tears after transpupillary thermotherapy. In photodynamic therapy, it has been proposed that RPE tears occur because of a combined mechanism of RPE phototoxicity and thermal injury to the choroidal neovascular complex and RPE.

More recently, with pegaptanib, a selective VEGF-blocking agent, it has been proposed that decrease in VEGF activity results in loss of VEGF-mediated tight junction gene transcription. This loss of tight junction formation decreases RPE intercellular adherence and when the RPE cells are stressed, as in these cases with exudative ARMD, this may lead to an RPE tear. We believe that a similar pathophysiologic mechanism exists for anti-VEGF therapy with bevacizumab but the effect is potentiated by the drug’s non-selective VEGF-blockade, which may inhibit the more physiologic forms and functions of VEGF in the retina and retinal pigment epithelium. Furthermore, as in the laser and photodynamic therapy-related RPE tears, contraction of the choroidal neovascular complex by these very potent anti-VEGF drugs is likely to play a contributory role. Pericytes are vascular support cells found in choroidal neovascular membranes and normal body tissue. They affect vascular permeability by their contractile response. It has been directly observed to be mediated by VEGF in collagen-embedded pericyte cell cultures.

Although previous reports have documented RPE tears associated with bevacizumab, none have provided data on the relative incidence of this complication. The cases we report here were pooled from a total of 322 different patients who received bevacizumab for treatment of exudative macular degeneration in our practice. This calculates to a 1.6% incidence of RPE tears. This number must be viewed with caution as patients were not studied prospectively and follow-up may not have been consistent, however, it provides us with an approximate incidence of this complication. This number would represent a conservative estimate and the actual incidence might be higher. All patients in our practice received a 1.25 mg dose of bevacizumab at each injection. Ophthalmologists should be aware that RPE tears may occur after intravitreal bevacizumab therapy for choroidal neovascularization associated with ARMD.

Delayed accumulation of lens material behind the foldable intraocular lens

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Foldable acrylic intraocular lenses (IOLs) are known to reduce posterior capsule opacification by preventing migration of lens epithelial cells with its square edge design and its property of tackiness. Studies have reported a mean adhesiveness to posterior capsule more than three times higher for certain acrylic foldable IOLs than polymethyl methacrylate IOLs. The authors would like to report two cases where the force of tackiness was compensated, thereby presenting with delayed accumulation of lens material in the capsular bags behind the IOL with temporary loss of vision.

Key words: Foldable, posterior capsule opacification, phacemulsification

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Hydrophobic acrylic lens material (AcrySof®, Alcon, Fortworth, Texas, USA) is believed to have a strong adhesive property with capsular bag. But the strength of this adhesion in vivo is not exactly known. The authors report two cases where regenerated cortical lens material descended in clumps in the plane between the posterior capsule and the intraocular lens

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(IOL) probably overcoming the adhesive force between the two. Such a complication has not been reported earlier.

Case Reports

Case 1
A 61-year-old diabetic gentleman, with high myopia and posterior subcapsular cataract in both eyes, underwent uneventful phacoemulsification with in-the-bag IOL implantation (AcrySof® Alcon, Fort Worth, Texas, USA; Model: MA30BA, Power: 12D, Length: 12.5 mm, Optic: 5.5 mm, SN: 506409.091) in both eyes The postoperative period was unremarkable and best corrected visual acuity (BCVA) was 20/20, N6 achieved in both eyes independently.

The patient returned after four years with the complaint of sudden blurring of vision in the left eye. On examination, BCVA in the affected eye was 20/80. Slit-lamp evaluation revealed a quiet anterior segment with presence of conglomerated whitish fluffy material as well as crystalline bodies of different sizes [Figs. 1, 2] in the capsular bag behind the IOL covering almost the entire pupillary area in the left eye. A well-developed Soemmering’s ring was appreciated in the periphery of the capsular bag beyond the IOL optic after mydriasis. The

Figure 1: (Case 1) Slit-lamp photo showing whitish lens material between the IOL and posterior lens capsule. A well-defined Soemmering’s ring is also seen

Figure 2: (Case 1) Slit-lamp photo taken with retro illumination depicting the lens material

Figure 3: (Case 2) Slit-lamp photo showing fluffy whitish lens material between IOL and posterior lens capsule

Figure 4: (Case 2) Slit-lamp photo taken with retro illumination depicting the lens material with shrinkage of the haptics

Figure 5: (Case 2) Slit-lamp photo taken with slit section showing anterior (1), posterior (2) surface of the IOL optic and posterior lens capsule (3) (arrows). A clear space between the posterior surface of the optic and posterior capsule, devoid of lens matter is seen
accumulated material was gravity-dependent and was moving minimally along with eye movement. A clinical diagnosis of delayed accumulation of regenerated cortical lens material was made. It was believed that the equatorial regenerating cortical matter from the superior fornix of the capsular bag got dislodged and gravitated down behind the IOL. The patient was advised lavage of the capsular bag (with histopathological examination of the material) but he refused to undergo any surgical intervention and was therefore kept on regular follow-up without any medications. On subsequent checkups it was noted that the material in the capsular bag behind the IOL was spontaneously decreasing and at the end of a one-year period, the visual axis cleared with BCVA of 20/30. The posterior capsule was clear and there was slow absorption of the material.

Case 2
A 50-year-old gentleman reported with nuclear sclerosis and posterior subcapsular cataract in both eyes and underwent routine uneventful phacoemulsification with in-the-bag IOL implantation in both eyes (AcrySof® Alcon, Fort Worth, Texas, USA; Model: MA30BA, Power: +23.0 D, Length: 12.5 mm, Optic: 5.5 mm, SN: 516960.070). The postoperative period was unremarkable and with a BCVA of 20/20, N6 both eyes. Seven years following the surgery, he returned with an interesting history of sudden dimness of vision in the left eye, which lasted for a period of few months followed by spontaneous recovery. This temporary visual impairment was characteristic, as if a screen descended from above with clouding of vision followed by spontaneous clearance in the same order. His corrected vision in the affected eye was 20/20. Slit-lamp examination revealed a quiet eye with normal intraocular pressure. Slit-lamp examination after mydriasis revealed whitish fluff from material inferiorly, trapped between the IOL and the posterior capsule (similar to that described in Case 1) encircling 360° with regenerative lens material (Soemmering’s ring) beyond the IOL-optics. Further noteworthy was the proximity between the haptic and optic, indicating capsular fibrosis and loss in memory of the IOL haptics [Figs. 3, 4]. Similar to Case 1, it was also diagnosed as accumulation of regenerated lens material which dislodged from the superior fornix of the capsular bag. As there was no visual impairment, the patient refused any intervention and was under regular observation till the last checkup which showed total absorption of the lens material. The posterior capsule was maintaining clarity and was noted to be separated from the posterior surface of the IOL [Fig. 5].

Discussion
Acrylic polymer material of AcrySof® IOL is reported to have a tacky surface. The posterior as well as the anterior capsule remain adherent to the lens surface after implantation in the bag and prevent posterior capsular opacification (PCO), capsular fibrosis and lens decentration. Nagata and co-authors reported a mean adhesiveness of 2.76 gw for AcrySof®, making it more than three times higher adhesive than polymethyl methacrylate (0.81 gw) with lens capsule. Nishi and Nishi, in Japan, have published evidence that a square-edge design of an IOL creates a discontinuous capsule bend angle and retards the migration of equatorial lens epithelial cells onto the posterior capsule, resulting in posterior capsular adherence to the posterior surface of the IOL. Design factors such as posteriorly angulated haptics, size and posterior convexity of the optic and tackiness of the surface of IOL enhance the opportunity for the capsular bend to occur. Investigators have concluded that the property of adhesiveness of acrylic IOLs to the capsular bag contributed significantly to the edge design in creating this discontinuous bend and, therefore, in decreased PCO with AcrySof® IOL.

In pursuance of their ‘sandwich theory’, Linnola et al. have also concluded that the sandwich structure of IOL/1 cell layer/capsule was observed with a significantly higher incidence in association with the AcrySof® IOL and fibronectin was identified as the extra-cellular protein involved in the formation of this structure.

In the present report, both the cases underwent standard, uneventful, phacoemulsification with in-the-bag posterior chamber IOL implantation after an intact continuous curvilinear capsulorhexis (CCC), with the CCC margin covering the anterior surface of the optic with a minimal overlap. The ring of Soemmering from the capsule epithelium develops postoperatively in course of time and normally it does not dislodge as both anterior and posterior capsules are in strong adherence due to fibrosis. However, in these two cases, probably a plaque from the superior portion of this ring dislodged and descended inferiorly through the retro-lenticular space negating the force of tackiness between the IOL and the posterior capsule. During the course of its descent downwards, there was impairment of vision so long as the material was in the visual axis. The tissue pressure inside the ring of Soemmering was considered to be higher to overcome the force of tackiness and this suggests there is a limitation of tackiness which might not have any considerable role in maintaining the clarity of the posterior capsule. Unlike capsular bag distension syndrome, there was evidence of slow absorption of material. In both the situations, it was suspected that the in vivo tackiness of the AcrySof® IOL to the posterior capsule may not be as firm as that reported in in vitro studies. The authors did not come across any other report of a similar nature. However, chemical analysis and microscopic study of the accumulated material could clearly explain its nature which was not possible in these cases.

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Systemic chemotherapy and tamoxifen induced regression of choroidal metastasis from a breast carcinoma in a male

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We report a case of a 55-year-old male patient with breast carcinoma, who developed choroidal metastasis. The patient had undergone mastectomy for carcinoma of right breast, five years ago. The patient was advised close follow-up for the left eye, as he was already on tamoxifen therapy (started a month ago) for spinal metastasis. On last follow-up, a year later, the choroidal lesion had completely scarred, with no recurrences. Systemic hormonal therapy like tamoxifen given for the breast primary and other systemic metastases may cause regression of the choroidal metastasis, thereby avoiding ocular radiotherapy. Medline search revealed only one published case of regression of choroidal metastasis from a male breast primary, on tamoxifen therapy.

Key words: Choroidal metastasis, male breast carcinoma, tamoxifen

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Choroidal metastases occur most frequently from the breast in females and from the lungs in males. Breast carcinoma in males is very rare, accounting for 1% of all breast carcinomas, with choroidal metastasis in males being still rarer. We report a male patient with breast carcinoma with choroidal metastasis, which regressed on systemic tamoxifen therapy.

Case Report

A 55-year-old male patient presented with complaints of sudden, painless decrease of vision in the left eye, since 10 days. Past history was significant for right breast carcinoma and subsequent mastectomy, five years ago [Fig. 1]. Yearly routine evaluation had revealed spinal metastasis, a month prior to presentation with ocular symptoms. As the metastasis and the primary were both very high in hormonal receptors, the medical oncologist had started the patient on oral tamoxifen 20 mg a day, for the spinal metastasis.

The best corrected visual acuity (BCVA) was 20/60 and 3/120, in the right and left eye respectively. Right eye and left eye anterior segment examination was unremarkable.

Left fundus examination revealed a grayish yellow macular mass, approximately 20x15 mm in size, with surrounding exudative retinal detachment [Fig. 2a]. Ultrasonography (USG) B-Scan of the left eye showed a raised subretinal mass with high surface reflectivity and moderate internal reflectivity, associated with a surrounding retinal detachment [Fig. 2b]. Fundus fluorescein angiography could not be performed as the patient refused any invasive diagnostic intervention. A choroidal metastasis from the breast carcinoma was diagnosed.

The patient refused ocular external beam radiotherapy (EBRT) for the choroidal lesion and was advised close follow-up, every three months, as he was already on systemic hormonal therapy started a month ago.

The choroidal lesion gradually scarred, with complete absorption of subretinal fluid.

On final follow-up one year later, the choroidal lesion had completely healed with scarring [Fig. 3a] with no recurrences in either eye. The USG B-scan of the left eye showed flattening of the subretinal mass [Fig. 3b]. Optical coherence tomography of the left eye revealed no sign of activity [Fig. 3c]. The BCVA was counting fingers at two feet, at final visit.

Discussion

Breast carcinoma in males presenting with a median age of 67 years is virtually silent, hence needing a high index of suspicion for diagnosis. Systemic chemotherapy and hormonal therapy given for the systemic condition have been reported to cause regression of choroidal metastasis. This obviates the need for ocular intervention like radiotherapy, preventing its side-effects. Breast carcinoma in males has a higher concentration of estrogen and progesterone receptors than in the female, thus rendering both the primary and the metastasis more susceptible to hormonal manipulation.