



A 64-Year-Old Woman with Floaters and Progressive Blurry Vision

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Introduction:

A 64-year-old woman with no significant past ocular history presents with a one month history of floaters in left eye and progressive blurry vision. Her past medical history is significant for hypertension and high cholesterol.

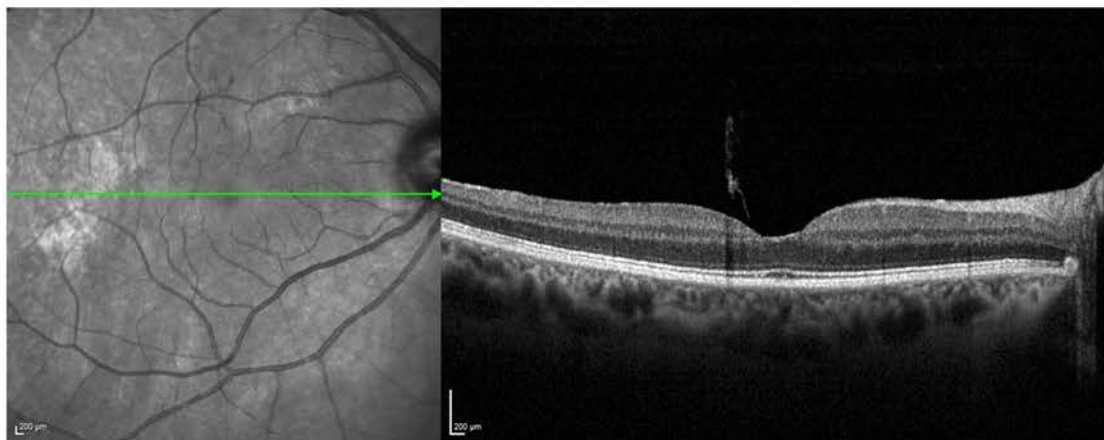


Figure 1: Normal OCT of the right eye.

On exam her vision was 20/30 in the right eye and 20/60 the left eye. Intraocular pressure was 16 in both eyes. The anterior exam was within normal limits. She had 2+ nuclear sclerosis and 1+ cortical changes in both eyes. Dilated fundus examination revealed a cup to disc ratio of 0.2 in both eyes. A posterior vitreous detachment (PVD) was noted in the right eye with a normal macula and an unremarkable periphery. In the left eye she was found

to have vitreous syneresis with an attached posterior vitreous face with vitreomacular traction at the fovea. An epiretinal membrane was also noted in the macula. The peripheral exam was unremarkable in the left eye.

Optical coherence tomography (OCT) revealed a normal foveal contour in the right eye and broad-based vitreomacular traction with splitting at the interface of the outer plexiform layer and the outer nuclear layer in the left eye [Figure 1 and 2].

Options including vitrectomy, ocriplasmin or observation were discussed with the patient and the patient elected observation.

At her one month followup, the patient's vision

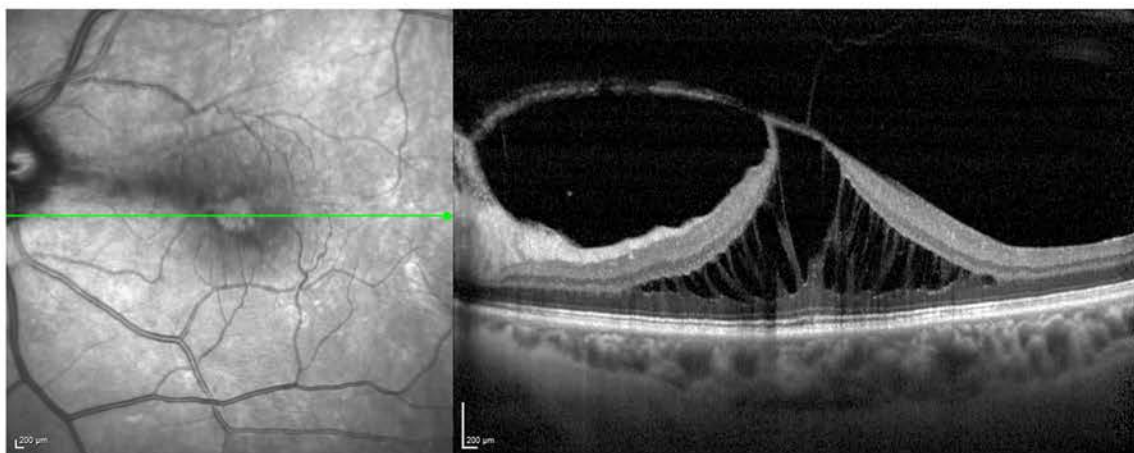


Figure 2: Broad-based VMT in the left eye.

was 20/30 and the right eye and 20/70 in the left eye and the exam and OCT were relatively stable. The management options were reviewed with the patient once again and the patient again elected observation. At her third visit one month later, the patient's vision was 20/30 in the right eye and 20/50 in the left eye with persistent VMT on the OCT in the left eye [Figure 3].



Figure 3: Persistent VMT in the left eye at two months.

At that point the option to have an intraocular gas injection to induce a posterior vitreous detachment was discussed with the patient. The patient elected to receive an intravitreal injection of 0.3CC C3F8 gas in the left eye.

Two days after the procedure, the patient's vision was 20/50 in the left eye with an intraocular pressure of 17. There was a 30% gas bubble in the vitreous cavity of the left eye on examination.

Two weeks after her procedure the patient reported diminished floaters and improved vision. Her vision was 20/40 in the left eye. OCT showed release of the vitreomacular traction with mild cystic changes.

Seven weeks after her procedure her vision was stable at 20/40. The patient reports seeing a floater in the left eye. On examination she was found to have a posterior

vitreous detachment in the left eye along with a small 3% gas bubble. There was an epiretinal membrane in the macula and a normal periphery. On OCT the mild cystic changes in the left macula were improving.

Discussion:

Vitreotomy with gas tamponade was first shown to be an effective treatment for macular holes by Wendel and Kelly in 1991 [1]. 4 years later Chan et al. described successful induction of posterior vitreous detachment and closure of impending and stage 2 macular holes with intravitreal C3F8 injections [2]. The mechanism by which intravitreal gas induces the PVD is not fully understood. It is theorized that the gas creates or enlarges the existing synergetic vitreous cavity. This process induces a break in the cortical vitreous and allows liquid vitreous to flow into the subhyaloid space and for a PVD to develop.

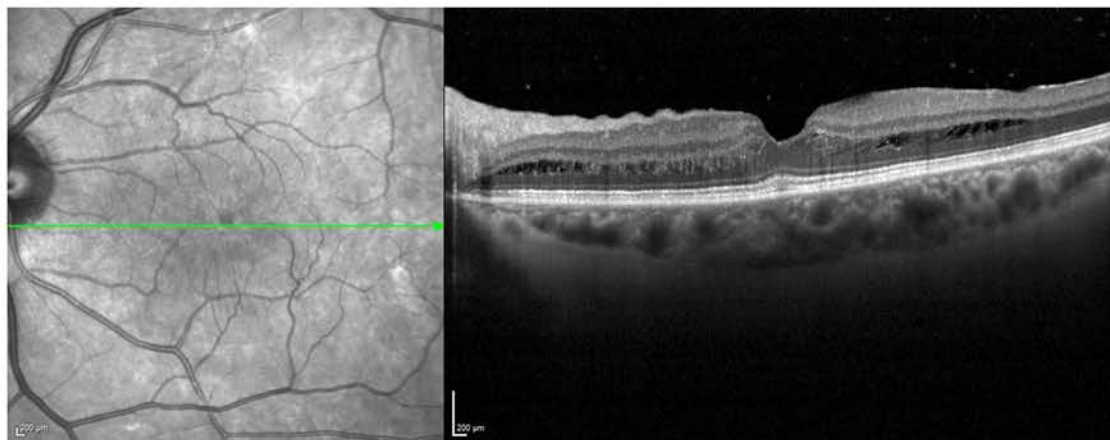


Figure 4: Two weeks after C3F8 injection, release of VMT and mild cystic changes.

Recently Chan et al. presented a series of 50 patients who had idiopathic VMT with or without Stage 2 macular holes. All received intravitreal C3F8. The overall success rate of induction of a posterior vitreous detachment was 86% [3]. There was one case of macula hole formation and one case of

retinal detachment in the cohort.

In the literature the rates of successful PVD induction with intravitreal gas injection, or pneumatic vitreolysis, ranged from 56-95%, with reports using C3F8 having higher success rates compared to SF6 [3]. This can be compared to ocriplasmin which was shown to have a 26.5% success rate of PVD induction in the MIVI-TRUST trial and a 41.7% success rate in the OASIS trial. [4,5].

Conclusion:

The low complication rate and lower costs of this office procedure make pneumatic vitreolysis a viable alternative to vitrectomy or ocriplasmin for treatment of vitreomacular traction. The patient in our case experienced successful induction of a posterior vitreous detachment and a release of her vitreomacular traction.

References:

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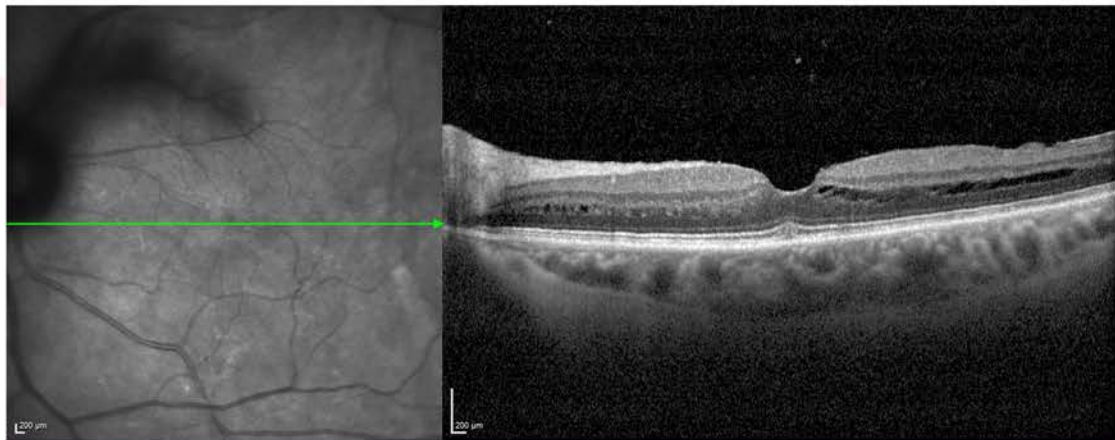


Figure 5: Seven weeks after C3F8 injection, improvement of cystic changes.

Presented by THE RETINA INSTITUTE and Sponsored by Retina Research & Development Foundation

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05 06 17

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