

Massive Optic Disc Edema with Central Retinal Vein Occlusion Post In-Vitro Fertilization

Seemantini Ayachit, MBBS, DOMS* Saad A. S. Al Khalifa, MD, FRCS**
Sayed Mohamed Al Saffar, MBBS, SBN***

Ovarian hyperstimulation syndrome (OHSS) is known to cause multi-systemic complications. We report a case of an uncommon complication of optic disc edema and central retinal vein occlusion (CRVO) in a patient post In-Vitro Fertilization (IVF).

A thirty-year-old woman presented with gross vision diminution vision in the right eye due to massive optic disc edema followed by central retinal vein occlusion in her right eye post-ova retrieval procedure during IVF treatment. Neurological examination was normal and optical coherence tomography (OCT) disc and macula revealed massive disc edema and macular edema in the right eye. OCT angiography showed delayed arteriovenous shunting time. She received two intravitreal injections of 0.05 ml of Ranibizumab at one-month intervals. After 2 months, she regained a visual acuity of 6/6 in the right eye and complete resolution of optic disc edema and macular edema on OCT.

Although there are a few reported cases of CRVO, this case was unusual in its acute presentation with massive disc edema followed by macular edema due to central retinal vein occlusion. She was successfully treated with intravitreal Ranibizumab.

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IVF is becoming a very common practice. It essentially involves ovulation induction with exogenous gonadotropins¹.

Ovarian Hyper-Stimulation Syndrome (OHSS) is a known complication of IVF treatment which can be life-threatening. Vascular complications are commonly seen and reported; however, there are only a few reported neurological and ocular complications of IVF¹⁻⁷.

The aim of this report is to present an unusual combination of the involvement of optic nerve and central retinal vein in a patient with massive optic disc edema and central retinal vein occlusion after an unsuccessful IVF.

THE CASE

A thirty-year-old female presented on day-7 after ova retrieval procedure during IVF treatment with a complaint of right eye blurred vision and headache. On examination, best-corrected visual acuity was 6/9 (all lines blurred) and 6/6 sharp. Color

vision in the right eye was subnormal. Anterior segment examination revealed relative afferent pupillary defect in the right eye; the rest of the anterior segment examination was unremarkable in both eyes. Intra-ocular pressures were within normal in both eyes. Dilated fundus examination revealed a massive optic disc edema in the right eye with impending central retinal vein occlusion with some retinal hemorrhages and cotton wool spots.

The vision in the right eye deteriorated rapidly to 5/60 by day 3 due to massive macular edema. Neurological examinations including MRI brain and orbit were within normal limits.

Optical Coherence Tomography (OCT) of optic disc and macula revealed massive disc edema in the right eye and impending disc edema in the left eye with hyperemic disc and obliterated optic cup, see figure 1. On day 11 post-ova retrieval, massive macular edema had set in and OCT revealed an increased number of hemorrhages and cotton wool spots in the right eye, see figure 2.

* Specialist Ophthalmologist
Royal Bahrain Hospital
Bldg. 119, Road 29
King Abdulla Avenue, Salmaniya
P.O. Box 65104

** Consultant Ophthalmologist
The Eye Infirmary
Office 22, Bldg. 2380, Road 2831
Seef District 428

*** Consultant Neurologist
Royal Bahrain Hospital
Bldg. 119, Road 29
King Abdulla Avenue, Salmaniya
P.O. Box 65104
Kingdom of Bahrain

E-mail: seemantini.ayachit@gmail.com, dr.saad.alkhalifa@gmail.com, sayed.muhamed.alsaffar@royalbhmn.com

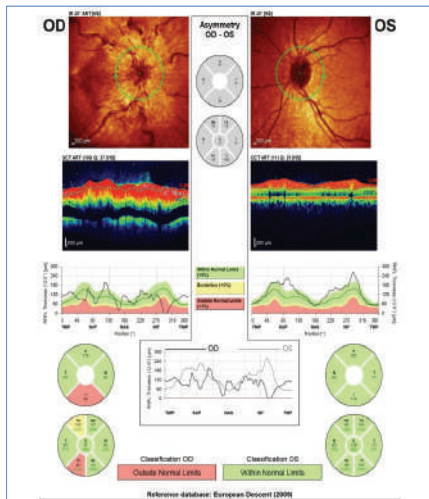


Figure 1: Massive Optic Disc Edema Right Eye

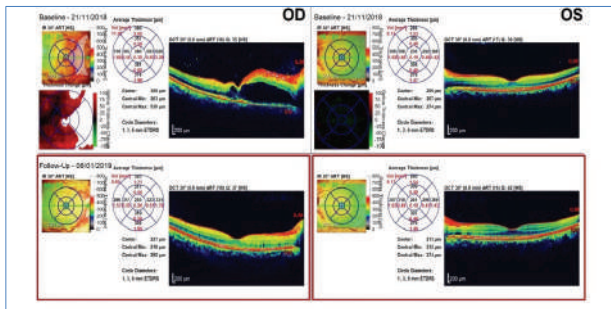


Figure 2: Macular Edema Right Eye

OCT angiography confirmed central retinal vein occlusion in the right eye, see figures 3 and 4. The patient received two intravitreal injections of 0.05 ml Ranibizumab at an interval of one month. She responded well to the treatment and at one-month, the disc edema and macular edema was reduced substantially and resolved completely after receiving the second injection of Ranibizumab in her right eye. One month after the second injection, the visual acuity in the right eye recovered to 6/6 with normal color vision. OCT revealed complete resolution of disc edema and macular edema in the right eye, see figures 5 and 6.

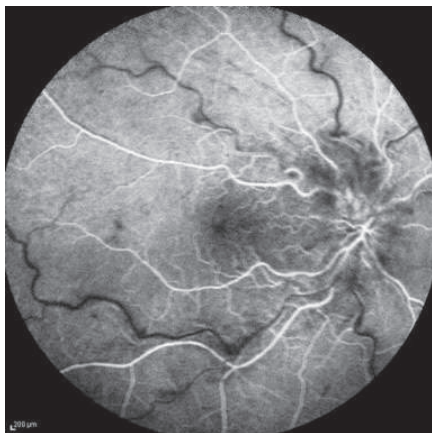


Figure 3: OCT Angiography Right Eye Showing Delayed Venous Filling and Disc Edema

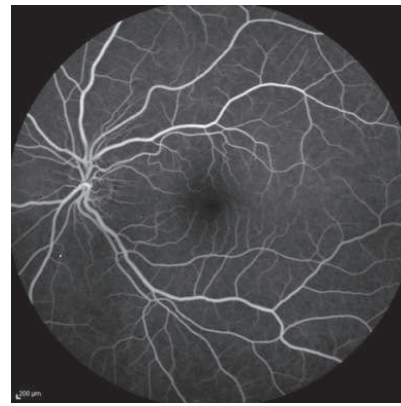


Figure 4: OCT Angiography of Left Eye Showing Normal Venous Filling

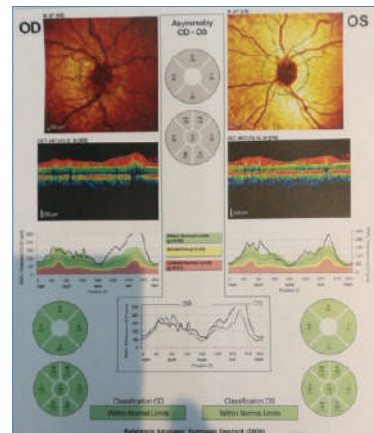


Figure 5: Complete Resolution of Disc Edema Right Eye

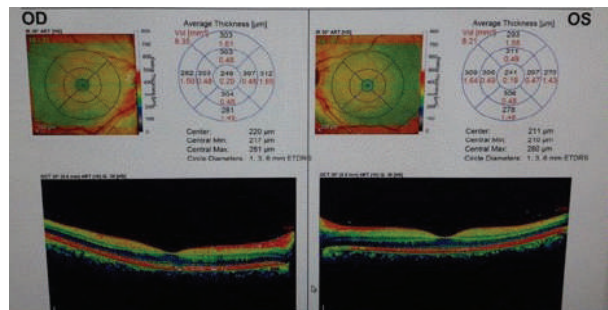


Figure 6: Complete Resolution of Macular Edema Right Eye

DISCUSSION

IVF as a treatment option for treating primary and secondary infertility is becoming popular and common. IVF centers across the globe claim it to be a safe technique. At the same time, more and more complications are being reported, although many go unreported^{1,8}.

IVF treatment essentially involves ovarian stimulation by exogenous gonadotropins and clomiphene citrate to induce ovulation³⁻⁵. OHSS is a known complication of IVF treatment which could cause nausea, vomiting, abdominal ache, ascites, thromboembolic phenomenon, hydrothorax and hydropericardium; it is rarely fatal⁸.

There are a few reports of isolated neurological and ocular complications during IVF treatment. They range from blurring of vision, benign intracranial hypertension and retinal vascular occlusion^{1,3-6}.

Our case, to the best of our knowledge, is the first of its kind presenting with unilateral massive optic disc edema and central retinal vein occlusion in the same eye in a thirty-year-old female. The vision deteriorated in a span of 5 days after presentation due to the development of massive macular edema.

OHSS causes hyperpermeability of blood vessels due to secretion of vascular factors such as tumor necrosis factor- α , vascular endothelial growth factor (VEGF) and endothelin-1 by the ovaries, which are excessively stimulated by exogenous gonadotropins⁶.

CONCLUSION

Ovarian hyperstimulation could cause multisystemic complications; however, neurological and ocular complications are rare. A prompt diagnosis and treatment in this case resulted in a complete recovery of the vision.

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