

**DIFFERENTIAL DIAGNOSIS OF POSTOPERATIVE ACUTE UVEITIDES****ZILFYAN A.A.<sup>1,2</sup>**<sup>1</sup> Scientific-Research Center, Yerevan State Medical University, Yerevan, Armenia<sup>2</sup> "Shengavit" Medical Center, Yerevan, Armenia*Received 6/14/2013; accepted in final form 11/08/2013***ABSTRACT**

*Differential diagnosis of postoperative complications at complicated cataracts is rather difficult, because clear-cut criteria are lacking, while there is an identical clinical symptomatology.*

*The observation group made 600 patients with senile and complicated cataracts who previously underwent micro-coaxial phacoemulsification. Patients were arranged into 3 study groups: Group 1 made patients with senile cataracts (200 eyes), Group 2 – patients with complicated cataracts on the background of primary open-angle II-III degree glaucoma (200 eyes); Group 3 – patients with complicated cataracts on the background of type II diabetes mellitus (200 eyes).*

*Based on our own clinical investigation, a summarized Table of informative criteria for differential diagnosis between endophthalmitis, toxic anterior segment syndrome and autoimmune aseptic postoperative uveitis is proposed.*

*Using the specified Table practicing cataract surgeon can differentiate the precise type of inflammatory process observed at complicated cataracts in a postoperative period.*

*The symptomatology of studied diseases is presented in the tabular form and, to a large extent, might facilitate the timely and adequate treatment of acute endophthalmitis, toxic anterior segment syndrome of the anterior chamber of an eye and the autoimmune aseptic anterior uveitis.*

**KEYWORDS:** *senile and complicated cataracts, endophthalmitis, toxic anterior segment syndrome, autoimmune uveitis, differential diagnosis.*

**INTRODUCTION**

Cataract surgery is rapidly developing nowadays. In particular, although until recently phacoemulsification was considered the most effective method of cataract extraction, procedures using femtosecond laser energy began to be currently implemented. At the same time, due to advancement of cataract surgery technologies – application of micro-coaxial phacoemulsification through the minimal 1.1-2.2 mm incisions, administration of antibiotics into the anterior chamber of the eye, prescribing non-steroidal medicinal preparations and antibiotics prior to the surgery – the cases of developing acute endophthalmitis, toxic anterior segment syndrome (TASS), as well as autoimmune reactive aseptic uveitis decreased in number; nevertheless,

they still remain among the most important problems of cataract surgery. Meanwhile, it is known that development of these complications are most frequently observed at complicated cataracts. According to statistical data of the Academician S.N. Fyodorov "Eye Microsurgery" State Institution Intersectoral Research and Technology Complex (SI IRTC) (Moscow, Russia), in different regions of Russia complicated cataracts make from 36% to 54% [Takhchidi K. et al., 2004]. It is known that complicated cataract presents an eye disease, at which the cause of the lens opacity might be both other eye diseases (glaucoma, uveitis, etc.) and systemic diseases of different profile: *diabetes mellitus*, rheumatoid diseases, etc. The protective mechanism defined as anterior chamber associated immune deviation (ACAID) and posterior chamber associated immune deviation, the efficiency of which is predominantly manifested in the anterior segment of the eye, prevents development of the in-

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flammatory reaction in the absence of pathology. The presence of mentioned symptom complex was also revealed at complicated cataracts [Aznabaev R. et al., 2000; Parsadanyan A. et al., 2009; Zilfyan A., 2010; 2013 a;b;c]. This regional inflammatory process significantly differs from displays of TASS and acute endophthalmitis [Niedekorn J., 1990; Wilbanks G., Streilein J., 1991; Streilein J., 1996].

We made an attempt to identify the objective clinical criteria for differential diagnosis between postoperative acute endophthalmitis, TASS, and acute autoimmune aseptic uveitis.

#### MATERIAL AND METHODS

The observed group made 600 patients with senile and complicated cataracts who in a period of 2012-2013 underwent micro-coaxial phacoemulsification using the system "Legacy Everest" ("Alcon", USA) through 2.2 mm incision; the surgery intervention was done at "Shengavit" Medical Center. The degree of lens opacity was evaluated using both Buratto classification and the known colorimetric classification of Emery.

The study cohort was arranged into three groups. The first group embraced patients with senile cataract (200 eyes). The second group made patients with complicated cataract on the background of the I-II degree primary open-angle glaucoma (200 eyes). The third group involved patients with complicated cataract on the background of type 2 *diabetes mellitus* (200 eyes).

Irrespective of cataract degree and stage, all patients underwent micro-coaxial phacoemulsification with implantation of hydrophobic acrylic posterior chamber intraocular lens. No serious intraoperative complications were recorded by us. There were no cases of hemorrhages, posterior chamber ruptures, etc. In some cases of different degree lens semi-dislocation we implanted capsular rings of different diameters and, if mydriasis was insufficient, pupil rings of Malyugin were used. The operation was performed by the same surgeon. The average duration of surgical intervention was 10 minutes. Four days before the operation medications, non-steroidal anti-inflammatory means and antibiotics, were prescribed to all patients. On the day of operation the same preparations, as well as 5% betadine solution were instilled in the conjunctival cavity of patients. At the end of operation antibiotic drug ce-

furoxime was introduced intra-cameral using the concentration accepted in ophthalmology.

#### RESULTS AND DISCUSSION

In 2 patients of the first study group we recorded cases of acute endophthalmitis with hypopyon and sharp decrease of visual functions. Precisely on the second day after surgery intravitreal injection of a broad-spectrum antibiotic vancomycin was done in these patients, and antibiotics were prescribed both *per os* and as instillations. The signs of acute endophthalmitis were coped by the end of the first week. Different degrees of TASS displays expressiveness were recorded by us in 3 cases. We managed to avoid severe complications through the increased number of steroids instillation, prescription of B-blockers and lubricants.

In 9 patients of the second group the autoimmune aseptic inflammatory process was observed: iridocyclitis with the presence of inflammatory cells in the anterior chamber (+2, +3) and fibrin exudation.

In 8 cases moderately expressed inflammatory reaction originated in the third group; autoimmune aseptic iridocyclitis with the presence of inflammatory cells (from +1 to +2) in the anterior chamber was observed. Due to local and general indication of non-steroidal anti-inflammatory medicinal means we managed to cope the inflammatory process.

In 2 patients of the second and in 1 patient of the third group TASS developed. The patients underwent appropriate therapy, as a result of which the signs of toxic inflammation subsided already on the fourth or fifth day.

It should be mentioned that the most severe complications manifested as autoimmune aseptic anterior uveitis were observed in patients with glaucoma and in those with *diabetes mellitus*. The effective treatment of the aseptic anterior uveitis was achieved due to indication of local and general non-steroidal anti-inflammatory preparations and mydriatics.

No manifestations of endophthalmitis-related symptoms were observed in the second and third groups. Proceeding from the generally known signs, which are characteristic to the acute endophthalmitis and TASS, as well as on the base of our earlier performed studies on aseptic uveitis development, we propose informative criteria for differential diagnosis between the above-mentioned pathological states of the eye and present them as a Table.

TABLE.

Main clinical criteria for differential diagnosis between the acute endophthalmitis, TASS and autoimmune aseptic postoperative uveitis

SYMPTOMS (after surgery)	ENDOPHTHALMITIS (in a day)	TASS (in 6 hours)	ACAID DISORDER (in 12 hours)
<b>Pain</b>	severe	moderate	mild
<b>Vision lowering</b>	up to light perception	up to counting fingers near the face	up to counting fingers near the face
<b>Mixed injection</b>	always	not always	not always
<b>Corneal edema</b> (limbus-to-limbus)	not always	always	seldom
<b>Fibrin and cellular exudation in the anterior chamber</b>	always (hypopyon)	frequent (white hypopyon is possible)	always (white hypopyon is possible)
<b>Intraocular pressure increase</b>	seldom	always	seldom
<b>Vitreitis</b>	always	seldom, actually does not develop	seldom, yet possible

#### CONCLUSION

The proposed Table is grounded on identification of the main clinical symptoms, which are characteristic for each of the specified pathology states.

Using the Table a practical cataract surgeon will be enabled to differentiate the precise type of in-

flammatory process that originates in the postoperative course of complicated cataracts.

The symptomatology of the studied eye diseases presented in the Table will mostly facilitate in conducting the modern adequate treatment of acute endophthalmitis, TASS and autoimmune aseptic anterior uveitis.

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