ceiving maintenance therapy with multiple topical agents for control of the intraocular pressure in her left eye.

Analysis of Explanted NewColorIris Implant. Analysis using both light and scanning electron microscopy of one of the explanted NewColorIris devices shows surface and edge characteristics that deviate significantly from the appearance of other currently US Food and Drug Administration–approved anterior chamber implants on scanning electron microscopy. Specifically, the posterior surface of the NewColorIris implant has an irregular surface architecture and the edge has a very rough, nearly serrated appearance on close examination (Figure 3). These morphologic features support our contention that the surface characteristics of the NewColorIris contributed to ocular inflammation, secondary glaucoma, and corneal endothelial cell loss in both patients. The edge profile appears to have been particularly deleterious to patient 2 due to direct apposition of the device against the angle structures as demonstrated by OCT.

Comment. These 2 cases add to a growing body of literature regarding profound anterior segment damage, including uveitis, glaucoma, and corneal decompensation, secondary to NewColorIris implantation. While not approved by the US Food and Drug Administration for implantation in the United States, the NewColorIris poses a very real risk to patients willing to travel abroad to have it implanted. As we have demonstrated by anterior segment OCT and light and scanning electron microscopy, the NewColorIris device has intraocular positioning and surface characteristics that likely contribute to its poor tolerance in the anterior chamber of some patients. Specifically, if the device is undersized relative to the anterior chamber, it may not sit properly and can then contact the corneal endothelium (as in case 1). Alternatively, it can cause direct damage to angle structures in those with less generously sized anterior segments, which can lead to glaucomatous angle changes such as synchiae. This was particularly evident in case 2, in which profound angle damage was inflicted in the setting of an implant that was shown by OCT to be directly apposing the angle structures prior to its explantation. It is our feeling that the surface characteristics of the implant, particularly its relative surface irregularity compared with other better-tolerated anterior segment implants, were responsible for significant ocular inflammation in both patients in this series. The medical literature demonstrates that inappropriately sized anterior chamber implants deleteriously affect corneal endothelial cell counts and angle structures, as shown in the analysis of phakic intraocular lens tolerance. Although implant design and positioning issues strongly influenced these outcomes, the biocompatibility of the material and chemical coloring of the NewColorIris device may have also contributed to these complications; however, we were unable to confirm this.

Scientific data on the safety of this device are lacking in the published literature. Therefore, given its lack of adequate clinical testing and a growing body of literature describing potentially vision-threatening complications related to its implantation, we advise patients to avoid undergoing implantation of the NewColorIris prosthesis. Additionally, eye care professionals should warn patients interested in this procedure of these potential complications. Other iris devices have proven very safe and effective, and patients requiring noncosmetic iris reconstruction may consider using other posterior chamber and secured iris reconstructive devices such as those from Morcher, Ophtec, and HumanOptics (ArtificialIris). Finally, those who have already undergone cosmetic iris implantation should be closely monitored for complications, and explanation of the iris prosthesis should be undertaken at the earliest sign of ocular intolerance.

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Financial Disclosure: None reported.

Disclaimer: The views expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, or US government.

Additional Contributions: Ann S. Tisdale, MS, assisted with scanning electron microscopy.


Effect of Peripapillary Vitreous Opacity on Retinal Nerve Fiber Layer Thickness Measurement Using Optical Coherence Tomography

Optical coherence tomography (OCT) is a widely used technique for the measurement of retinal nerve fiber layer (RNFL) thickness. It emits a light from the light source to the retina or reference mirror and measures RNFL thickness by detecting the different reflectivities of retinal structures. Therefore, any media opacity in the cornea, lens, or vitreous body can affect OCT measurement. However, little is known about the effect of vitreous opacity on RNFL thickness measurement. Vitreous opacity associated with age-related posterior vitreous detachment is a commonly found abnormality. In aged eyes with posterior vitreous detachment, a vitre-
Report of Cases. The RNFL thickness measurements were performed by Cirrus high-definition OCT (Carl Zeiss Meditec) in patients with ocular hypertension (case 1, Figure 1) and normal-tension glaucoma (case 2, Figure 2; case 3, Figure 3). After the first OCT examination, subsequent repeated examinations were performed within an interval of several minutes in each case.

Case 1. In case 1, a peripapillary vitreous opacity was detected outside the OCT scan circle in a deviation map and a thickness map at the first examination (Figure 1A). At the second examination, the vitreous opacity had moved to the adjacent area, where the scan circle met the opacity, and the retinal nerve fiber layer thickness at the 5-o’clock sector (arrowhead) had decreased from 78 to 58 µm. C, At the third examination, the vitreous opacity (arrow) was positioned exactly on the nasal side of the optic nerve head, the optic disc center was displaced inferior-nasally in the deviation map, and the disc margin was changed, and the retinal nerve fiber layer thickness increased in the superior-temporal area (10- to 12-o’clock sectors) and decreased in the inferior-nasal area (4- to 7-o’clock sectors) (arrowheads).

Accordingly, the optic disc center automatically identified by Cirrus high-definition OCT was displaced inferior-nasally in the deviation map and the disc margin was changed (the disc margin in Figure 1C was different from that in Figure 1A and B in the thickness map). Therefore, the RNFL thickness of the superior-temporal area (10- to 12-o’clock sectors) increased and that of the inferior-nasal area (4- to 7-o’clock sectors) decreased compared with those of the first examination.

Case 2. In case 2, a peripapillary vitreous opacity was found outside the scan circle at the first examination (Figure 2A), whereas it crossed the scan circle at the second examination (Figure 2B). The RNFL thicknesses of the 6- and 7-o’clock sectors decreased from 119 to 102 µm and 132 to 47 µm, respectively, compared with those of the first measurement (Figure 2B). At the third examination, although the vitreous opacity crossed the scan circle (Figure 2C), the RNFL thickness change was not remarkable.

Case 3. In case 3, there was no vitreous opacity floating around the optic disc at the first examination (Figure 3A). However, although it was not associated with a substantial RNFL thickness change, a peripapillary vitreous opacity crossing the scan circle was newly found at the second examination (Figure 3B). There was no signal strength change in all cases.

Comment. According to our cases, vitreous opacities floating around the optic disc could affect RNFL thickness measurement with Cirrus high-definition OCT. The opacities could influence the RNFL thickness values (1) when the peripapillary vitreous opacities crossed the scan circle, (2) when they were presented as red color codes in the RNFL deviation map, and (3) when they were demonstrated as black spots in the RNFL thickness map. Although the peripapillary vitreous opacities crossed the scan circle, the RNFL thickness values did not change remarkably when they were not presented as red color codes in the RNFL deviation map and were not visible in the RNFL thickness map. In addition,
Figure 2. Retinal nerve fiber layer thickness measurements in case 2. A, At the first examination, a peripapillary vitreous opacity (arrows) was detected outside the scan circle (outermost circle in the deviation map). B, At the second examination, the vitreous opacity (arrows) had crossed the scan circle and the retinal nerve fiber layer thicknesses of the 6- and 7-o’clock sectors (arrowheads) had decreased from 119 to 102 µm and 132 to 47 µm, respectively. C, At the third examination, although the vitreous opacity (arrow) crossed the scan circle, the retinal nerve fiber layer thickness change was not remarkable.

Figure 3. Retinal nerve fiber layer thickness measurements in case 3. A, At the first examination, there was no vitreous opacity floating around the optic disc. B, At the second examination, a peripapillary vitreous opacity (arrow) crossing the scan circle was found but was not associated with a substantial retinal nerve fiber layer thickness change.
vitreous opacity could cause an error in the determination of the optic nerve head margin, resulting in a disc center displacement. A decentered OCT scan, described previously, could change RNFL thickness characteristics.

In patients with a localized RNFL defect, progressive RNFL thinning mainly occurs in a localized pattern rather than as a change in global RNFL thickness. Our cases demonstrate that a small peripapillary vitreous opacity can influence the measurement of RNFL thickness in a localized area. Therefore, the decreased RNFL measurement in a specific area caused by a small vitreous opacity may be misinterpreted as progressive localized RNFL deterioration in that area. We believe that a careful fundus examination should be done to exclude the possibility of the presence of a floating vitreous opacity near the optic nerve head when an unexpected change in the RNFL thickness is found. In addition, repeated OCT measurement may also be helpful to differentiate an RNFL thickness change associated with a peripapillary vitreous opacity from the true progressive change.

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Financial Disclosure: None reported.