

Pseudophakic Malignant Glaucoma– Case Report

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ABSTRACT: Malignant glaucoma, first described by Von Grafe in 1869, is characterized by elevated IOP with a shallow or flat anterior chamber (1). In its classic form , malignant glaucoma is rare , but one of the most serious complications of glaucoma filtration surgery in patients with narrow-angle or angle-closure glaucoma. The term malignant glaucoma refers to a prolonged process that is difficult to treat and often progresses to blindness. The risk factors for malignant glaucoma are shallow anterior chamber , zonular laxity, iris plateau ,nanophthalmos .We present a case report of a patient, who developed malignant glaucoma after cataract surgery with implantation of an intraocular lens implant (IOL) 3 days after the surgery, resolved through anterior and core vitrectomy and iridectomy. In this case the malignant glaucoma showed no response to standart medical therapy in maximal doses, but it was managed by surgical intervention, on the first day after the second surgery. The patient reported improvement in the subjective condition and we observed the positive dynamic of objective status the next day after the vitrectomy by biomicroscopy. One month after the second surgery, we made a scleral fixation of the IOL, with consistently normal pressure in the affected eye.

KEYWORDS: malignant glaucoma, pseudophakic, anterior and core vitrectomy ,iridectomy, hyaloidotomy

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I. INTRODUCTION

Malignant glaucoma is rare postoperative complication , which is most often described after trabeculectomy in hypermetropic patients with angle closure glaucoma, but it can occur after cataract surgery, laser capsulotomy , iridotomy , cyclophotocoagulation, penetrating keratoplasty or spontaneously. (2). It is known as a condition with poor visual outcome, despite proper treatment. In the literature there have been described various medical, laser-based and surgical treatment to manage malignant glaucoma. (3) Although the topical medicaments are the first line of treatment , it works in less than 50% of the cases (4). Other treatment options include YAG laser caspulohyaloidotomy or surgical disruption of the anterior hyaloid . In the cases that aforementioned measures do not affect the condition it is appropriate to proceed to surgical treatment-pars plana vitrectomy (PPV) with or without lensectomy.

II. CASE RETORT

A 67 -years old male patient presented to our hospital for cataract surgery in the right eye. At his first visit the patient was noted to have normal intraocular pressure in the both eyes, especially in the right eye-16mmHg , on background of shallow anterior chamber 2.91mm ,presence of pseudoexfoliation syndrome in the same eye. Best corrects vision was 0.1 Snellen We also diagnosed the patient with floppy iris syndrome, which is more common in glaucoma patients(5). He had no past medical history of glaucoma. A decision was made to place a lens with plate haptics design (Oculentis[®]) ,due to the patient’s desire to be independent of glasses for all distances. Intraoperative we diagnosed an instability of the lens capsule and slight lens subluxation. It was decided to close the intraoperative corneal incisions with 10/0 sutures, in order to prevent expulsive hemorrhage and iris prolapse. On the next days the lens was subluxated, but anterior chamber was formed with limpid content. A zonular dehiscence was diagnosed by ultrasound biomicroscopy (UBM) at the upper 180 degrees and the lens subluxation was noted. Four days after the surgery the patient was urgently admitted with increasing pain, severe visual loss and heaviness in the right eye. Visual acuity was hand movement in his RE . Anterior segment examination revealed presence of intense corneal edema and atalamy. Goldmann tonometry was 50mmHg in his RE . In the pupillary place , only part of the lens could be seen . The diagnosis of malignant glaucoma was made and the patient was treated with oral Acetazolamide 3x500mg , topical therapy with Dorzolamide/Timolol and Brimonidine 3x1 in right eye, Mannitol 20% 2x500ml i.v and Atropine 2x1

topically. Despite maximal systemic and topical therapy and the availability of atropine for mydriasis, the desired result was not achieved. The IOP was 35mmHg. The lack of effect necessitated the transition to surgery. It was decided to make anterior and core vitrectomy and lens extraction. For the inferotemporal clear corneal incision was used the already performed one, with 20-gauge MVR knife, for the cataract surgery and we inserted into the anterior chamber maintainer cannula. It was connected to infusion line with adjusted height to avoid increasing IOP. The second clear corneal incision, again made during the first operation, was in the supertemporal quadrant. The vitreous cutter was inserted into anterior chamber and the opening of peripheral iris that was made had to be larger than 2mm in diameter and as peripheral as possible. The capsulectomy was made by the same vitreous cutter under the iridectomy. The anterior hyaloid face and anterior vitreous were removed in order to eliminate the blockage and aqueous misdirection completely. That was confirmed by the deepening of the anterior chamber. The next day anterior chamber was 4mm and the IOP was 15mmHg with topical therapy – Dorzolamide/Timolol 2 times a day. One month after the second surgery a successful sutureless scleral fixation of the IOL was performed.

III. DISCUSSION

The mechanism leading to malignant glaucoma is poorly understood. One of the most popular theories is an anatomically predisposed eye, that includes anterior rotation of ciliary body (6) (7). That increasing vitreous volume, results in anterior displacement of iris lens diaphragm and secondary glaucoma. Pseudophakic malignant glaucoma is a rare complication which can appear after cataract surgery in the first postoperative days to many months, although it was described first after filtration surgery. The mechanism of malignant glaucoma in pseudophakic eye is not well elucidated. Chandler considered the cause in zonular weakness, which lead to anterior subluxation of the IOL (8) It is considered that anterior chamber should be reformed after anterior hyaloidectomy, which is supported by our case report. Vitrectomy considered to be efficacious in the treatment of malignant glaucoma. It is very important to perform total vitrectomy with surgical disruption of the anterior hyaloid, thus it breaks the primary mechanism of aqueous misdirection. Our patient presented with pseudoexfoliation syndrome, which qualifies as a risk factor leading to development of malignant glaucoma, due to possibility of rupture. It has been reported that hyaloid-zonularectomy and iridectomy are effective in treating aqueous misdirection.(10) We also express an opinion that peripheral iridectomy with or without zonulectomy is an effective surgical procedure in the prevention of progressive ciliary and papillary blockage. We recommend that eye biometrics should be noted before the first day after the surgery, in order to prevent the advent of malignant glaucoma or enable early diagnosis. In our opinion starting therapy with topical medications is a good choice only if it is combined with intravenous diuretics (Mannitol 15%) and the patient's condition is monitored continuously.(9) However in our experience, described in the case, four days are the maximum time to assess whether topical agents would work before proceeding to surgery. In the absence of the desired effect, we proceed with the surgical treatment by applying Acetazolamide and Mannitol immediately before the surgery as described in the case report. We also suggest not to rush secondary lens implantation with scleral fixation, despite the patient's discomfort. We prefer to do scleral fixation of the lens rather than to place the lens in an anterior chamber. We justify this with the possibility of the occurrence of UGH syndrome (uveitis-glaucoma-hyphema syndrome) In conclusion anterior and core vitrectomy, combined with iridectomy is an appropriate surgical procedure used to break the cycle of malignant glaucoma. Delaying cataract surgery for years also contributes to the development of malignant glaucoma, due to zonular weakness.

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