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**Case Report**

**Bilateral retinal detachment in pregnancy complicated by preeclampsia, eclampsia and placental abruption**

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**Abstract**

Retinal detachment is an unusual complication of hypertensive disorders of pregnancy. It’s incidence is around 1% - 2% in severe preeclampsia and 9-10% of patients in eclampsia. The bulbar conjunctival vessels show severe vasospasm in preeclampsia /eclampsia resulting in choroidal ischemia. This may then lead to retinal detachment which is usually serous in variety. The patient of hypertensive disorder of pregnancy complaining of loss of vision or scotoma should be promptly investigated with a fundoscopy to diagnose the entity. Obstetric management which is advocated is prompt delivery of the fetus which will result in amelioration of symptoms within the next few weeks. Majority of the patients who manifest with retinal detachment during pregnancy respond to clinical conservative management and show complete recovery within weeks and no surgical intervention is needed. Spontaneous full resolution is achieved once the blood pressure comes down to normal and the arteriolar vasospasm gets relieved.

**Keywords:** Retinal Detachment, Preeclampsia, Optic complications

## 1. Introduction

Preeclampsia is an obstetric disorder of unknown etiology that affects approximately 5-10% of pregnant women. The visual system may be affected in 30 to 100% of patients with this disease. It also can affect the visual pathways, from the anterior segment to the visual cortex. Retinal detachment is a rare complication seen in preeclampsia and eclampsia. It affects 1 - 2% of patients with severe preeclampsia, 9-10% of those with eclampsia and 0.9% of patients with HELLP syndrome. Clinically, the woman presents with sudden loss of vision. Although it can be present at any time during pregnancy, this condition most often appears before, or soon after, delivery. Women with the most severe forms of preeclampsia have the worst fundoscopic findings. Majority of them will have serous variety of detachment. Prompt obstetric management with eminent delivery is advised once retinal detachment sets in. For the eye, clinical conservative management with antihypertensive drugs and steroids will result in complete recovery within few weeks postpartum. Usually a surgical management is not required. However, there may be some persistent sequel in the form of focal pigmentary disturbances and visual impairment. We are presenting a case of postpartum retinal detachment in severe preeclampsia which progressed to eclampsia with associated placental abruption. This was promptly detected and managed conservatively. The patient recovered completely with no visual impairment.

## 2. Case Report

A 27 year old, second gravida with previous one normal delivery and no history of any arterial hypertension, previously asymptomatic, met with a road traffic accident at 28 weeks of gestation. She had facial injury in the form of large incised wound starting from the root of nose to left side of cheek and left angle of mouth for which primary suturing was done. Initial ophthalmic examination was done in view of vehicular accident involving the face, which showed fundus examination having no abnormality and 6/6 vision. It affects 1 - 2% of patients with severe preeclampsia, 9-10% of those with eclampsia and 0.9% of patients with HELLP syndrome. Clinically, the woman presents with sudden loss of vision. Although it can be present at any time during pregnancy, this condition most often appears before, or soon after, delivery. Women with the most severe forms of preeclampsia have the worst fundoscopic findings. Majority of them will have serous variety of detachment. Prompt obstetric management with eminent delivery is advised once retinal detachment sets in. For the eye, clinical conservative management with antihypertensive drugs and steroids will result in complete recovery within few weeks postpartum. Usually a surgical management is not required. However, there may be some persistent sequel in the form of focal pigmentary disturbances and visual impairment. We are presenting a case of postpartum retinal detachment in severe preeclampsia which progressed to eclampsia with associated placental abruption. This was promptly detected and managed conservatively. The patient recovered completely with no visual impairment.

## 3. Discussion

Preeclampsia is a pregnancy-specific disorder characterized by development of concurrent hypertension and proteinuria after 20 weeks of gestation, sometimes progressing by involving multi organ systems with varying clinical presentations. It is a leading cause of maternal and perinatal mortality and morbidity. It can manifest with cardiovascular changes, hematologic abnormalities, hepatic and renal impairment and neurologic or cerebral complications. It can also affect the eye and visual pathways. Visual symptoms are seen in up to 25% of patients with severe preeclampsia and 50% of patients with eclampsia.
Preeclampsia/eclampsia has various ocular manifestations and the visual system may be affected with variable intensity. In 24,920 consecutive deliveries from 1970 at the Vancouver General Hospital, preeclampsia was diagnosed in 1435 patients (5.76%), and in 2 cases serous retinal detachment occurred.1 Blurred vision is the most common visual symptom1–4. Other symptoms such as photophobia, visual spots and diplopia are sometimes observed, and may be attributed to posterior cerebral artery vasospasm with ischemia, or to cerebral edema in the occipital area. Although alterations in retina and its vasculature are more common, the conjunctiva, choroid, cornea and visual cortex may also be affected.

At the pathophysiological level, the primary response of the retinal vasculature to systemic arterial hypertension is vascular narrowing. This response to an increased blood pressure leads to focal or diffuse vasoconstriction. There is extravasation of fluid to the extravascular spaces as a result of increased vascular permeability. Resultant retinal changes manifest as decreased arterial to vein ratio, cotton wool spots, hemorrhages, Elschnig spots and serous retinal detachments. Jaffe and Schatz2 found a significant relationship between reduced arteriole to vein ratio and preeclampsia, suggesting retinal vasospasm and resistance to blood flow as a possible explanation for visual symptoms.

On Ophthalmoscopy, the most prominent finding is terminal arteriolar vasospasm, focal or generalized arteriolar narrowing associated with the development of systemic hypertension.1–3 Other ocular findings include photopsia, visual field defects, sudden inability to focus, and in severe cases, complete blindness. Serial examination of the optic fundi, visual acuity, and central visual field assessment by Amsler grid are simple, indispensable tests that will help identify the visually threatened patient with severe preeclampsia.

Various types of retinal detachments are described in literature. A rhegmatogenous retinal detachment occurs due to a break in the retina (called a retinal tear) that allows fluid to pass from the vitreous space into the subretinal space between the sensory retina and the retinal pigment epithelium. Retinal breaks are divided into three types – holes, tears and dialyses. Holes form due to retinal atrophy, especially within an area of lattice degeneration. Tears are due to vitreoretinal traction. Dialyses are very peripheral and circumferential, and may be either tractional or atrophic. The atrophic form most often occurs as idiopathic dialysis of the young. An exudative, serous, or secondary retinal detachment occurs due to inflammation, injury or vascular abnormalities that results in fluid accumulating underneath the retina without the presence of a hole, tear, or break. In the evaluation of retinal detachment, it is critical to exclude exudative detachment as surgery will make the situation worse, not better. Although rare, exudative detachment can be caused by the growth of a tumor on the layers of tissue beneath the retina, namely the choroid. This cancer is called a choroidal melanoma. A tractional retinal detachment occurs when fibrous or fibrovascular tissue, caused by an injury, inflammation or neovascularization, pulls the sensory retina from the retinal pigment epithelium.

Retinal detachment in preeclampsia is usually bilateral and serous, and its pathogenesis is related to the choroidal ischemia secondary to an intense arteriolar vasospasm. The choroidal vascular insufficiency can lead to lesions in retinal pigment epithelium (RPE), fluid transudation and focal retinal detachment, with increasing severity. Hayreh suggested that in hypertensive choroidopathy endogenous vasoconstrictor agents leak freely from the choriocapillaries and act on the walls of the choroidal vessels resulting in choroidal vasoconstriction and ischaemia.4 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. In affected eyes, the patients complain of a relative central scotoma.4–5 Ophthalmoscopy may show edema in the affected macula, while a serous neurosensory detachment of the macula, a neurosensory detachment in the papillomacular region or late leakage and subretinal exudates may be detected.

The majority of patients who manifest serous detachment during pregnancy have, with clinical management, complete recovery within weeks after delivery, not necessitating any surgical intervention. The management of serous retinal detachment in preeclampsia is conservative and involves treating the underlying condition. Spontaneous resolution usually occurs within few weeks and visual prognosis is excellent. After delivery, the subretinal fluid is reabsorbed by the RPE and visual acuity should return to pre-detachment levels. Some macular sequelae may persist, especially in the pigment epithelium.13 Some patients may develop residual macular retinal pigment epithelial change, which may represent areas of infarction of the choriocapillaries (Elschnig’s spots). These changes can mimic a macular dystrophy or tapetoretinal degeneration and infrequently may result in permanent visual impairment. However, a few patients with severe preeclampsia may be left with permanent visual loss, despite resolution of the detachment due to extensive RPE necrosis.

Some authors agree that the presence of serous retinal detachment in the mother has no prognostic implication to the fetus’s life. Others, however, believe that maternal and fetal prognosis is worse when there are fundoscopic alterations. Complete blindness is rare, with an incidence of 1–3%. Blindness in preeclampsia/eclampsia syndrome can be due to the involvement of the occipital cortex, retina, or optic nerve. In the past, most cases of blindness in preeclampsia and eclampsia were commonly attributed to retinal pathology including vascular abnormalities, edema or detachment and acute ischemic optic neuropathy as a result of decreased blood supply to the prelaminar portion of the optic nerve.

The syndrome complex of preeclampsia, eclampsia associated with abruptio placenta depicts a severe kind of vascular endothopathy with intense vascular involvement. The present case had bilateral retinal detachment in association with severe preeclampsia and intrauterine growth restriction complicated with placental abruptio. Postpartum, the patient landed into eclampsia and optic complication of retinal detachment. All these manifestations, point to the underlying generalized ischaemic changes in the vessels. Placental abruptio may also lead to release of placental thromboplastin into the maternal circulation and activate the extrinsic coagulation system with resultant disseminated intravascular coagulation. This may be responsible for choroidal ischemia and consequent serous retinal detachment.

Our case also suggests that retinal detachment should always be considered within the differential diagnosis of sudden loss of vision in cases complicated with toxemia of pregnancy. It is useful for the ophthalmologists to be aware that retinal detachment may present in the absence of other hypertensive retinal changes.

Figure 1: Two dimensional ultrasonography of right eye showing detachment of retina- serous variety
Figure 2: Two dimensional ultrasonography of left eye showing detachment of retina- serous variety

References