

## Acute Onset Secondary Pigmentary Glaucoma Followed by Second Intraocular Lens Implantation in a Patient with Atopic Dermatitis

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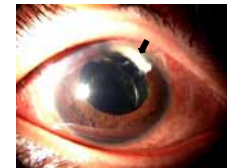
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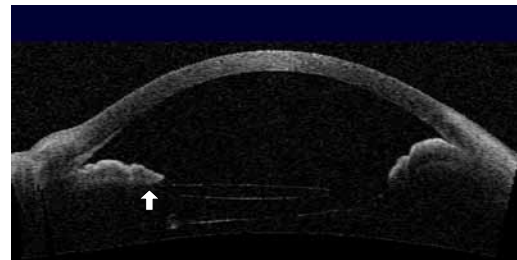
A 36-year-old man underwent trabeculectomy in his right eye because of sudden onset open angle glaucoma (intraocular pressure (IOP): 48 mmHg) 11 months after the implantation of a second intraocular lens (IOL). The second IOL (single-piece acrylic IOL, AcrySof SN60WF) was implanted in the sulcus (Figures 1 and 2). He had atopic dermatitis and the eye had undergone simultaneous surgical procedures for retinal detachment and phacoemulsification 15 years before implantation of the second IOL. No increase in IOP occurred between the combined surgery for retinal detachment and phacoemulsification and implantation of the second IOL. The angle of his right eye displayed extremely thick pigmentation (Figure 3, inset). In a histological examination of the trabeculectomy specimen, a strong accumulation of pigment-laden trabecular cells was observed in the cribriform meshwork (Figure 3), which has not been previously reported [1-3]. This finding suggested that mechanical rubbing of the IOL against the iris pigment epithelium led to the liberation of a large number of melanin granules from the pigment epithelium to the trabecular outflow pathway, which resulted in excess phagocytic activity in the trabecular cells of the uveal and corneoscleral meshwork, and hence, the accumulation of undigested pigment granules in the cribriform meshwork. The absence of both trabecular lamellae fusion and Schlemm's canal occlusion (Figure 4), which have both been described in previous reports [2,3] of longstanding pigmentary glaucoma, indicated that his glaucoma had occurred very recently. In addition, remnants of the lens cortex in the peripheral part of the lens capsule (Figure 1) and constriction of the anterior lens capsule may have caused the narrow space of the posterior chamber for the lens haptics and optics, resulting in the close proximity of the edge of the IOL optics to the iris pigment epithelium (arrow in Figure 2). This could have led to extensive mechanical rubbing of the IOL against the iris pigment epithelium. It has been highlighted in a previous report [4], single-piece acrylic IOL in the sulcus placement has a high risk of pigment dispersion syndrome. Therefore, it should be noted that a single-piece acrylic IOL should not be used for sulcus placement, eyes with a narrow space in the posterior chamber may carry a high risk of secondary pigmentary glaucoma after sulcus placement for secondary IOL implantation, and prompt IOL extraction is necessary to avoid irreversible changes in the trabecular outflow pathway such as fusion of the trabecular lamellae or the occlusion of Schlemm's canal [2,3].

### References

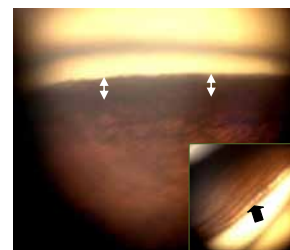
- Campbell DG (1979) Pigmentary dispersion and glaucoma. A new theory. Arch Ophthalmol 97: 1667-1672.
- Richardson TM, Hutchinson BT (1977) The outflow tract in pigmentary glaucoma: a light and electron microscopic study. Arch Ophthalmol 95: 1015-1025.
- Gottanka J, Hohnson DH, Grehn J, Lütjen-Drecoll E (2006) Histologic findings in pigmentary dispersion syndrome and pigmentary glaucoma. J Glaucoma 15: 142-151.
- Chang DF, Masket S, Miller KM, Braga-Mele R, Little BC, et al. (2009) Complications of sulcus placement of single-piece acrylic intraocular lenses: recommendations for backup IOL implantation following posterior capsule rupture. J Cataract Refract Surg 35: 1445-1458.



**Figure 1:** Slit lamp photograph of the IOL in the patient's eye. The lens cortex (arrow) remained at the peripheral part of the lens capsule.



**Figure 2:** Photograph of anterior segment optical coherence tomography. The edge of the IOL optics (arrow) made contact with the iris pigment epithelium.



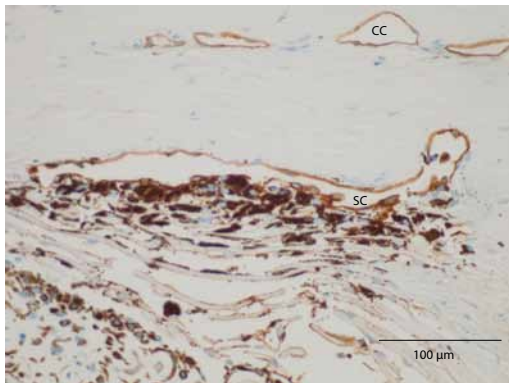
**Figure 3:** Slit lamp photograph of the angle by gonioscopy. Extremely thick pigmentation on the surface of the trabecular meshwork (arrows) obscuring the pigment band at the 6 o'clock position of the angle. However, the pigment band (arrow in inset) was visible at the 11 o'clock position of the trabeculectomy site.

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**Figure 4:** Light microscopic photograph of a specimen subjected to thrombomodulin immunohistochemical staining, which can be used to detect Schlemm's canal (SC). Trabecular cells in the uveal and corneoscleral meshwork were heavily pigmented. The most conspicuous finding was the existence of strongly pigmented trabecular cells in the cribriform meshwork. Note the absence of trabecular lamellae fusion and the normal size of the SC, which was positively stained with thrombomodulin.