

## Comment on “Management strategies in malignant glaucoma secondary to antiglaucoma surgery”

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**Dear Editor,**

We read with great interest the article by Wu *et al*<sup>[1]</sup> which comprehensively assessed the outcomes of various interventions in 38 eyes of 35 patients with malignant glaucoma (MG) secondary to antiglaucoma surgery who were followed up for an average of 27.1mo. The treatments administered in MG patients included medical therapy (4 eyes), neodymium yttrium aluminum garnet laser posterior capsulotomy with hyaloidotomy (2 eyes), anterior vitrectomy-reformation of anterior chamber (13 eyes), phacoemulsification-intraocular lens implantation (10 eyes), and phacoemulsification-intraocular lens implantation-anterior vitrectomy (9 eyes). Resolution of MG was seen in almost all patients with a reduction of intraocular pressure (IOP) from an average of 41.87 mm Hg at presentation to 15.84 mm Hg at the last visit. However, there were no data on the status of the fellow eye in patients with unilateral classical MG in this series. It is well known that there are serious difficulties in the choice of the appropriate treatment for the fellow eye to prevent the development of MG in this eye. We would like to address several issues regarding the management strategies of the fellow eye in patients with unilateral MG secondary to antiglaucoma surgery based on our researches and our personal experience.

We divided the fellow eyes of patients with unilateral classical MG into three groups: 1) the eyes of patients who meet the diagnostic criteria for primary angle-closure suspect<sup>[2-3]</sup>. These eyes are apparently normal, *i.e.*, the angle is completely open but narrow with normal visual functions and IOP. However, these eyes have a great risk to develop in the future an acute or

subacute attack of angle closure given the biometric similarity with the other eye, that has already experienced an MG. The optimal intervention for prophylaxis of MG is peripheral iridotomy/iridectomy, which should be carried out promptly, immediately after the start of the appropriate therapy for unilateral classical MG. If the surgery is performed at the stage of apparently normal eye with entirely open angle and normal IOP, MG does not occur postoperatively in spite of the disease in the other eye<sup>[4]</sup>; 2) the eyes of patients who fulfill the diagnostic criteria of primary angle-closure<sup>[2-3]</sup>. If some of the angle is already closed and the IOP is increased, the most intensive medical treatment should be carried out in an attempt to open the angle and to lower the tension in preparation for iridectomy<sup>[4]</sup>. MG occurs only in eyes in which some or all of the angle is closed preoperatively. Surgical intervention has to be performed in these eyes without appearing a malignant postoperative reaction, if preoperatively the angle is open or has been opened entirely by intensive medical therapy. The tension at the time of surgery is an unreliable guide to the likelihood of MG occurrence. We recommend a peripheral iridotomy/iridectomy or trabeculectomy depending on the level of the IOP reached after medical treatment, namely, the IOP normalized or it remained elevated, respectively<sup>[4]</sup>; 3) the eyes of patients who meet the diagnostic criteria of primary angle-closure glaucoma<sup>[2-3]</sup>. In most cases, the primary chronic irreversible angle-closure glaucoma of the fellow eye occurs in eyes predisposed to angle-closure by their small dimensions with shorter axial length, shallower anterior chamber, thicker sclera, and a relatively larger lens. We documented, for the first time<sup>[4]</sup>, the possibility of evolution of the primary chronic irreversible long-standing angle-closure glaucoma toward a malignant preglaucoma and even to a primary MG. The mechanisms involved in this process include expansion of choroidal volume by an accumulation of serous fluid in the extravascular choroidal space, slackness of lens zonules, and poor conductivity of fluid through the vitreous<sup>[5]</sup> owing to prolonged angle-closure as well as to severe long-standing intraocular inflammation. All these factors cause the vitreous and lens to move forward creating a ciliovitreal block with posterior pooling of aqueous in the vitreous or behind it. We recommend in these cases<sup>[4]</sup> a combined operation, *i.e.*, pars-plana aspiration (with removal of liquid or liquefied vitreous), trabeculectomy and phacoemulsification-intraocular

lens implantation if the lens is opaque. If pars-plana aspiration fails to extract liquid from the vitreous cavity, pars-plana vitrectomy is mandatory.

Altogether, the fellow eye of the patients with unilateral classical MG is markedly predisposed to develop the MG after surgery. It can be managed successfully by appropriate and timely interventions.

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All authors were involved in design and conduct of the study; collection, management, analysis and interpretation of the data; and preparation, review or approval of the manuscript.

**Conflicts of Interest:** Călugăru D, None; Călugăru M, None.

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#### **Author Reply to the Editor**

**Dear Editor,**

**W**e thank Dan Călugăru *et al* for their reading our paper published in your journal and giving such a wonderful comment. We agree with them that the fellow eye of the malignant glaucoma (MG) patients are much predisposed to MG development, and it's necessary to prepare the patient for comprehensive and careful follow up and the prevention of MG in the fellow eye. However, though we did some prevention work in most of these patients, we didn't collect and include the data about those fellow eyes in our paper. Dr. Călugăru *et al* are right that there are difficulties in selecting appropriate treatments for the prevention of MG in the fellow eyes of MG patients. Based on their research and experience, Dr. Călugăru *et al* put forward various strategies for managing the fellow eyes of MG patients according to the grades of primary angle closure in those fellow eyes, which is good guide for us and other readers. We thank them again for their share of their valuable experience.

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