Keratoprosthesis Sterile Vitritis

Dear Editor:

We had previously reported the visual rehabilitation and complications after the implantation of MICOF keratoprosthesis (The keratoprosthesis used in our hospital was developed by the Moscow Eye Microsurgery complex in Russia, hence it is called the MICOF keratoprosthesis).1 Retroprosthetic membrane formation and glaucoma were the most common and risk factors for the visual function. In addition, we observed the particular phenomenon of sudden sterile vitritis without the other signs of bacterial endophthalmitis. The major presenting symptom in sterile vitritis was a rapid and painless visual decline. All symptoms happened with no warning and obvious presentations. Visual function was almost completely recovered in most patients within a few weeks. Here we report our experience of 6 patients with a discussion of etiology and treatment of sudden sterile vitritis.

The study protocol conformed to the tenets of the Declaration of Helsinki, and it received ethical approval from the China Eye Research Institute Review Board.

A total of 96 MICOF keratoprostheses were implanted in 96 eyes of 96 patients between April 1, 2000, and May 1, 2010 in our hospital. Sterile vitritis occurred in 6 patients, 1 to 30 months postoperatively. The preoperative corneal diagnosis was alkali burn (3 eyes), Stevens-Johnson syndrome (SJS, 2 eyes), and acid burn (1 eye). Four eyes had a history of 1–3 prior penetrating keratoplasty (PKP) surgeries. All patients presented with sudden, marked decrease in vision with little or no pain. The recovery of vision was complete in 2 to 6 weeks. The first 2 cases were treated like bacterial endophthalmitis. Both patients underwent pars plana vitrectomy as soon as the diagnosis was confirmed. Samples of vitreous cultures revealed no bacterial or fungal growth. Peribulbar injection of dexamethasone 2.5 mg, tobramycin 20,000 units, and 1% lidocaine 0.2 ml (DG mixture) and antibiotics were used in the first 3 days of the other 4 patients. Triamcinolone (40 mg) and intensive topical steroid therapy were used in the first 2 patients. Sequelae of the pars plana vitrectomy might explain the subsequent VA decline.

Although sterile vitritis is a well-recognized complication after keratoprosthesis surgery,3–5 the pathogenesis is still unknown. Since the same keratoprosthesis and techniques were used in all 96 patients, it seems not to be any device-related factors contributing to this phenomenon. Considering the unlikely relationship between sterile vitritis and bacterial, this complication might be an immune phenomenon. Because of the uncertain etiology, systemic antibiotics were still recommended. However, peribulbar injection of DG mixture, triamcinolone, and intensive topical steroid might be a proper therapy in our series. Despite most patients regaining VA, sterile endophthalmitis in MICOF patients is not harmless and cold threatens prosthesis retention or function. More research needed to understand the reason for what appears to be sterile vitritis in this setting.

References


Iris Melanoma

Dear Editor:

We herein describe a novel surgical technique for resection of an iris tumor entitled “small incision internal resection and gentle Healon (AMO, Abbott Park, IL) aspiration of iris melanoma.” A 17-year-old boy presented to the ophthalmic oncology clinic for evaluation of an asymptomatic iris lesion left eye (OS). Visual acuity was 20/15 in each eye (OU). Examination of the left eye revealed a circumscribed 2.1 × 1.6 mm pigmented inferior iris lesion with indistinct borders and pigment dusting (Figure 1A; available at http://
A 3.0-mm beveled clear corneal incision was made superiorly at 2 o’clock. A paracentesis incision was made at 10 o’clock. Sodium hyaluronate (Healon) was instilled into the anterior chamber (Video 1; available at http://aaojournal.org). Using 25-gauge horizontal vitrectomy scissors and vitrectomy forceps, the lesion was excised en bloc with a visible tumor-free margin (Video 2; available at http://aaojournal.org). A segment of clear plastic tubing (diameter 3.5 mm) that had been primed with Healon was inserted into the anterior chamber after the corneal incision was enlarged. Withdrawal of a 3.0-ml syringe attached to the tube allowed gentle and controlled aspiration of the entire lesion into the viscoelastic-primed tube (Video 3; available at http://aaojournal.org). The tube was withdrawn from the anterior chamber and the lesion was expressed and unfolded onto filter paper and subjected to routine histopathologic processing. After Healon washout, the iris defect was closed using 2 interrupted 10-0 prolene sutures placed through paracentesis incisions at 4 and 8 o’clock using a modified Siepser slip-knot technique. The larger corneal incision was closed with 3 interrupted 10-0 nylon sutures while the paracentesis was closed with one (Video 4; available at http://aaojournal.org). On postoperative day 1, the visual acuity was 20/15, with minimal anterior segment inflammation and without hyphema (Figure 1D). The corneal wounds were well-opposed and intraocular pressure was 20 mmHg.

Histopathologic examination of the resected lesion demonstrated melanoma involving almost the entire specimen (Figure 2A; available at http://aaojournal.org). Melanocytic cells, possibly benign nevus cells, were present at the non-pupillary edge of the specimen. The morphology of the malignant population was approximately 95% spindle B cells (Figure 2B; available at http://aaojournal.org) and 5% epithelioid cells (Figure 2C; available at http://aaojournal.org). Mitotic activity was not observed. Immunohistochemistry was positive for melanA, and negative for smooth muscle actin (Figure 2D; available at http://aaojournal.org). The neoplastic growth present in this case, which effaces the architecture of the iris, as well as the small epithelioid cells with nucleoli precludes the diagnosis of a benign nevus, even without finding mitoses.

At 2 months postoperative, visual acuity remains 20/15 and the iris defect is well-opposed without evidence of recurrence of the tumor. Minimally invasive techniques have been adopted in many areas of surgery to reduce patient morbidity, allowing for faster recovery following surgical procedures. A recent analysis of data from the Nationwide Inpatient Sample (the largest nationwide all-payer database) from 1993 to 2007 demonstrated a major increase in minimally invasive surgery with a corresponding sharp decline in the open counterpart over 14 years. Iridectomy may be indicated for excision of suspected malignant iris tumors that are circumscribed (less than 4 clock hours) but necessitates a large corneoscleral incision. Failure to adequately close the iris defect can result in a cosmetic defect and photophobia. We describe a novel surgical technique for internal resection of a circumscribed iris tumor through a small corneal incision combined with gentle Healon aspiration. Small incision removal of a malignant lesion does carry an increased theoretical risk of tumor dissemination and seeding of the anterior chamber if increased tissue manipulation is required; however, the technique may avoid the potential morbidity associated with a large corneoscleral incision allowing for rapid visual recovery.

References

Artifacts Associated with Spectral-domain OCT

Dear Editor:

We read with much interest the article of Han and Jaffe on the evaluation of artifacts associated with macular spectral-domain optical coherence tomography (SD-OCT). In their article, the authors characterized the types and frequencies of image artifacts associated with macular scanning using Cirrus high-definition (HD)-OCT (Carl Zeiss Meditec, Dublin, CA), and Spectralis Heidelberg Retina Angiograph (HRA)-OCT (Heidelberg Engineering, Heidelberg, Germany), and found that image artifacts frequently involve segmentation errors. Most of these artifacts have been already reported for the most commonly used time-domain (TD)-OCT, Stratus OCT (Carl Zeiss Meditec). Recent studies demonstrated a lower frequency of artifacts in SD-OCT instruments compared with Stratus TD-OCT. Interestingly, the authors identified several types of clinically important artifacts generated by SD-OCT, including those previously seen in TD-OCT and those new with SD-OCT. We have recently performed a similar analysis by compar-