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Bullous Exudative Retinal Detachment in Eclampsia

ABSTRACT

Retinal detachment is a rare complication of hypertensive disorders in pregnancy. It affects 1% of women with severe preeclampsia and 10% of women with eclampsia. In most cases, spontaneous resolution occurs in few weeks, usually without sequels. We present a case of 39-year-old primipara with eclampsia, who developed bilateral serous retinal detachment three days before delivery. After delivery by Caesarean section and the establishment of normal values of blood pressure, spontaneous resorption of subretinal fluid occurred and visual acuity progressively returned to normal.

KEY WORDS:

exudative retinal detachment, eclampsia, arterial hypertension

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Case Report

A 39-year-old primipara (in which the pregnancy is a result of in vitro fertilization) was hospitalized at the Clinic of Gynecology and Obstetrics, Clinical Center of Banja Luka in the 33rd week of pregnancy due to edema of the lower extremities, low protein levels and arterial hypertension. Pretibial edema was found, total serum protein 55 g/L, albumin level 25 g/L, proteinuria 3g/24 hours, AST 114 U/L and gamma GT 56 U/L. The highest measured value of blood pressure amounted to 210/150 mm Hg.

The patient is examined by cardiologist, hematologist, nephrologist, pulmonologist, gastroenterologist and an ophthalmologist. She was treated with human albumin, inhibitors of DOPA decarboxylase (methyldopa) and calcium antagonists (nifedipine). ACE inhibitors were not applied due to the potential fetal toxicity.

At the first examination of ophthalmologist, in the 33rd week of pregnancy, hypertensive changes in the blood vessels of the retina are recorded (fundus hypertonicus grade II/III). Three days after the first examination the patient felt a sudden decrease of vision in both eyes. Visual acuity in both eyes amounted to 1/60 and continues to

decrease. Using direct and indirect ophthalmoscopy and ultrasonography diagnosed bilateral bullous exudative retinal detachment. Optical coherence tomography (OCT) and fundus photography (FF) were not done because the patient was in very severe general condition.

Figure 1. Fundus photographs of right A) and left B) eyes, 10 days after delivery showing exudative retinal detachment

In the 34th week of pregnancy, delivery was terminated by Cesarean section indicated by cardiologists and gynecologists because of severe general condition and pleural effusion. On examination, three day postpartum, her

visual acuity in both eyes was very bad-feeling light with projection (L+P+). The tenth day postpartum FF (**Figure 1**) and OCT (**Figure 2**) were done and diagnostic evaluation was completed. Establishment of normal values of blood pressure leads to a gradual spontaneous resorption of subretinal fluid and visual acuity returns to normal.

Figure 2. OCT of right A) and left B) eyes, 10 days after the delivery shows exudative retinal detachment

Discussion

Eclampsia is the most severe form toxicosis in pregnancy. It occurs at the end of pregnancy or during delivery. Primiparas, women with a multiple pregnancy, diabetes, obesity and hypertension are at higher risk of developing eclampsia.

This condition occurs in 3-5% of all pregnancies and is the leading cause of maternal mortality in developed countries (the maternal mortality rate is 2%).¹ It continues to preeclampsia, which is characterized by hypertension (>140/90 mm Hg), proteinuria (> 300 mg/day) and pretibial edema. In eclampsia systolic pressure is > 200 mm Hg, oliguria can progress to anuria, resulting in generalized edema, and in the most severe cases occur tonic-clonic convulsions.

During preeclampsia and eclampsia occurs arteriolar vasoconstriction, particularly of the vessels of the retina, kidneys and splanchnic region. In 50% of patients with preeclampsia have been reported visual disturbances: blurred vision, photopsia, diplopia, disturbance in the visual field, and in severe cases total blindness occurs.² Although visual disturbances are quiet common, complete blindness is rare, with an incidence of 1-3% and may be due to the involvement of the occipital cortex, retina (hypertensive retinopathy, edema, serous retinal detachment), or optic nerve (acute ischemic optic neuropathy).³

Serous retinal detachment was first described by von Graefe in 1885. It has been reported in 1% of patients with severe preeclampsia and in 10% of patients with eclampsia.⁴ It is characterized by the separation of the neurosensory retina from the retinal pigment epithelium (RPE). Is considered that endogenous vasoconstrictor agents leak freely from the choriocapillaries and act on the walls of the choroidal vessels resulting in choroidal vasoconstriction and ischaemia.⁵ Subsequently ischaemia of the RPE causes degradation of the outer blood-retinal barrier and formation of a serous proteinaceous exudate from the choroid, through the RPE, into the subretinal space, producing serous retinal detachment.⁶ In most cases, after delivery and regulation of arterial blood pressure leads to spontaneous resolution. Accumulated subretinal fluid is resorbed by active transport across the retinal pigment epithelium (RPE) and by passive hydrostatic and oncotic forces that work most effectively when the RPE barrier has been damaged. Visual acuity usually returns to normal within a few weeks. Some patients may develop residual macular RPE change, in form of Elschnig's spots. These changes can mimic a macular dystrophy or tapetoretinal degeneration.⁷ Rarely, due to extensive chorioretinal ischemia can occur optic atrophy.

In the treatment of exudative retinal detachment in eclampsia is most important to make delivery as soon as possible and implement measures that will lead to the normalization of blood pressure by using the most effective combinations of antihypertensive drugs: inhibitors of DOPA decarboxylase (methyldopa) and calcium antagonists (nifedipine). ACE inhibitors (captopril) are recommended after delivery. In severe cases, it is necessary to administer sedatives, hypnotics and spasmolytics. It is necessary to remove salt, fats and proteins initially.

All these measures and therapeutic procedures will lead to the absorption of the subretinal fluid, retinal reattachment and recovery of visual acuity. Treatment of exudative retinal detachment in patients with eclampsia requires prompt response, constant monitoring of all valid parameters for this condition (body weight, blood pressure, diuresis and proteinuria). Teamwork of specialists of all relevant branches, primarily gynecologists, cardiologists and ophthalmologists is necessary.

Contributors

MM performed examination of anterior segment, direct and indirect ophthalmoscopy, ultrasound examination, OCT examination and made fundus photography. She also took a big part in writing of this manuscript. NC performed examination of anterior segment, direct and indirect ophthalmoscopy and was a major contributor in writing the manuscript. Both authors read and approved the final manuscript.

References

1. Lee C, Hsu TY, Ou CY, Chang SY, Soong YK. Retinal detachment in postpartum preeclampsia and eclampsia: Changgeng Yi Xue Za Zhi. 1999; 22: 520-4.
2. Douglas KA, Redman CW. Eclampsia in the United Kingdom. The 'BEST' way forward. *Br J Obstet Gynaecol.* 1992 May; 99 (5): 355-356.
3. Schultz K.L., Birnbaum A.D., Goldstein D.A. Ocular disease in pregnancy. *Curr Opin Ophthalmol.* 2005; 16:308-314.
4. Cunningham FG, Fernandez CO, Hernandez C. Blindness associated with preeclampsia and eclampsia. *Am J Obstet Gynecol.* 1995; 172: 1291-1298
5. Saito Y, Tano Y. Retinal pigment epithelial lesions associated with choroidal ischaemia in preeclampsia. *Retina* 1998; 18: 103-108
6. Spaide RF, Goldbaum M, Wong DWK, Tang KC, Iida T. Serous retinal detachment of the retina. *Retina* 2003 Dec; 23 (6): 820-46
7. Gass DM, Pautler SE. Toxemia of pregnancy pigment epitheliopathy masquerading as a heredomacular dystrophy. *Trans Am Ophthalmol Soc* 1985; 83: 114-30

Eksudativna bulozna ablacija retine u okviru eklampsije

APSTRAKT

Ablacija retine je rijetka komplikacija hipertenzivnih poremećaja kod trudnica. Javlja kod 1% pacijentica sa teškom formom preeklampsije i kod 10% pacijentica sa eklampsijom. U većini slučajeva dolazi do spontane rezolucije tokom nekoliko nedjelja obično ne ostaju sekvele. Prikazujemo slučaj 39-godišnje prvorotke sa eklampsijom kod koje se razvila serozna bilateralna ablacija retine tri dana prije porođaja. Nakon porođaja carskim rezom i uspostavljanja normalnih vrijednosti arterijskog pritiska dolazi do spontane resorpcije subretinalne tečnosti i vidna oštrina se postepeno vraća na normalne vrijednosti.

KLJUČNE RIJEČI:

eksudativna ablacija retine, eklampsija, arterijska hipertenzija