Management of cataracta membranacea in a geriatric patient

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An 80-year-old woman presented to our clinic with blurred vision in her right eye. On ophthalmoscopic examination, the visual acuity was counting fingers at 50 cm in the right eye and 20/50 in the left eye. Slitlamp biomicroscopy showed fibrous adhesion of the anterior and posterior capsules and absence of lens material in the right eye. Anterior capsule wrinkling was also observed. The left eye had an anterior chamber intraocular lens (IOL) following complicated cataract surgery. Intraocular pressures were within normal limits in both eyes. Cataracta membranacea was diagnosed, and vitrectomy probe–assisted capsular opening, anterior vitrectomy, and sulcus-fixated foldable IOL implantation were performed. At the last follow-up visit, the corrected visual acuity in the right eye improved to 20/50. The aim of this report is to describe the oldest patient in the literature with cataracta membranacea and to discuss its management with the aid of current knowledge.

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Membranous cataract or cataracta membranacea is a rare form of cataract in the elderly. The condition is characterized by liquefaction and subsequent absorption of lens fibers within the capsular bag and adhesion between the anterior and posterior capsules.\(^1\)–\(^4\) The cataracta membranacea morphologically resembles posterior capsule opacification (PCO).\(^2\),\(^3\) However, in cases of cataracta membranacea, the naturally occurring lens disappears without surgical intervention. Cataracta membranacea may occur at any age, although it is most commonly seen in newborns as a congenital entity and rarely as an acquired disease in adults and older patients.

Cataract surgery in patients with cataracta membranacea presents challenges to the anterior segment surgeons due to deterioration of the integrity of the anterior and/or posterior lens capsule, which results in unavoidable vitreous loss.\(^2\),\(^5\) The aim of the present paper is to report what we believe to be the oldest patient with unilateral cataracta membranacea in the literature who had vitrectomy probe-assisted capsular opening and sulcus-fixated foldable intraocular lens (IOL) implantation and to discuss the management of cataracta membranacea in the elderly with the guidance of current literature.

**CASE REPORT**

An 80-year-old woman presented to our clinic with blurred vision in her right eye for the past few years. She had no systemic disease or history of trauma but had a history of cataract surgery in her left eye. On ophthalmological examination, the corrected distance visual acuity (CDVA) was counting fingers at 50 cm in the right eye and 20/50 in the left eye. Intraocular pressures were within normal limits, with 14 mm Hg in the right eye and 15 mm Hg in the left eye. Slitlamp biomicroscopy showed fibrous adhesion of the anterior and posterior capsules and wrinkling of the anterior capsule surface in the right eye (Figure 1). The distance between anterior and posterior lens capsules was very narrow, and local adhesions were observed. The morphological appearance of cataract in the right eye resembled PCO. An anterior chamber IOL following complicated cataract surgery had been implanted in the left eye 20 years earlier. Dilated fundus examination showed nonexudative age-related macular degeneration.
(AMD) in the left eye. Examination of the fundus in the right eye could not be obtained due to hazy media. With these findings, a cataracta membranacea diagnosis was made and elective cataract surgery planned.

Cataract extraction and sulcus-fixated IOL implantation were performed under local anesthesia in the right eye. During surgery, the anterior capsule was observed to be fibrotic and brittle centrally and it was difficult to raise a flap to proceed with a continuous curvilinear capsulorhexis (CCC). A small opening was made in the anterior and posterior capsules using a microvitreoretinal blade, and a dispersive ophthalmic viscosurgical device (OVD) was injected behind the posterior capsule. A circular capsule opening approximately 4.0 mm to 5.0 mm in diameter was created, and a limited anterior vitrectomy was performed using a 23-gauge vitrectomy probe. After cohesive OVD injection into the anterior chamber, a foldable hydrophilic acrylic IOL with an optic diameter of 6.25 mm (Rayner Superflex 620H, Rayner Intraocular Lenses Ltd.) was implanted in the ciliary sulcus through the 2.8 mm main incision, which was located superotemporally. After irrigation/aspiration, incisions (a main incision and a side port) were hydrated with a balanced salt solution. Intracameral cefuroxime 1 mg/0.1 cc was administered at the end of surgery for endophthalmitis prophylaxis.

On the first postoperative day, minimal corneal edema and a well-centered IOL were observed. The CDVA improved to 20/50 at 4 weeks postoperatively with a quiet eye (Figure 2). The patient was satisfied with the visual outcome. The suboptimal vision was attributed to nonexudative AMD.

**DISCUSSION**

Cataracta membranacea is a rare congenital disease characterized by a collapsed flattened capsule with little or no cortex in the lens. However, the term has also been used to define collapsed hypermature cataracts.\(^2\)\(^,\)\(^3\) A mature lens may undergo liquefaction and lose fluid and diminish in volume, leaving a membranous remnant over a period of time. Cataracta membranacea may also occur after traumatic or Morgagnian cataracts.\(^4\) The precise etiology of cataracta membranacea in the present case is not clear. However, age of the patient and absence of a history of trauma suggests that cataracta membranacea was secondary to a hypermature or a Morgagnian cataract. Bilateral retinal detachment\(^6\) and aniridia\(^7\) have been reported to occur in association with adult cataracta membranacea. However, it may not be associated with ocular or systemic disease, as in the present case.

**Figure 1.** Preoperative appearance of the patient. *a:* Membranous cataract resembles PCO in the center with scattered opacities in the periphery. *b:* Slitlamp examination shows the thin membrane. *c:* Retroillumination shows a membranous cataract with central fibrous plaque.

**Figure 2.** The appearance of the eye in Figure 1 in the early postoperative period (*a*) and in the first postoperative month (*b*).
Table 1 summarizes the reported adult or older onset cataracta membranaea cases and their surgical management in the literature.2,3,5 Whatever the etiology, any cataracta membranaea case may involve difficulties in the management and/or optical rehabilitation due to surgical challenges. Heuring et al.2 reported a successful IOL implantation with good visual outcome in a 27-year-old patient with cataracta membranaea. However, the cataracts in this case were bilateral and the patient was younger than our patient. In their case, the IOL was implanted in the sulcus after capsulotomy, anterior vitrectomy, and excision of the membrane. Prasher3 reported a 57-year-old patient with unilateral cataracta membranaea. Intraoperatively, after capsule staining using methylene blue, the surgeon could not perform a CCC due to a fibrotic and brittle anterior capsule. After irrigation with a balanced salt solution, the surgeon successfully separated the anterior and posterior capsules and performed a CCC and in-the-bag IOL implantation. Pong and Lai5 reported a 56-year-old man with bilateral cataracta membranaea. The anterior lens capsules were not intact in both eyes preoperatively. In that case, the IOL was implanted in the sulcus in 1 eye and in the bag in the other eye. Gatzioufas et al.8 reported increased levels of epithelial growth factor and transforming growth factor in the aqueous humor of a patient with cataracta membranaea and suggested that these factors might play a crucial role in the pathogenesis of cataracta membranaea by stimulating proliferation of lens epithelial cells and inducing lens shrinkage. The main difference between the reported cataracta membranaea cases and our patient was the age. To our knowledge, the present case is the oldest patient with cataracta membranaea in the literature.

In conclusion, the present case suggests that automated vitrector-assisted capsule opening and sulcus-fixated foldable IOL implantation may yield the desired satisfaction in selected cases of cataracta membranaea, particularly if in-the-bag IOL implantation is not possible.

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