

CASES REPORT

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Preeclampsia and eclampsia complicated with retinal detachment. Report of three cases

Preeclampsia y eclampsia complicada con desprendimiento de retina. Comunicación de tres casos

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ABSTRACT

Preeclampsia is a multisystemic hypertensive disorder that occurs after 20 weeks of gestation in 5%-15% of pregnant women and is the cause of complications that can affect important organs and even cause death during gestation or in the postpartum period. It includes severe preeclampsia, eclampsia and HELLP (hemolysis, elevation of liver enzymes, low platelets) syndrome. We report three cases of retinal detachment that occurred in two patients with severe preeclampsia and one with eclampsia, all with hemorrhage and visual alteration in the postpartum period that required pharmacological treatment. Retinal detachment is a symptom associated with preeclampsia and eclampsia that can be investigated by ocular funduscopy to determine whether conservative or pharmacological treatment is feasible.

Key words: Preeclampsia, Eclampsia, Retinal detachment, HELLP syndrome

RESUMEN

La preeclampsia es un trastorno hipertensivo multisistémico que se presenta después de las 20 semanas de gestación en 5% a 15% de gestantes y es causa de complicaciones que pueden afectar órganos importantes y hasta provocar la muerte durante la gestación o en el posparto. Incluye la preeclampsia severa, eclampsia y síndrome HELLP (*hemolysis, elevation of liver enzymes, low platelets*, por sus siglas en inglés). Se comunica tres casos de desprendimiento de retina que ocurrieron en dos pacientes con preeclampsia severa y una con eclampsia, todas con hemorragia y alteración visual en el posparto que requirieron tratamiento farmacológico. El desprendimiento de retina es un síntoma asociado a la preeclampsia y eclampsia que puede ser investigado por fundoscopia ocular para determinar si es factible su tratamiento conservador o farmacológico.

Palabras clave. Preeclampsia, Eclampsia, Desprendimiento de retina, Síndrome HELLP

INTRODUCCIÓN

Gestational-induced hypertension includes preeclampsia and eclampsia, occurs in approximately 5-15% of all pregnancies and may be associated with a wide variety of ocular abnormalities⁽¹⁾.

Retinal detachment is an event secondary to choroidal ischemia resulting from retinal vasospasm as part of the multiorgan involvement of preeclampsia. Its clinical presentation is characteristic and relatively easy to diagnose. It is considered an unusual complication, although well documented in the literature, characterized by loss of visual acuity or temporary blindness that usually appears in the immediate postpartum period in patients with preeclampsia, eclampsia and HELLP syndrome⁽¹⁻³⁾.

This communication presents the experience on the diagnosis and treatment of retinal detachment as an unusual complication in three cases attended at the Hospital Materno Infantil 1° de Mayo of the Instituto Salvadoreño del Seguro Social.



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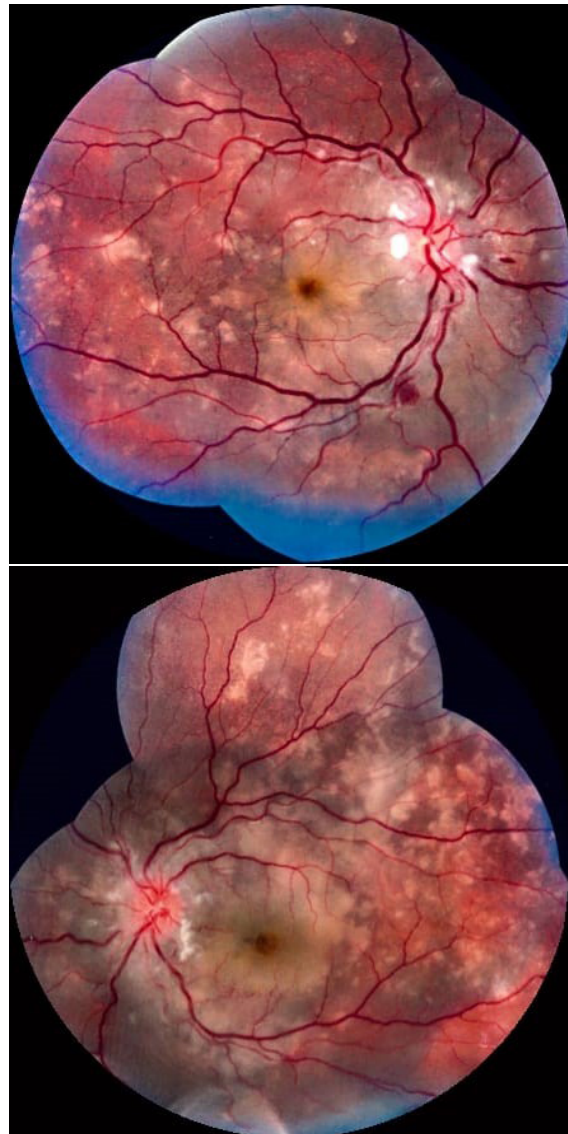
CASE 1

A 21-year-old primigravida at 34 weeks and 2 days of gestation with no relevant medical history convulsed at her residence and was taken to the hospital medical center where she presented a new convulsive event, postictal for 2 minutes, with recovery of consciousness. She was diagnosed as eclampsia due to blood pressure of 220/150 mmHg. A protocol of magnesium sulfate and intravenous hydralazine was started. Tests were taken for diagnostic certification and to rule out HELLP syndrome. The patient was stabilized and then cesarean section was performed without complications. In the special care unit, during her second day post cesarean section she reported blurred vision in her left eye. The ophthalmologist found visual acuity of the right eye 20/150, intraocular pressure 12 mmHg. In fundoscopy the cornea was clear, with wide chamber, clear crystalline lens, without Tyndall, dense cottony exudates with abundant vascular tortuosity. In the left eye, visual acuity was 20/700, intraocular pressure 12 mmHg. On fundoscopy, the cornea was clear, with wide chamber, clear crystalline lens, no Tyndall, with dense cottony exudates, marked vascular tortuosity. The conclusion was serous retinal detachment in the right eye and serous and bullous detachment in the left eye. The final diagnosis was serous and bullous retinal detachment secondary to hypertensive retinopathy. Bromfenac ophthalmic drops and strict blood pressure control were prescribed. In addition, two oral anti-hypertensives were administered (Figure 1).

CASE 2

A 30-year-old primigravida with 37 weeks of gestation and a history of A1 gestational diabetes consulted for severe headache. In the medical evaluation, severe preeclampsia was diagnosed with blood pressure of 167/115 mmHg and urine creatinine protein index of 0.6. Tests were requested for diagnostic certification and to rule out HELLP syndrome, and a protocol of magnesium sulfate and intravenous hydralazine was started. Labor was induced with prostaglandins. The delivery was vaginal and she presented hemorrhage due to episiotomy dissecting hematoma, which was drained and sutured. On her first postpartum day, the patient reported

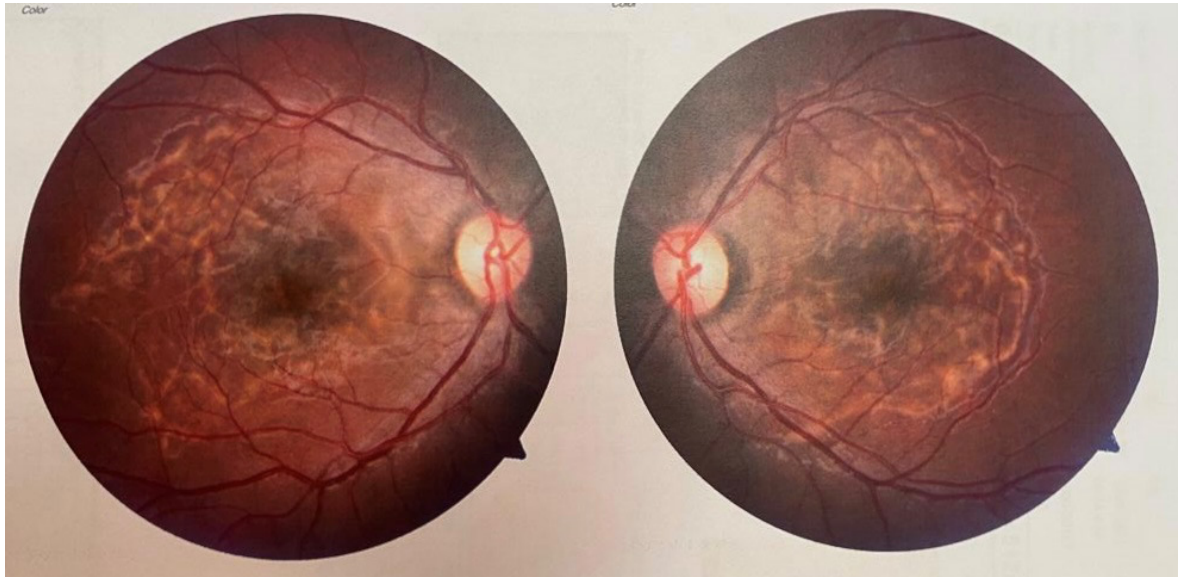
FIGURE 1. EVALUATION REPORTED RIGHT EYE VISUAL ACUITY 20/150, INTRAOCULAR PRESSURE 12 MMHG. FUNDOSCOPY: CLEAR CORNEA, WIDE CHAMBER, CLEAR LENS, NO TYNDALL, DENSE COTTONY EXUDATES WITH ABUNDANT VASCULAR TORTUOSITY. LEFT EYE WITH VISUAL ACUITY 20/700, INTRAOCULAR PRESSURE 12 MMHG. FUNDOSCOPY: CLEAR CORNEA, WIDE CHAMBER, CLEAR LENS, NO TYNDALL, DENSE COTTONY EXUDATES, MARKED VASCULAR TORTUOSITY. CONCLUSION: SEROUS RETINAL DETACHMENT IN THE RIGHT EYE AND SEROUS AND BULLOUS DETACHMENT IN THE LEFT EYE. THE FINAL DIAGNOSIS WAS SEROUS AND BULLOUS RETINAL DETACHMENT SECONDARY TO HYPERTENSIVE RETINOPATHY.



bilateral scotomas, without neurological alteration. The evaluation by the ophthalmologist determined in the right eye intraocular pressure of 15 mmHg, fundoscopy with clear cornea, wide chamber, clear crystalline lens, isochoric pupil reactive to light, flattened nasal retina, uncommitted macula. In the left eye, the cornea was clear, wide chamber, clear lens, isochoric pupil



FIGURE 2. RIGHT EYE EVALUATION REPORTED INTRAOCULAR PRESSURE 15 mmHg. FUNDOSCOPY: CLEAR CORNEA, WIDE CHAMBER, CLEAR LENS, ISOCHORIC PUPIL REACTIVE TO LIGHT, FLATTENED NASAL RETINA, UNINVOLVED MACULA. IN THE LEFT EYE: CLEAR CORNEA, WIDE CHAMBER, CLEAR LENS, ISOCHORIC PUPIL REACTIVE TO LIGHT, FLATTENED NASAL RETINA, UNINVOLVED MACULA. **DIAGNOSIS:** BILATERAL SEROUS RETINAL DETACHMENT.



reactive to light, flattened nasal retina, uninvolved macula. The diagnosis was bilateral serous retinal detachment. Ophthalmic ketorolac drops were administered and blood pressure was strictly controlled. Two oral antihypertensives were added (Figure 2).

CASE 3

A 28-year-old secundigesta with term pregnancy delivered vaginally at a second level regional hospital, which was complicated by severe postpartum hemorrhage due to atony. Bleeding was estimated at 2,000 mL, which was resolved with uterotonic administration and without the use of ergot alkaloids (methylergonovine). In addition, severe postpartum preeclampsia was diagnosed due to blood pressure of 167/123 mmHg, and a protocol of magnesium sulfate and intravenous hydralazine was started. Tests were requested for diagnostic certification and to rule out HELLP syndrome. Hours later she reported decreased visual acuity and presence of scotomas, so an ocular ultrasound was performed, which showed echoes of membrane with insertion to the optic disc (posterior chamber). Bilateral retinal detachment was diagnosed and she was referred to a tertiary gynecology and obstetrics hospital, where an ophthalmologic evaluation by ocular fundoscopy was performed, which described normal anterior segment in both eyes, intraocular pressure of 10 mmHg in

both eyes, bilateral changes in pigmentation and elevation at macular level, retinal folds at macula level, healthy optic nerve, deep border, flattened retina in both eyes, clear vitreous in both eyes. The diagnosis was exudative retinal detachment in both eyes secondary to preeclampsia, which was treated with conservative management, administration of oral antihypertensives and ambulatory control (Figure 3).

Although in two of the cases there were alterations in the laboratory tests suggesting the presence of HELLP syndrome, these alterations could have been associated with the formation of the episiotomy dissecting hematoma in case 2 and the severe postpartum hemorrhage in case 3, since no elevation of liver enzymes was observed (Table 1).

DISCUSSION

Pregnancy is associated with ocular changes in most patients very rarely permanent. These changes may be associated with the development of new conditions or exacerbated by pre-existing comorbidities.

Ignorance of the symptoms associated with retinal detachment may lead to persistent or permanent blindness. Confusion between an alteration of neurological origin usually delays the confirmation of the ocular alteration. Usu-



FIGURE 3. BILATERAL RETINAL DETACHMENT WAS DIAGNOSED BY ULTRASOUND. OPHTHALMOLOGIC EVALUATION BY OCULAR FUNDOSCOPY DESCRIBED: NORMAL ANTERIOR SEGMENT IN BOTH EYES, INTRAOCULAR PRESSURE 10 MMHG IN BOTH EYES, CHANGES IN PIGMENTATION AND ELEVATION AT MACULAR LEVEL IN BOTH EYES, RETINAL FOLDS AT MACULAR LEVEL, HEALTHY OPTIC NERVE, DEEP RIM, FLATTENED RETINA IN BOTH EYES, CLEAR VITREOUS IN BOTH EYES. DIAGNOSIS: EXUDATIVE RETINAL DETACHMENT IN BOTH EYES SECONDARY TO PREECLAMPSIA.

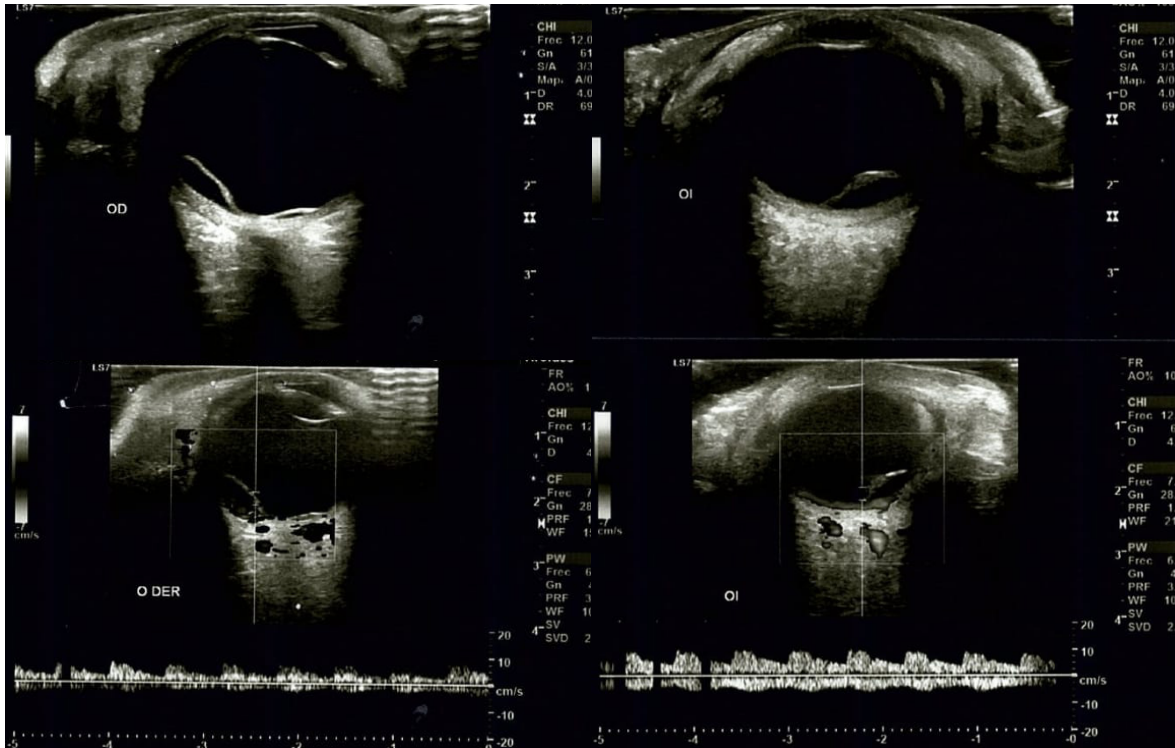


TABLE 1. LABORATORY FINDINGS IN THE THREE CASES.

Test	Case 1	Case 2	Case 3
Hemoglobin	11.8 g/dL	8.0 g/dL	7.9 g/dL
Platelets	280 x 103 uL	75 x 103 uL	56 x 103 uL
AST/ALT	37/17 U/L	46/12 U/L	51/43 U/L
Direct bilirubin	0.12 mg/dL	2.39 mg/dL	0.40 mg/dL
Indirect bilirubin	0.19 mg/dL	0.48 mg/dL	0.20 mg/dL
LDH	306 U/L	838 U/L	1.182 U/L
Serum creatinine	0.53 mg/dL	1.07 mg/dL	1.57 mg/dL
PT	10 s	16 s	18 s
PTT	25 s	35 s	44.0 s
Fibrinogen	543 mg/dL	95 mg/dL	368 mg/dL

g/dL, grams per deciliter; AST, aspartate amino transferase; ALT, alanine amino transferase; U/L, units per liter; mg/dL, milligrams per deciliter; LDH, lactate dehydrogenase; PT, prothrombin time; s, second; PTT, partial thromboplastin time.

ally the convulsive event (eclampsia) has been conditioned with cerebral involvement. The evaluation by brain tomography is frequently reported as normal, which makes it necessary to investigate the focal alteration in the eye. The clinician must know how to differentiate that the symptomatology orients to look for the origin of the lesion in the eye or in the brain, and if it is temporary or definitive^(1,4).

Pathologic conditions affecting the eye in pregnancy include preeclampsia, eclampsia, and central serous retinopathies. The most significant pre-existing condition that can aggravate ocular function is diabetes mellitus⁽¹⁾.

The most common ocular symptoms in preeclampsia are blurred vision, photopsias, scotomas, and diplopia. The most frequently reported retinal abnormality in the ophthalmology literature in the context of preeclampsia is focal arteriolar spasm, associated with peripapillary or focal retinal edema. When the vessels return to normal after delivery, visual disturbance is unusual and, if present, other causes should be investigated⁽¹⁻⁵⁾.

Severe retinal detachment secondary to choroidal ischemia is an unusual but well-documented cause of visual loss in preeclampsia, with residual pigment epithelial changes^(1,6).

Ten percent of patients with pregnancy-associated hypertension are complicated by HELLP syndrome characterized by hemolysis, elevated liver enzymes, and low platelets. Ocular findings



associated with this syndrome include bilateral serous retinal detachment and vitreous hemorrhage⁽¹⁾.

The incidence of visual and retinal abnormalities has decreased at present due to better management of pregnancy-induced hypertension. A high percentage of these abnormalities improve with antihypertensive pharmacologic management or delivery⁽¹⁾.

In the past, most cases of retinal detachment were attributed to severe preeclampsia or eclampsia. Case reports of retinal detachment published in the past decade include information on the presence of HELLP syndrome as the most conditioning factor for retinal detachment⁽³⁾.

Thrombotic microangiopathy is associated as a cause of retinal hypoxia and retinal detachment in HELLP syndrome. However, cerebral hyperperfusion, and consequently ocular hyperperfusion, may be the cause of retinal detachment in the absence of vascular injury⁽¹⁻⁶⁾.

Retinal detachment should be differentiated from posterior vitreous detachment (PVD). Both pathological entities share vision symptoms such as scotomas, blurred vision, and 'flashes'. Posterior vitreous detachment is characterized by the formation of fluid sacs that contract and decrease in volume. When the eye changes position, the gelatin moves within the vitreous cavity and this movement begins to separate it from the retina. Because the retina is a very thin and fragile structure, the separation of the vitreous exerts enough force to produce a tear or hole in it. This phenomenon is frequently observed in the elderly and should draw attention to a young patient presenting with these clinical features in the postpartum period, usually associated with excessive pushing during vaginal delivery or in the context of preeclampsia⁽⁴⁾.

Reversible posterior encephalopathy syndrome (PRES) can cause visual disturbances such as hemianopsia, blurred vision, amaurosis fugax and complete cortical blindness that can occur in up to 2/3 of patients with PRES. The confirmatory diagnosis of this entity is made by brain magnetic resonance imaging, observing areas of cortical vasogenic edema. Retinoscopy in these cases shows no alterations^(5,6). The visual alteration may persist in the absence of reversible posterior encephalopathy syndrome in the MRI. Unilateral visual disturbance could be an indicator of retinal and not cerebral cortical involvement, leading to an examination such as ocular fundoscopy. Computed tomography has not been shown to be a tool for evaluation of brain injury as the genesis of isolated visual impairment in pre-eclampsia-eclampsia^(7,8).

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