CASE REPORT

Recurrent intraocular inflammation after cataract surgery associated with retained lint fiber

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A 65-year-old woman had manual small-incision cataract surgery. Postoperatively, she developed 2 episodes of significant postoperative intraocular inflammation involving the anterior chamber and vitreous. The vitreous biopsy was negative for infectious etiology in both episodes. She later was found to have a retained lint fiber in the eye located over the posterior capsule. After removing the fiber, there was no recurrence of the inflammation. This case report suggested that retained lint, most often cotton fiber, which is introduced into the eye during cataract surgery, may be associated with postoperative intraocular inflammation. Therefore, measures should be taken before and during surgery to avoid the fibers entering the eye.

Endophthalmitis is inflammation of intraocular contents of the eye. It is one of the most feared complications of cataract surgery. Although precautions are taken to prevent this, it may occur after an uneventful surgery. Although it can be difficult to identify the reason for inflammation in some cases, an infrequently reported one is the introduction of lint into the eye during surgery. Although some studies have concluded that generally retained lint fiber does not cause significant inflammation, there are case reports showing intraocular inflammation, such as cystoid macular edema and endophthalmitis, after cataract surgery due to retained cotton fiber. Therefore, the significance of a lint material such as intraocular cotton fiber is still questionable.

This case report describes an instance where retained lint material, presumably a cotton fiber in the eye, caused significant intraocular inflammation. This highlights the possible pathogenic role of lint material in causing intraocular inflammation in some cases.

CASE REPORT

A 65-year-old woman presented to our institute with the complaint of decreased vision in her right eye for 2 years. Her left eye had had cataract extraction 3 years previously. She did not have any significant medical history. On examination, she had a grade 3 nuclear sclerosis in her right eye with a corrected distance visual acuity (CDVA) of 20/80. Manual small-incision cataract surgery with posterior chamber intraocular lens implantation was then performed without any complication during surgery. A plastic drape was used for the surgery.

The CDVA on postoperative day 1 was 20/40. The remaining ocular examination was unremarkable with no signs of intraocular inflammation. After 1 week, she developed a mild fibrinous reaction in the pupillary area. She had a CDVA of 20/70 with 2+ flare and no cells in the anterior chamber with a normal B-scan ultrasound. With a presumptive diagnosis of postoperative anterior uveitis, she was started on oral steroids, in addition to topical steroids that she was already using. Despite 1+ cells in vitreous, she maintained a CDVA of 20/70 at her postoperative 1-month visit. During this period, she did not have any inflammatory reaction or hypopyon in the anterior chamber. Steroids were then tapered for 1 month because the ocular examination did not reveal any inflammation, and her visual acuity remained stable at 20/60. Thirty days after stopping steroids, she presented again with severe pain in the right eye. Her CDVA was counting fingers at 2 feet. Her ocular examination showed a clear cornea with a 2.0 mm hypopyon in the anterior chamber. On dilated examination, there was a white plaque in the superonasal quadrant of the posterior capsule (Figure 1, A). Fundus examination showed yellowish exudative material accumulated inferiorly. B-scan ultrasound showed moderate vitreous opacities with choroidal thickening.

With a strong suspicion of endophthalmitis, a vitreous biopsy was performed, and intravitreal injections of cefazidime, vancomycin, and voriconazole were given. The
next day, a 23-gauge core vitrectomy was performed, the whole capsular plaque was removed, and vancomycin (1 mg in 0.1 mL), ceftazidime (2.25 mg in 0.1 mL), and voriconazole (50 μg in 0.1 mL) were injected intravitreally. On postoperative day 1, she had a minimal fibrinous reaction at the pupillary region. The remaining ocular examination was unremarkable. Her vision and ocular examination remained stable in subsequent follow-ups. Her CDVA at 2 months after the vitrectomy remained 20/60. Vitreous biopsy results showed the material as sterile.

Topical steroids were tapered slowly over 2 months. However, her vision decreased again to counting fingers at 3 feet. On dilated examination, a lint fiber was observed on the posterior capsule (Figure 1, B). Therefore, a repeat vitrectomy was performed during which the lint fiber was removed, and intravitreal antibiotics vancomycin, ceftazidime, and voriconazole were injected. Vitreous biopsy performed at that time was read as a sterile infiltrate. After 4 months of follow-up, the patient has maintained a CDVA of 20/60 in the right eye with no recurrence of inflammation (Figure 1, C).

DISCUSSION

The patient had recurrent episodes of intraocular inflammation associated with a retained lint fiber, presumably cotton fiber, which likely entered the eye during cataract surgery. Although it remains unknown whether the fiber was the cause of the intraocular inflammation, resolution of the inflammation and lack of its recurrence after removing the fiber may implicate a causal relationship.

A cotton fiber entering into the eye occurs more commonly than expected. It may enter along with the instruments, through the wound because of negative pressure by the probe, and along with the viscosurgical and irrigating solutions. Cotton fibers that stick to eyelashes are another source of a migrating cotton fiber into the eye. According to a series by Shimada et al., cotton fibers were detected in the anterior chamber in 6.4% of all cataract surgeries performed.

An experimental study in which a cotton fiber was introduced into the anterior chamber of a rabbit eye found that cotton fiber induces least significant reaction of the materials introduced (cotton, cellulose, and collagen) in the eye. There are few case reports in which cotton fibers have been reported to cause iridocyclitis, endophthalmitis, and cystoid macular edema.

The fibers may be visible during surgery, and in such cases, they should be removed from the anterior chamber. In some cases, it may be possible to see these foreign bodies over the iris or between the intraocular lens and posterior capsule. They may not be visible when the fibers are hidden in the angle. Thus, it is advisable to perform a gonioscopy examination in those cases in which there is an unexplained inflammation after cataract surgery. The conundrum may occur when there is a visible fiber on a postoperative examination but no signs of inflammation are present. If it is an early postoperative period, it may be better to remove it. If it is late postoperative and the fiber is not causing any reaction, it is better to leave and follow the patient at frequent intervals.

We have a few suggestions that may be taken to prevent fibers from entering the anterior chamber. Proper cleaning and sterilization of instruments play an important role to prevent this condition. Before starting surgery, the eyelashes should be clean thoroughly, and we should be careful that the drape is covering the eyelashes. In addition, instruments should not be put in direct contact with the cotton or linen. During surgery, all instruments should be washed thoroughly just before using them. This can be performed by dipping the instrument in a bowl of the sterile solution. It is advisable to look carefully at each instrument under the operating microscope before introducing into the eye. Weck-Cel sponges are less likely than cotton-tip swabs to leave behind fibers. Gloves should not directly touch cotton. The ocular surface should repeatedly be irrigated. Handling of the intraocular lens before implantation should be minimized to reduce the risk for attracting lint.
materials. If any cotton fiber is found during or at the end of surgery, it is better to remove it, although it is located beneath the posterior chamber intraocular lens. Postoperatively, any cotton fiber that is identified in the early postoperative period should be removed. If any fiber is noted in the late postoperative period and it is not causing any reaction, the patient can be observed. If any reaction is present, it is better to remove it.

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