

# CASE REPORT

## Bilateral central retinal vein occlusion in a pregnant lady

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### SUMMARY

We report a rare case of central retinal vein occlusion (CRVO) in pregnancy. There was dramatic deterioration of vision in both eyes through pregnancy despite repeated attempts of laser treatment and systemically controlled diabetes. Significant improvement was noted postpartum. Pregnancy is an aggravated factor of bilateral CRVO.

### KEY WORDS:

Central retinal vein occlusion, pregnancy

### INTRODUCTION

Bilateral CRVO is a relatively rare event. Less than 1% cases of CRVO happen bilaterally.<sup>1</sup> In CRVO, the occlusion is at or posterior to the lamina cribrosa of the optic nerve. A variety of local and systemic factors play roles in the pathological closure of the central retinal vein. The common predisposing factors are age, hypertension, hyperlipidaemia, diabetes mellitus, smoking, obesity and raised intraocular pressure. In young patients, uncommon risk factors such as myeloproliferative disorders, congenital or acquired hypercoagulable states and inflammatory disease associated with occlusive periphlebitis, should be considered.

### CASE REPORT

A 30-year-old Malay, Gravida 3 Para 0 + 2 at 28-week period of amenorrhea (POA), complained of bilateral progressive painless diminution of vision for one month duration. She was diagnosed to have type 2 diabetes mellitus since two years ago during her second pregnancy. However, she defaulted follow up post miscarriage. She was started on subcutaneous insulin during this pregnancy. Her diabetes was well controlled and she had no hypertension. Past ocular history and other systemic reviews were insignificant. She was not on any hormone or traditional medication.

On examination, she was overweight with BMI 29. Her visual acuity was 6/36 on the right and 6/18 on the left. Relative afferent pupillary defect was negative. Anterior segments of both eyes were unremarkable. Fundus examination (Figure 1a) of both eyes revealed diffuse flame-shaped haemorrhages extending throughout the four quadrants with dilatation and tortuosity of all branches of the central retinal vein. Macula oedema was also noted. Furthermore, there were presence of new vessels on disc and elsewhere at the right fundus. Right eye was treated with panretinal photocoagulation (PRP) immediately.

One week later, the condition of her eyes deteriorated (Figure 1b). Right fundus showed vigorous proliferation of new vessels at disc and elsewhere with multiple preretinal haemorrhages. Besides, non-ischemia CRVO of her left eye had progressed to ischemia CRVO as evident by new vessels at the disc and elsewhere. She was treated with further courses of PRP to both eyes.

Her vision further worsened to 5/60 (right) and 4/40 (left) one month later (Figure 2a) but PRP sessions continued until complete. She was at the same time investigated for connective tissue disease. Antiphospholipid and anticardiolipin antibodies were negative. Other autoimmune tests were also negative. Lipid profile (Table 1) showed uncontrolled hyperlipidaemia. Patient had a normal carotid Doppler ultrasound.

Patient safely delivered her child via elective caesarean section at 36 weeks of gestation. Postpartum, there was resolution of the proliferative state and macular oedema of her eyes (Figure 2b). Both of her fundi were monitored closely. Five months post-delivery, her visual acuity had improved to 6/12 bilaterally and remained stable. Both fundus showed quiescent fibrosis at the disc and arcades.

Table 1: Fasting lipid profile

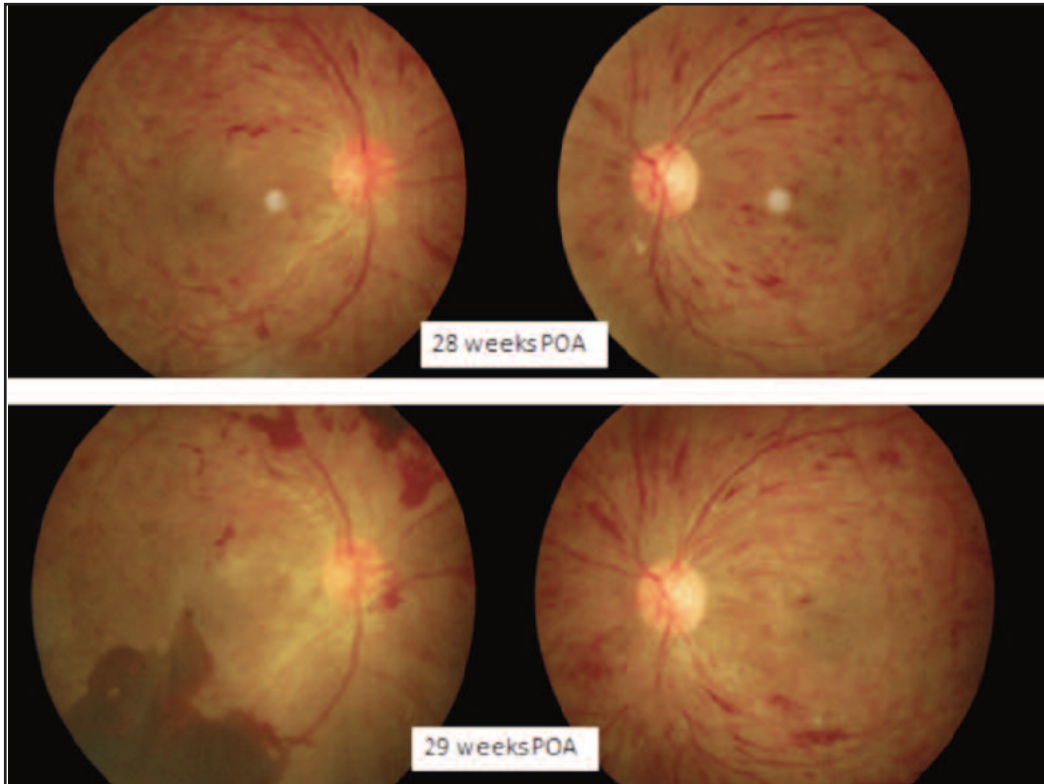
| Lipid profile         | Value | Reference range |
|-----------------------|-------|-----------------|
| Cholesterol           | 5.1   | <5.2 mmol/L     |
| Triglycerides         | 2.99  | 1 – 2.26 mmol/L |
| HDL-Cholesterol       | 0.91  | >1.68 mmol/L    |
| LDL-Cholesterol       | 2.8   | <2.6 mmol/L     |
| Total Cholesterol/HDL | 5.60  | <3.80           |

HDL= high-density lipoprotein; LDL= low-density lipoprotein

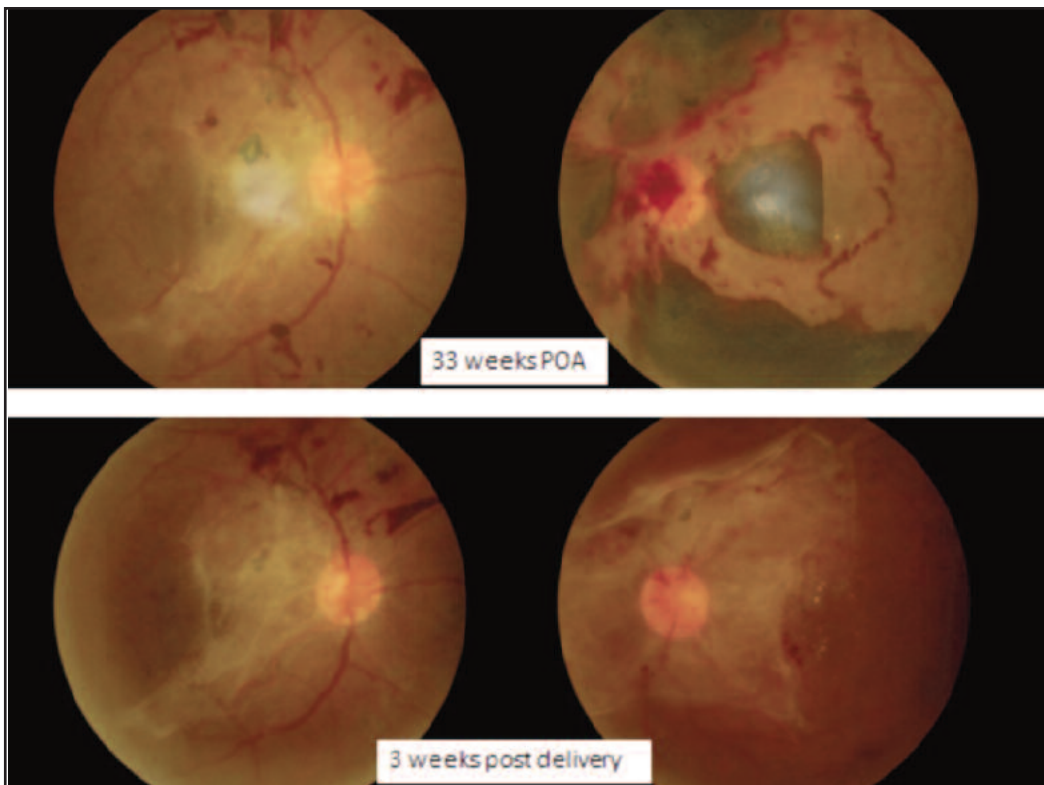
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**Fig. 1a (top):** Colour fundus photographs demonstrate both eyes CRVO with neovascularisation on disc and elsewhere at the right fundus. 1b (bottom): Deteriorating of both eyes conditions.



**Fig. 2a (top):** Colour fundus photographs reveal fibrous tissue formation in the right eye and dense premacular haemorrhage with multiple extensive preretinal haemorrhages of the left eye. 2b (bottom): Resolution of the proliferative state.

### DISCUSSION

The predisposing factors for bilateral CRVO in this patient were diabetes mellitus, hyperlipidaemia, overweight and pregnancy. Efforts has been taken to exclude underlying conditions such as antiphospholipid syndrome, blood dyscariasis and connective tissue disease. The likelihood of rapid neovascular proliferation of patient's CRVO is related to her underlying pregestational diabetes and pregnancy.

Pregnancy is a relative hypercoagulable state associated with acquired changes in haemostatic and fibrinolytic systems.<sup>2</sup> The effects of progesterone in normal pregnancy also result in venous stasis.<sup>2</sup> Several studies have suggested that hypercoagulable state in pregnancy with anatomical variation that affects the central retinal vein at the posterior part of the lamina cribrosa may cause CRVO.<sup>2</sup> Therefore, pregnancy is generally considered a risk factor for retinal vein occlusion. In this case, she started having resolution of the proliferative retinopathy after delivery, which further emphasises that the ordeal of her pregnancy was the contributing cause of the CRVO.

There was a possibility of combination ischemic CRVO and proliferative diabetic retinopathy in this case in view of the extensive fibrovascular proliferation. Pregnancy-induced metabolic and vascular changes can worsen diabetic retinopathy. There was also a significant reduction in the retinal blood flow during the third trimester of pregnancy especially in diabetic compared to nondiabetic mothers. Decreased retinal blood flow may worsen retinal ischemia and hypoxia, release of vascular endothelial growth factor (VEGF) and subsequently lead to progression of proliferative retinopathy.

The management of CRVO must be individualised and depends on the underlying risk factors, types of CRVO (ischemic or non-ischemic), patient's visual acuity and associated complications such as macular oedema and rubeotic glaucoma. Systemic control is vital. Based on Central Retinal Vein Occlusion Study (CVOS),<sup>3</sup> pan retinal photocoagulation is required if neovascularisation develops. Panretinal photocoagulation laser helps to decrease retinal demand of oxygen, decrease release of angiogenic factor and to induce involution of new vessels. In this case, prompt laser treatment has helped to salvage her vision which demonstrated to us the importance of early treatment in influencing the final visual acuity. Furthermore, the mode of delivery was counselled with the patient as valsalva manoeuvre during spontaneous vaginal delivery may worsen the eye bleeding.

### CONCLUSION

Bilateral CRVO in pregnancy is a rare disease. It can deteriorate rapidly as seen in this case. Prompt laser therapy is needed to ensure a good visual outcome.

### REFERENCES

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