Postnatal Maternal Transient Visual Impairment with Cataract Formation

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Citation

Abstract
Many maternal changes may occur in eye during pregnancy. A cataract formation after delivery is presented in the current case. A 28 years old female was referred from the obstetrics and gynecology clinic with bilateral blurring of vision after an uneventful caesarean section. Her best correction visual acuity (BCVA) was 0.6 in the right eye, and 0.7 in the left. Anterior segment slit lamp examination revealed bilateral nuclear cataract. Dilated fundus examination had no pathological sign. The presenting cataract formation in the presenting case might imply to metabolic changes in lens or fluid retention in nucleus.

1. Introduction
Hormonal and metabolic changes in pregnancy may cause modifications or disorders in visual system and eyes. Pregnancy can show a spectrum of ocular manifestations including subtle subclinic physiologic changes, eye diseases occurring during the pregnancy, and alterations of preexisting eye diseases. Modifications in cornea, lens, intraocular pressure (IOP), retinal and choroidal circulation may occur during the pregnancy. Pregnancy can either have a beneficial effect, as in uveitis, with a lower incidence of exacerbations, or deterioration in case of a preexisting diabetic retinopathy [1]. In the current case, an acute bilateral blurring of vision with bilateral cataract after delivery is presented.

2. Case Report
A 28 years old female was referred from the obstetrics and gynecology clinic with bilateral blurring of vision after an uneventful caesarean section. She had an uneventful pregnancy period without preeclampsia, eclampsia, or gestational diabetes mellitus. Her arterial tension was 130/80 mmHg whilst the blurring of vision. Systemic and neurologic examination revealed no pathology. Biochemical and hematologic investigations were in normal range. Cranial magnetic resonance images showed no pathological sign. Her best correction visual acuity (BCVA) was 0.6 in the right eye, and 0.7 in left. IOP was 14 in right and 15 in left eye. Anterior segment slit lamp examination revealed bilateral nuclear cataract (Fig. 1a and 1b). Dilated fundus examination had no pathological sign. Optical coherence tomography was performed to eliminate any possible subtle exudative retinal pathology related to pregnancy. Yet, OCT showed normal macular morphology.
(Fig. 2). The patient had been sent for follow-up, but she left the city a few days after delivery. She denoted the complete visual recovery after the first week of delivery when she was connected by phone, nevertheless we were not able to assess the status of cataract formation owing to loss of follow up examinations.

![Fig. 1a. Slit lamp view of nuclear cataract.](image1)

![Fig. 1b. Retroillumination view of cataract.](image2)

![Fig. 2. Macular OCT images of the left eye. Note the blurring effect of the cataract on the SLO image. Macular morphology shows no abnormal finding.](image3)
3. Discussion

Many maternal changes may occur in eye during pregnancy. Skin changes like chloasma and spider angioma are frequent during pregnancy. Ptosis has been reported during and following normal pregnancies, with one patient worsening after each of three pregnancies. [2-4].

Changes in conjunctival blood vessels have been described toward the end of normal pregnancies. A study reported constriction of conjunctival arterioles, granularity of the conjunctival venules, and decreased visualization of conjunctival capillaries [5]. Another study showed increased vessel diameter in the second and third trimester of pregnancy [6]. The conjunctival epithelium has been shown to undergo cytological changes during pregnancy related to elevated estrogen levels [7].

Some studies reported increased corneal thickness during pregnancy with resolution a short time after delivery. Fluid retention that is often associated with pregnancy may be a factor inducing increased corneal thickness [8-10]. The corneal curvature has been found to steepen by one diopter on average in the second and third trimesters, with resolution after delivery or cessation of breastfeeding [11].

Some studies showed IOP reduction during pregnancy. This ocular hypotensive effect increases until delivery and persists for several months after delivery. This hypotensive effect may be related to increased outflow facility and particularly increased uveal scleral outflow as a consequent of hormonal changes [12-19].

Pre-eclampsia typically develops in the second half of pregnancy and is characterized by hypertension, edema, and proteinuria. Scotoma, diplopia, dimness of vision, and photopsy were noted in 25% of patients with severe pre-eclampsia and in up to 50% of patients with eclampsia. Bilateral serous retinal detachment due to choroidal dysfunction may occur in preeclampsia or eclampsia [20].

Graves’ disease is shown to improve during the second and third trimester of the pregnancy. This may be related to a change in the specificity of TSH receptor antibody from stimulatory to blocking activity during pregnancy [21]. Diabetic retinopathy and idiopathic uveitis may deteriorate during pregnancy or after delivery. [22, 23] Tight glucose control is mandatory in preventing diabetic retinopathy progression.

The mechanism of cataract development is not exactly clear. Oxygen-free radicals may be a major factor in the development of cataracts. Infections, smoking, toxins, ultraviolet radiation, and many other factors can promote reactions that release excessive amounts of oxygen-free radicals leading to cataract formation. Deficiency of antioxidants, particularly glutathione, may be an additive factor promoting cataract formation. Glutathione is found to be in high levels in the eye and neutralizes free radicals. In the aging eye, barriers develop that prevent glutathione from reaching the nucleus in the lens, thus making it vulnerable to oxidation. Pregnancy may induce lens changes. Crystalline lens curvature increase has been reported in a study [24]. A transient loss of accommodation may occur during and after pregnancy [25]. A study reported that having more than three babies doubled the risk of developing bilateral cataracts in the 35- to 45-year age range [26]. An increase in lens autofluorescence has been reported in pregnant patients with diabetes compared with nonpregnant diabetic patients [27]. This observation suggests the possibility of lenticular metabolic alterations during pregnancy.

4. Conclusion

In the current case these metabolic changes might induce cataract formation or increase the preexisting congenital cataract formation. Alterations in the fluid equilibrium of body due to hormonal changes might lead to fluid retention in the nucleus and give rise to cataract formation. To our knowledge, there is no reported cataract formation after cesarean section in the literature. The presenting cataract formation in the current case might imply to metabolic changes in lens or fluid retention in nucleus during pregnancy.

References


