

Article

On The Issue of Prevention of Retinal Detachment in Pregnant Women with High Myopia

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Abstract: High myopia in pregnant women significantly increases the risk of retinal complications, particularly peripheral vitreochorioretinal dystrophies (PVCRD) and rhegmatogenous retinal detachment (RRD). This study aimed to determine the incidence of dangerous PVCRD forms, evaluate hemostatic parameters, and define optimal childbirth management strategies for women with high myopia. A total of 24 pregnant women (48 eyes) aged 19–39 years, with refractive error greater than 6.5 diopters, were examined through comprehensive ophthalmologic and hemostatic evaluations. Retinal dystrophic changes were identified as “snail track” dystrophy (18.75%), retinoschisis (14.5%), and focal hyperpigmentation (4.2%). Peripheral laser coagulation (PPLCR) was performed in 43.75% of cases between 21–32 weeks of gestation, though 42% of these patients ultimately required cesarean section due to insufficient chorioretinal adhesion formation. Retinal detachment primarily developed in cases of lattice degeneration, “snail track” dystrophy, and retinoschisis. Timely PPLCR proved effective in preventing RRD and allowed for vaginal delivery in 58% of cases. Mild alterations in the hemostatic system were also noted, particularly elevated soluble fibrin–monomer complexes (SFMC) in patients with combined PVCRD. These findings suggest that careful ophthalmologic monitoring and preventive laser therapy are essential to reduce retinal complications and enable safe natural childbirth among women with high myopia.

Keywords: Myopia, Pregnancy, Retinal Detachment, Vitreochorioretinal Dystrophy, Laser Coagulation

Introduction

According to the literature, by the beginning of childbearing age, 18–30% of women develop myopic refraction. High myopia in such cases accounts for 7.4–18.2%. During pregnancy and childbirth, the risk of complications of myopic disease—retinal detachment and peripheral vitreochorioretinal dystrophies (PVCRD)—increases. Among women of reproductive age, the incidence of this pathology averages 14.6% [1],[2].

During pregnancy, ocular blood flow and intraocular pressure decrease due to reduced circulation in the ciliary body, which is involved in regulating the hydrodynamic parameters of the visual organ. Both in normal and complicated pregnancies, significant hemodynamic changes in the eyes occur along with redistribution of central and cerebral blood flow. These changes are caused by arteriole spasm. There are two types of shifts: **functional**, without visible ophthalmologic abnormalities of the retina, and **organic**, with visible changes in the fundus. Functional changes include variations in the caliber and course of retinal vessels, while organic ones include acute occlusion of arteries and their branches, retinal hemorrhage, edema, and detachment [3],[4].

In all countries, including ours, there has been an increase in the rate of **cesarean section (C-section)** performed for the sake of maternal and fetal health. Sometimes these are carried out for so-called *ophthalmological indications* to prevent the development of a severe complication such as rhegmatogenous retinal detachment (RRD) [5],[6].

However, delivery by cesarean section can be accompanied by life-threatening postoperative complications for both the mother and the newborn, such as thromboembolic events, infections, and hemorrhage. In the 21st century, ophthalmologists and obstetricians increasingly agree that the choice of delivery method should not depend solely on the degree of myopia. Myopia of 6.5 diopters without fundus changes is not a contraindication to natural childbirth.

In cases where dangerous forms of PVCRD are detected and timely prophylactic peripheral laser coagulation of the retina (PPLCR) is performed, natural childbirth is also possible. The choice of delivery method should be based not on the presence of high myopia itself, but on the **retinal condition**—specifically, the presence or absence of dangerous PVCRD and dystrophic retinal detachment.

If peripheral dystrophies are found during fundus examination in pregnant women, PPLCR should be performed. After laser coagulation, chorioretinal adhesions form at the coagulation sites, which prevent further progression of the process and the development of RRD. PPLCR should be carried out at 20–30 weeks of gestation. Performing it earlier poses risks of fetal complications, while later procedures are ineffective because chorioretinal adhesions will not have time to form before delivery.

If RRD is detected, immediate surgery is indicated. In cases of complete anatomical retinal reattachment and sealed tears by 35–37 weeks of pregnancy, or in women with a history of RRD surgery before pregnancy and a stable retinal condition, vaginal delivery is permissible [7].

Purpose of the Study

To determine the incidence of dangerous forms of peripheral vitreochorioretinal dystrophies (PVCRD), to investigate the hemostatic system, and to define the optimal management strategy for childbirth in pregnant women with high myopia.

Materials and Methods

Medical records of 24 pregnant women (48 eyes) with high myopia (greater than 6.5 diopters) were analyzed. Gestational age ranged from **7 to 38 weeks**, and patients were aged **19–39 years**. Two patients had a threat of pregnancy termination, and two presented with **gestosis (hypertensive disorder of pregnancy)**.

All patients underwent comprehensive ophthalmologic examination, including **visual acuity**, visual field testing, refractometry, tonometry, biomicroscopy, keratotopography, ophthalmoscopy, optical coherence tomography (OCT) using an SD-OCT scanner (Heidelberg Engineering), and ultrasound examination.

The hemostatic system was evaluated by determining the activity of **von Willebrand factor (vWF)**, **antithrombin III**, and factor VIII, as well as by quantitative assessment of soluble fibrin–monomer complexes (SFMC) and fibrinogen concentration (Clauss method).

Results and Discussion

Among the examined patients, the following retinal dystrophic changes were diagnosed:

1. “Snail track” dystrophy – 9 eyes (18.75%)
2. Focal hyperpigmentation – 2 eyes (4.2%)
3. Retinoschisis – 7 eyes (14.5%)

In 2 women (4.5%) with lattice dystrophy and **1 woman (2.05%)** with “snail track” PVCRD, a slight increase in **SFMC levels** was detected in the blood.

In **2 patients (4.2%)** with combined PVCRD forms and retinal defects against the background of **gestosis**, central serous chorioretinopathy (CSC) developed.

The most frequent localization of pathological changes was observed at:

1. 5–6 o’clock – 24%,
2. 11–12 o’clock – 23%,

3. entire periphery – 18.5%,
4. 2–3 o'clock – 14%,
5. 9–10 o'clock – 6.5%,
6. 7–8 o'clock – 5%.

Prophylactic peripheral laser coagulation of the retina (PPLCR) was performed on **21 eyes (43.75%)** between **21 and 32 weeks of gestation**. However, despite the preventive treatment, **10 patients (42%)** required cesarean section due to insufficient chorioretinal adhesion formation.

Conclusion

Thus, retinal detachment in pregnant women with high myopia primarily develops in cases of lattice degeneration, “snail track” dystrophy, retinal tears, **and** retinoschisis.

Dangerous forms of peripheral vitreochorioretinal dystrophy (PVCRD) **are** an absolute indication for prophylactic retinal laser coagulation (PRLC).

Timely preventive treatment helps to avert the development of such a severe complication as retinal detachment and allows for vaginal delivery in 58% of cases.

In pregnant women with high myopia, alterations in the hemostatic system are sometimes observed, which requires further detailed investigation.

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