

Report prepared by Ekaterina Denisova about vitreoretinal observership during 11.20.13-12.19.13 in the Associated Retinal Consultants, William Beaumont Hospital, Royal Oak, Michigan, USA

### Background

I have been working as a pediatric ophthalmologist and senior researcher of eye diseases in children in the Pediatric Department of Helmholtz Moscow Research Institute of Eye Diseases since 1991 up to present time.

I use main modern methods of diagnosis, medical and surgical treatment of eye diseases in children. I apply methods of surgical treatment of glaucoma, cataracts, retinal detachment, including vitrectomy, in patients with retinopathy of prematurity, retinal laser photocoagulation for retinopathy of prematurity and other children retinal pathology. I conduct approximately 150 surgical operations (half of them are vitreoretinal cases) and 100 retinal laser operations per year.

### Before the observership

I used to face the following challenges at work:

- Treatment of aggressive posterior retinopathy of prematurity, indications for anti-VEGF therapy for retinopathy of prematurity and other pediatric diseases with retinal and subretinal neovascularization.
- Surgical technic in advanced (4A-5) stages retinopathy of prematurity, lens sparing surgery. Surgical technic of complicated cases of pediatric retinal detachment with advanced proliferative vitreoretinopathy, giant tears, optic disk coloboma etc.
- Epiretinal membranes and/or internal limiting membrane peeling in different pediatric retinal disorders, including intermediate and posterior uveitis, gamartoma of the retina and retinal pigment epithelium, macular holes etc.
- Indications for vitreoretinal surgery and surgical technic in Coats disease, juvenile retinoschisis, optic disc pit and posterior persistent fetal vasculature syndrome.
- Optimal choice between use of expanding gases and silicon oil in different pediatric vitreoretinal cases.

I expected to investigate the practices, applied in the leading vitreoretinal clinic, and to learn the latest techniques of medical and surgical treatment of pediatric and adults vitreoretinal diseases. I wished to apply new knowledge in Russia for better treatment of pediatric vitreoretinal pathology.

### During the observership

During the observership I assisted at the diagnosis and treatment of many pediatric and adult vitreoretinal cases and received answers for all challenging questions. I have learned many pieces of new and useful information about the diagnosis and treatment of different pediatric retinal pathology, including retinopathy of prematurity, familial exudative vitreoretinopathy, incontinentia pigmenti, Norrie disease, Coats disease, juvenile retinoschisis and posterior persistent fetal vasculature syndrome, complicated cases of pediatric retinal detachment. I have learned modern treatment options of adult retinal diseases such as wet and dry age-related macular degeneration, diabetic macular edema, diabetic retinopathy, retinal vein occlusion, central serous chorioretinopathy, choroidal melanoma and others.

I attended 40 operations: 16 pediatric and 24 adult (presented in the table).

	Pathology	Number of patients
Pediatric	Retinopathy of prematurity	8
	Familial exudative vitreoretinopathy	3
	Persistent fetal vasculature syndrome	2
	Juvenile retinoschisis	1
	Macular hole	1
	Proliferative vitreoretinopathy	1
Adult	Retinal detachment	11
	Macular epiretinal membrane	6
	Macular hole	2
	Proliferative diabetic retinopathy	1
	Acute retinal necrosis	1
	Secondary IOL implantation	1
	IOL reposition and removing lens fragments from the vitreous	1
Enucleation	1	

I also attended 26 examinations of children under anesthesia.

Pathology	Number of patients
Retinopathy of prematurity	9
Familial exudative vitreoretinopathy	12
Persistent fetal vasculature syndrome	1
Juvenile retinoschisis	1
Incontinentia pigmenti	1
Coats disease	2

I observed more than 150 children and adults patients with different vitreoretinal disorders in the clinic. Besides the above-mentioned diseases, I saw cases, such as idiopathic epiretinal membranes, retinitis pigmentosa, X-linked choroideremia, myopic foveal schisis, uveitis glaucoma hyphema syndrome, cytomegalovirus retinitis in immunosuppressed and AIDS patients, ocular histoplasmosis, radiation retinopathy and others.

I attended weekly morning conferences, where interesting vitreoretinal cases and topics were discussed.

Together with Dr. Trese we have prepared an article named ‘Telemedicine with smart software for retinopathy of prematurity screening’ for the journal - Russian Pediatric Ophthalmology. Dr. Trese presented me a CD disk with many articles about ROP and pediatric retinal diseases.

I was highly impressed by very high level of surgical techniques and broad range of skills in ophthalmology and general medicine of retinal consultants and retinal fellows. Also I was fascinated by the scope of investigations in basic and clinical science, conducted by Associated Retinal Consultants. I was amazed by the perfect organisation of work in the hospital. I am grateful for the detailed answers and explanations, kind and friendly attitude.

#### After the observership

I shared the acquired knowledge with my colleagues. We are planning to apply telemedicine for retinopathy of prematurity screening in Russia more widely. We are going to speak with our biochemical laboratory about preparation of autologous plasmin that is necessary for creating posterior vitreous detachment in pediatric vitreoretinal surgery. We are also planning to improve surgical technic in advanced stages of retinopathy of prematurity and other pediatric vitreoretinal disorders. We are also going to do FAG in babies with retinopathy of prematurity and other vitreoretinal pathology under anesthesia using RetCam. We are aimed at conducting genetic investigations in pediatric vitreoretinal diseases in Russia in order to apply gene therapy in the future.

#### Conclusion

I am highly grateful for everybody who took part in organizing the observership and made it possible. I suppose that such observerships in the leading ophthalmological centers are crucial for the refinement of the treatment of eye diseases in children and for the reduction of preventable blindness. I hope that acquired knowledge will be helpful for Russian ophthalmologists and will contribute to the improvement of the diagnosis and treatment of ROP and other pediatric vitreoretinal pathology in Russia.

Unfortunately, foreign ophthalmologists have little information about scientific researches and clinical practice in Russia. That is why further collaboration (e.g. organization of joint meetings, publications in Russian and American ophthalmological journals, participation in international conferences) is essential for sharing experience.