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Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 1, January 2026

https://eurekaoa.com/index.php/5

CLINICAL SIGNIFICANCE OF MONITORING THE VISUAL ORGAN IN WOMEN WITH OPHTHALMOPATHOLOGY DURING PREGNANCY AND THE POSTPARTUM PERIOD

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Abstract

In the global scientific literature, physiological changes in the visual system during pregnancy—such as reduced tear film stability and increased signs of dry eye, functional alterations in corneal sensitivity and thickness, transient shifts in refraction, decreased contact lens tolerance, and a physiological reduction in intraocular pressure—have been extensively documented. Likewise, pregnancy-associated pathological conditions—including hypertensive disorders, preeclampsia/eclampsia, posterior reversible encephalopathy syndrome (PRES), central serous chorioretinopathy, cranial neuropathies, progression of diabetic

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retinopathy, and other chorioretinal-neuro-ophthalmologic complications—have been thoroughly described.

However, a standardized approach has not been established for managing pregnant women with pre-existing ophthalmopathology. Specifically, there is no consensus regarding the selection of obstetric tactics (vaginal delivery versus cesarean section), preemptive assessment of dystrophic changes and retinal tears in the peripheral retina, the timing and scope of prophylactic laser coagulation, or the stability of refraction and corneal parameters during pregnancy in women with a history of refractive surgery (RK, LASIK, or PRK).

Relevance of the Topic

The period of pregnancy is accompanied by significant changes in the hormonal, circulatory, and metabolic systems of a woman's body. Many studies are limited to single observations and short follow-up periods. In numerous studies, the results obtained regarding the effect of pregnancy and childbirth on the organ of vision are inconsistent. Studying the impact of repeated pregnancies and childbirth on the visual organ and drawing appropriate conclusions is of great scientific and practical importance for preserving the health of both mother and child in the future.

Purpose of the Study

To study the effect of pregnancy and childbirth on the outcomes of keratorefractive surgery.

Research Materials and Methods

The study included 60 women (118 eyes) who had undergone refractive surgery prior to their first pregnancy.

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Results

The study demonstrated that repeated pregnancies and childbirth did not have a statistically significant negative impact on the outcomes of keratorefractive surgery.

Keywords: refractive surgery, recurrent pregnancy, laser coagulation, peripheral retinal dystrophies

For citation Ruzimova, N.E., & Karimova, M.Kh. (2026). Clinical significance of monitoring the visual organ in women with ophthalmopathology during pregnancy and the postpartum period.

Results

Examination Results: Our observation included 60 women (118 eyes) who had undergone refractive surgery prior to their first pregnancy. The mean age of the patients was 25 ± 4 years.

All patients were examined at the Khorezm Branch of the RSSPMCEM between 2016 and 2024 years.

According to the examination results, among the observed pregnant women, 80% had undergone refractive surgery within 3 years prior to pregnancy, 15% had surgery within 5 years, and 5% within 7 years. The study included 60 women (118 eyes). Among these, in 60 eyes (51%) uncorrected visual acuity was 1.0, in 8 eyes (6.8%) visual acuity was 0.4 ± 0.1 with no change after correction, in 14 eyes visual acuity averaged 0.7 ± 0.1 with no change after correction, and in 4 eyes visual acuity was 0.9 with no change after correction.

Additionally, in this group, cases of improved visual acuity with correction were observed. Detailed analysis showed that in 16 eyes uncorrected visual acuity averaged 0.3 ± 0.1; among them, in 4 eyes corrected visual acuity improved to 0.35 ± 0.05, and in the remaining 12 eyes visual acuity improved with correction

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to 0.78 ± 0.12. Additionally, in 13 eyes, uncorrected visual acuity averaged 0.7 ± 0.1, while with correction it reached 0.925 ± 0.075. Based on fundus examinations of the posterior segment, 11 eyes underwent focal laser procedures and 7 eyes underwent peripheral laser coagulation. B-scan examination revealed that in 47 eyes the vitreous body remained unchanged, while varying degrees of floating opacities were detected in other eyes. During the postpartum period, the condition of the fundus remained stable, and no pathological shifts in visual acuity were observed. Only in 5 eyes did patients report a haze in front of the eye during the first 40 days after delivery; at follow-up examinations after 1 week, 3 months, and 6 months, the condition of the vitreous body was observed to have improved.

During the second pregnancy, in two eyes that had undergone focal laser procedures during the first pregnancy, small dystrophies were detected in the peripheral retina, and in one eye an atypical pathological lesion was identified, which the peripheral fundus was normal during first pregnancy. In the remaining eyes, the central and peripheral retina remained stable in the postpartum period. During the third pregnancy, newly developed vitreoretinal dystrophies was detected in two eyes. In three eyes, decreasing of the central reflex and a reliable decrease in visual acuity were observed. In the other eyes, the clinical and functional state of the eyes remained stable. Across all three pregnancies and deliveries, pre- and post-pregnancy average macular pachymetry was 480 ± 30 μm, with no pathological shifts recorded.

Conclusions

In pregnant women with a history of keratorefractive surgery, no negative effects of repeated pregnancies and childbirth on surgical outcomes were observed. The occurrence of recurrent myopic refraction was primarily associated with the time elapsed since surgery. Specifically, within a period of up to 5 years, post-refractive outcomes remained stable and were not influenced by pregnancy.

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Corneal keratotopographic analyses demonstrated stability of the cornea following repeated pregnancies and deliveries.

In eyes that had undergone focal or peripheral laser procedures and where the peripheral retina remained unchanged, no pathological progression of dystrophic changes was observed during both natural and surgical deliveries. These procedures appeared to prevent potential adverse effects of childbirth on the visual organ.

In eyes that underwent peripheral laser coagulation, no progression of vitreoretinal dystrophies was observed compared to groups that had received focal or no laser procedures. We associated this with the complete disruption of the interface between the vitreous body and the retina caused by laser treatment. Specifically, persistent traction in the vitreous body under constant pressure can create small retinal tears and contribute to the dangerous progression of lattice and wedge-shaped dystrophies. Therefore, in eyes that underwent focal laser procedures, partial maintenance of vitreoretinal contact likely explains the occurrence of recurrent dystrophic changes and the formation of new micro-tears in pregnant women, particularly against the background of hormonal changes.

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