lam BNM, Lam DSX (2005). Retained presumed intraocular cotton fiber after cataract operation: long-term follow-up with in vivo confocal microscopy. *J Cataract Refract Surg*; 31:1582–1587.

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