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Bilateral serous retinal detachment in preeclampsia – a case report

Obustronne surowicze odwarstwienie siatkówki u pacjentki w stanie przedrzucawkowym – opis przypadku

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Summary: Preeclampsia is a leading cause of maternal and fetal/neonatal mortality worldwide. Serous retinal detachment is an unusual cause of visual loss in pregnancy. This is a case report of a 17-year-old patient who was admitted to the obstetric ward with symptoms of preeclampsia. The pregnancy was terminated by cesarean section at 38 gestational weeks. The patient complained of blurred vision in both eyes throughout the perinatal period. The ophthalmic examination revealed serous retinal detachment in both eyes. The optical coherence tomography demonstrated the hyporeflective area between the retinal pigment epithelium and the neurosensory retina. With blood pressure control at postpartum, there serous retinal detachment resolved spontaneously and patient's vision improved.

Key words: preeclampsia, serous retinal detachment, optical coherence tomography.

Streszczenie: W skali światowej stan przedrzucawkowy jest najczęstszą przyczyną zgonów matek i noworodków. Surowicze odwarstwienie siatkówki jest rzadką przyczyną zaburzeń widzenia u kobiet w ciąży. Poniżej przedstawiamy przypadek 17-letniej pierwiastki przyjętej na oddział położniczy z powodu objawów stanu przedrzucawkowego. Ciąża została rozwiązana w 38. tygodniu cięciem cesarskim. Pacjentka w okresie okołoporodowym zgłaszała pogorszenie ostrości wzroku obojga oczu. Badanie okulistyczne wykazało uniesienie siatkówki w tylnym biegunie w obojgu oczach. Badanie optycznej koherentnej tomografii ujawniło hyporefleksyjną przestrzeń między siatkówką neurosensoryczną a nabłonkiem barwnikowym siatkówki. Po normalizacji ciśnienia tętniczego obserwowano samoistną poprawę ostrości wzroku i zmniejszenie się przestrzeni płynowych.

Słowa kluczowe: stan przedrzucawkowy, surowicze odwarstwienie siatkówki, optyczna koherentna tomografia.

A 17-year-old nulliparous woman with pregnancy-induced hypertension was admitted to the Clinical Department of Obstetrics in Białystok at 37 gestational weeks. Her past medical history was unremarkable. On admission her blood pressure was 170/100 mmHg, and the urine analysis showed proteinuria. Laboratory tests revealed slightly elevated fibrinogen and D-dimer levels (512 mg/dl, 3.02 μg/ml). The remaining results of the blood tests were within normal limits. Ultrasound examination at admission demonstrated an intrauterine growth-restricted fetus in longitudinal lie and cephalic presentation and adequate amniotic fluid volume. Estimated fetal weight was 2100 grams. Biometric measurements did not correspond to the menstrual age (32 weeks). Cardiotocography (CTG) tracing was reactive with evidence of fetal activity. Attempts to control maternal hypertension with methyldopa and nifedipine were ineffective. At 38 weeks an uneventful caesarean section was performed because of worsening preeclampsia. A 2150 g male fetus was delivered in good condition. In postoperative management, the antihypertensive therapy was continued and albumin was administered for the treatment of hypoproteinemia. Low molecular weight heparin (Clexane 0.4 ml) was used for thromboprophylaxis in the puerperium. In the perinatal period the patient complained of blurred vision in her left eye. Two days following the caesarean section she had noticed decreased vision in her right eye as well.

On examination the best corrected visual acuity was 5/5 in the right eye and 5/16 in the left eye. The Ishihara test did not reveal any color deficiency. The intraocular pressures in both eyes were within normal ranges. An examination of the anterior segments was unremarkable. The dilated fundus examination showed bilateral serous retinal detachments (with gray-white subretinal exudate) in suprafoveal location in the right eye and involving the macula in the left eye. No disc edema, retinal cotton wool spots, hemorrhages, or arteriolar constriction were noted. Optical coherence tomography (OCT) performed on the same day demonstrated the hypo-reflective space between the RPE and neurosensory retina in the suprafoveal region of the right eye. The thickness of the optically clear space corresponding to the subretinal fluid was 974 μm. Optical coherence tomography sections through the left macula revealed a serous elevation of the neurosensory retina, involving the macula. Central retinal thickness was 617 μm. Angiography was not performed because the patient was breastfeeding (Fig. 1).

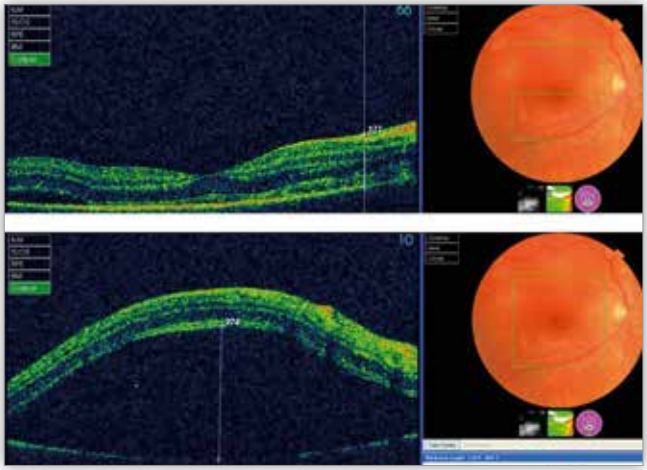

Fig. 1. Fundus photographs (a) and optical coherence tomograms (b) of serous retinal detachment 2 days after delivery.
Ryc. 1. Zdjęcia dna oka (a) i obrazy OCT (b) – badanie 2 dni po porodzie.

Ophthalmic examination peformed six days later showed partial resolution of detachments. The visual acuity was 5/5.5 in the right eye and improved to 5/8 in the left eye. The retinal thickness at the center of the fovea in the left eye decreased from 354 μm to 263 μm. The central retinal thickness in right eye was 368 μm. The OCT showed significant resolution of subretinal fluid in both eyes (Fig. 2).

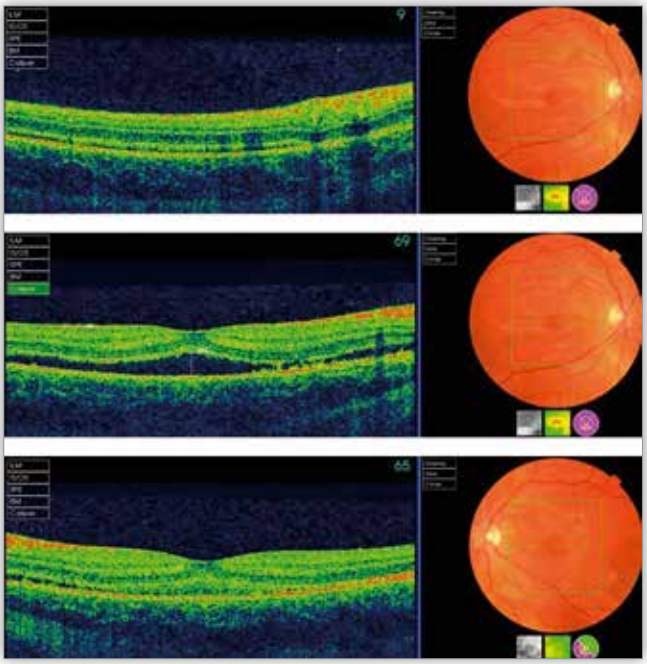

Fig. 2. Fundus photographs (a) and optical coherence tomograms (b) of serous retinal detachment 8 days after delivery.
Ryc. 2. Zdjęcia dna oka (a) i obrazy OCT (b) – badanie 8 dni po porodzie.

At the three month follow-up examination, visual acuity was 5/5 in both eyes. She did not complain of any visual disturbances. Her blood pressure was 115/75 mmHg without antihypertensive medications. OCT confirmed the resolution of subretinal fluid and the absence of fibrinous exudates. The RPE layer showed only mild changes (Fig. 3).

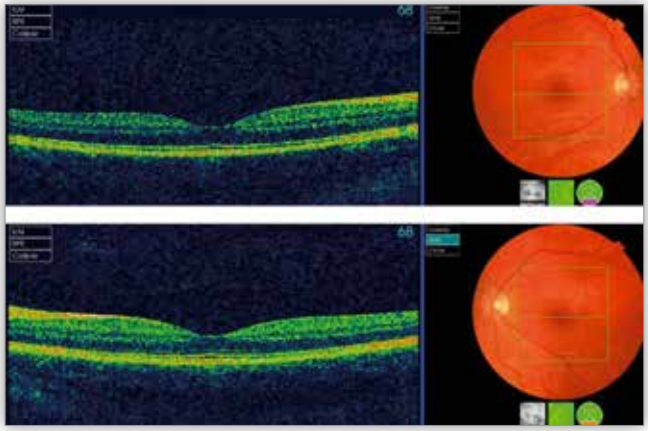

Fig. 3. Fundus photographs (a) and optical coherence tomograms (b) of serous retinal detachment 5 months after delivery.
Ryc. 3. Zdjęcia dna oka (a) i obrazy OCT (b) – badanie 5 miesięcy po porodzie.

Discussion

Preeclampsia is defined as a pregnancy-specific syndrome observed usually after the 20th week of gestation. It is characterized by hypertension (systolic BP >140 mmHg or diastolic BP >90 mmHg) accompanied by proteinuria (urinary excretion of 0.3 g protein or greater in a 24-hour specimen) in a woman normotensive before 20 weeks (1). Preeclampsia is referred to as "severe" when it is associated with a more significant elevation of BP (systolic BP of 160 mmHg, diastolic BP of 110 mmHg, or both) or more severe proteinuria, oliguria, pulmonary edema, abdominal pain, liver dysfunction, thrombocytopenia, elevated plasma urate and creatinine levels, consumptive coagulopathy with a decrease in platelet count, microangiopathic hemolytic anemia, or visual or cerebral abnormalities. The exact incidence of preeclampsia is unknown, but in general it has been estimated to be between 3% and 14%. This complication contributes significantly to maternal, fetal and neonatal morbidity and mortality.

The cause of preeclampsia remains unknown. This lack of knowledge of its underlying cause limits preventive possibilities. The aim of therapy is to prevent eclampsia as well as other severe complications of preeclampsia. Intrapartum antihypertensive therapy is indicated when sustained blood pressure elevations of 160 mmHg systolic and/or at least 105 mmHg diastolic are documented. Many physicians prefer hydralazine as first-line therapy. Magnesium sulfate is the drug of choice for the prevention of seizures in severe preeclampsia. Glucocorticoids can be administered to accelerate fetal pulmonary maturity. The definitive treatment for preeclampsia is fetus delivery.

Twenty five percent of patients with severe preeclampsia complain about visual disturbances. The most common symptom is blurring of vision, while other relatively less commonly reported ones are photopsias, scotomas and diplopia. Approximately 1% of patients with preeclampsia develop symptomatic exudative retinal detachment. It was first described by von Graefe in 1855.

The review made by Vigil-De Garcia et al. revealed that retinal detachment is more frequent in primiparous woman (60%). The onset of visual symptoms most commonly occurs before, or soon after, delivery of the neonate (2). The retinal detachment frequently affects the posterior pole (3). This serous de-

ISSN 0023-2157 Index 362646

tachment is bilateral in 89% of cases. The vascular alterations of preeclampsia, retinal hemorrhages, edema and cotton wool spots secondary to arteriolar damage are not very common. The prognosis for patients with visual disturbance associated with preeclampsia is good (4). Most patients experience resolution of the detachments within 2 to 12 weeks. The opinions regarding the coincidence between fundoscopic signs and maternal or fetal outcome vary. Some authors maintain that the presence of serous retinal detachment has no prognostic implications on the fetus. On the other hand, several researches revealed that maternal and fetal prognoses are worse in presence of fundoscopic alterations (5, 6).

The pathogenesis of serous retinal detachments in preeclampsia has not been fully understood. Choroidal ischemia is the proposed pathomechanism. The choroidal vascular insufficiency is a consequence of terminal arteriolar vasospasm, which affects the retinal pigment epithelium and leads to breakdown of the blood-retinal barrier. This damage causes the accumulation of fluid in the subretinal space producing serous retinal detachment. Vigil-De Garcia et al. emphasized the role of hypoalbuminemia in the development of retinal detachment (2). Although the reports of angiographic findings in the literature are limited, they have admitted the crucial role of choroidal ischemia in serous retinal detachment and other retinal changes observed in preeclampsia. Mabie et al. showed delayed filling of the choriocapillaries (7). Fastenberg et al. observed areas of choroidal non-filling with late fluorescein extravasation into the subretinal and sub-RPE spaces (8). No abnormalities of the retinal vessels were found.

On indocyanine green angiography, patients with preeclampsia demonstrate early choroidal nonperfusion and late staining of choroidal vessel walls (9). The area of choroidal ischemia detected by FA and ICGA corresponded with the area of decreased response amplitude and delayed latencies in multifocal electroretinography in case reported by Kwok et al. (10). Noticeably, abnormalities in MERG were still present after 3 months, although the visual acuity improved and FA and ICGA were completely normal. This suggests that the damage may not be completely reversible, as it seems to be.

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The study was originally received 11.06.2013 (889413)/
Praca wpłynęła do Redakcji 11.06.2013 r. (889413)
Accepted for publication 24.01.2014/
Zakwalifikowano do druku 24.01.2014 r.

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