

10:20 AM

Pneumatic Vitreolysis For Treatment of Symptomatic Vitreomacular Traction With or Without Stage-2 Macular Hole



- Calvin E. Mein, MD
- Clement K. Chan, MD, FACS

OBJECTIVE This study was performed to assess pneumatic vitreolysis (PVL) for managing vitreomacular traction (VMT) with or without small stage-2 macular hole (MH) (≤ 250 microns).

PURPOSE To evaluate the utility and safety of PVL for treating VMT with or without a stage-2 MH.

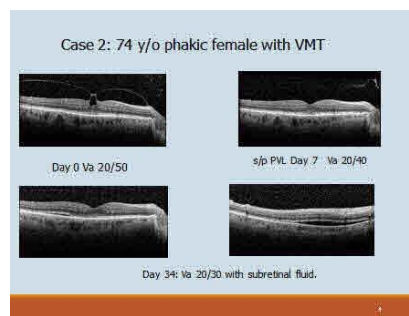
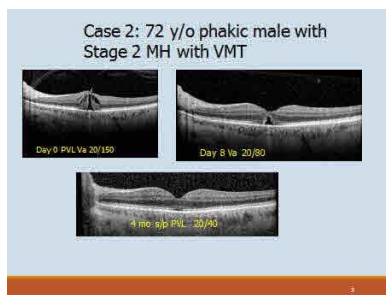
METHODS A retrospective review of eyes with symptomatic VMT with or without stage-2 MH treated with PVL from 2010 to 2016 was performed. Surgical technique included injection of 0.3 mL of C₃F₈ gas. All patients were instructed to avoid the supine position and patients with MH were instructed to position face-down for at least 3 days.

RESULTS Fifty-six consecutive eyes (54 patients) with VMT treated with PVL were analyzed. There were 40 women and 15 men with mean age of 69.6. VMT release was achieved in 48 eyes (85.7%). PVD occurred within a mean of 3.4 weeks. PVD was achieved in 80.6% (29/36 eyes) in VMT-only eyes, and in 95% (19/20) eyes with MH. MH closure occurred in 60% (12/20) eyes. Complications including 1 eye with a retinal

detachment and 1 with VMT-only converting to MH were repaired successfully with vitrectomy. One eye with a horseshoe tear responded to laser, and 1 eye with loculated subfoveal fluid/debris after PVL showed no leakage on fluorescein angiography. All 8 eyes with MH that failed to close with PVL were closed with vitrectomy. Overall median baseline and final best spectacle-corrected visual acuity (BSCVA) was 20/50 and 20/40 respectively; median baseline and final BSCVA for eyes with MH was 20/60 and 20/30 respectively, (all $p < .0001$). Strongest predictors for success were younger age and no diabetes.

CONCLUSION PVL with C3F8 gas injection and limited face-down position performed in office-setting appears to be highly effective for treating VMT with 86% success in VMT release. PVL closed 60% of small MH. All MH that failed to close with PVL were closed with vitrectomy with internal limiting membrane peeling. Few adverse events developed, including an atypical case of loculated subfoveal fluid/debris.

TAKE HOME MESSAGE PVL appears to be effective for treatment of VMT with a success rate of over 85%. Small stage 2 macular holes can be treated with PVL with an expected success rate of over 50%.



HUMAN RESEARCH This study involves human research.

IRB Approval Status: Exempt from approval

10:25 AM

Pneumatic Vitreolysis for VMT: A Comparison of Intravitreal Injections of C3F8 Versus SF6 Versus Air



- Nathan C. Steinle, MD

OBJECTIVE To study the effectiveness of various gases (C3F8 vs SF6 vs Air) injected intravitreally in a clinic setting for the treatment of vitreomacular traction (VMT).

PURPOSE Evaluate intravitreal injections of C3F8 gas, SF6 gas, and air for the treatment of VMT. Furthermore, dynamic SD-OCT movements were evaluated to better predict successful release of VMT with gas.

METHODS Consecutive patients with VMT were treated in a clinic setting with C3F8, SF6, or air. VMT release rates, visual acuity (VA), tonometry, and outer retinal band (ORB) changes were reviewed and compared. Baseline dynamic SD-OCT movements were used to characterize VMT adhesions.

RESULTS N=77 (33 C3F8, 35 SF6, 9 air). VMT release rates were 82% with C3F8, 57% with SF6, and 33% with air. Thus, C3F8 showed superior VMT release rates to both SF6 and air ($p < 0.05$). Mean follow up was 6.2 months. VA improved slightly in all groups,

with no changes in tonometry. ORB changes were minimal across all three types of gas. “Mobile” VMT adhesions released at significantly higher rates than “taut” adhesions.

CONCLUSION The 77 eyes included in this review represent by far the largest series to date regarding the comparison of three types of gas for VMT. In this series, C₃F₈ had superior release rates versus SF₆ or air ($p < 0.05$). Furthermore, by evaluating baseline dynamic (live) SD-OCT characteristics, the predictability of successful VMT release could be enhanced in patients receiving pneumatic vitreolysis.

TAKE HOME MESSAGE This series represents the first large comparison of three gases (air/SF₆/C₃F₈) in the treatment of VMT, and is also the first series to use dynamic SD-OCT to predict success. C₃F₈ was most effective.

HUMAN RESEARCH This study involves human research.

IRB Approval Status: Approved by institutional review board

10:30 AM

Pneumatic Vitreolysis in Cases of Symptomatic Vitreomacular Traction With or Without Macular Holes



- Jorge Guillermo Arroyo, MD, MPH

OBJECTIVE What are the rates of vitreomacular traction (VMT) release and macular hole closure after pneumatic vitreolysis for symptomatic VMT with and without macular holes.

PURPOSE Pneumatic vitreolysis (PV) results in vitreomacular traction (VMT) separation in 80-95% of cases. The aim of this study is to investigate the rates of VMT release and macular hole closure after pneumatic vitreolysis for symptomatic VMT in eyes with no evidence of foveal thinning, impending MH or full-thickness MH.

METHODS This retrospective, consecutive case series analyzed patients with symptomatic VMT on Spectral Domain Optical Coherence Tomography (SD-OCT) who elected to undergo PV with octafluoropropane (C_3F_8) between May 2011 and December 2016. Fourteen eyes of 13 patients with no MH (n=4), impending MH (n=5), or FTMH (n=5) received a single intravitreal injection of 0.3 mL of 100% C_3F_8 and performed face down positioning for 1 week. Primary outcomes were the incidence of VMT resolution by Day 28 as verified by SD-OCT and nonsurgical incidence of MH development or closure

at any follow-up time. Secondary outcomes included changes in visual acuity and postoperative complication rate.

RESULTS VMT release was achieved overall in 12 of 14 eyes (85.7%), and in 10 out of 10 eyes (100%) with impending MH or FTMH. Two of 4 eyes with no impending MH or MH (50%) had persistent VMT and underwent subsequent PPV. Average size of vitreomacular adhesion was greater in eyes with persistent VMT as compared to those with successful VMT release (1869.5 um vs. 423.08 um, respectively). Three of the 5 impending MH cases (60%) resolved after PV, and 2 progressed to FTMH (40%). None of the 5 FTMH closed following PV alone. Anatomical MH closure was achieved in all 7 eyes that underwent subsequent vitrectomy. One eye in this series developed an inferior rhegmatogenous retinal detachment resulting in a complication rate of 6.3%.

CONCLUSION Although PV successfully released VMT in 100% of cases with FTMH, none of these cases achieved MH closure after PV alone. 40% of cases with impending macular hole developed a FTMH. Our preliminary analysis suggests that foveal thinning or impending macular hole is a risk factor for the development of FTMH and that PV may be ineffective in treating cases of VMT associated with FTMH.

TAKE HOME MESSAGE Foveal thinning or impending macular hole is a risk factor for the development of macular hole and pneumatic vitreolysis may be ineffective in treating cases of vitreomacular traction associated with a macular hole.

HUMAN RESEARCH This study involves human research.

IRB Approval Status: Approved by institutional review board

10:40 AM

Macular Buckling For Myopic Traction Maculopathy (MTM)



- Nikoloz Labauri, MD. FVRS
- Tekla Mamagishvili, MD
- Dharmesh K. Kar, MD
- Misha Omiadze

OBJECTIVE Does the Macular plomb as a supplementary tool for PPV and ILM peeling improve anatomical and functional outcomes ?

PURPOSE To evaluate efficacy of supplementary Macular Plombe combined with PPV and ILM peeling for management of MTM.

METHODS We operated seventeen eyes of 13 consecutive patients with MTM. Ando plombe or AJL “PMMA macular indentator“ was combined with PPV, ILM peeling and Silicone Oil tamponade. 8 eyes were having posterior retinal detachment with retinoschisis and full thickness macular hole. 2 eyes had failed primary vitrectomy with retinal detachment and full thickness macular hole with no retinoschisis. 7 eyes had retinoschisis with posterior retinal detachment. BCVA varied from 2.0 to 1.3 in LogMAR (mean 1.6). Follow up period varied from 14 to 44 months (mean 36 months). Silicone Oil have been removed in all cases at 3 months postoperatively.

RESULTS We achieved retinal reattachment in all cases by one surgery. Results have been stable all the follow up period except one case, where retinal detachment recurred after SiO removal and required reoperation. Macular Hole was closed in all cases. BCVA was improved in 13 eyes and remained stable in 4 eyes, varied from 1.3 to 0.7 in LogMAR (mean 1.0).

CONCLUSION Macular plombe as a supplementary tool in combination with PPV and ILM peeling appeared to be very effective technique to improve anatomical and functional outcomes in myopic traction maculopathy cases.

TAKE HOME MESSAGE Macular plomb in combination with PPV and ILM peel provides optimal outcomes for MTM associated with retinoschisis and posterior retinal detachment with or without hole.

HUMAN RESEARCH This study involves human research.
IRB Approval Status: Approved by institutional review board

10:48 AM

Creation of a Paracentral Retinotomy to Facilitate A Closure of A Large Resistant Macular Hole

- Michael S. Tsipursky, MD

OBJECTIVE To determine if it would be safe and effective to create a separate paracentral hole in the nasal macula in order to help close a resistant central macular hole.

PURPOSE There is a small percentage of large macular holes that will not close even with internal limiting membrane (ILM) peeling and face down positioning with long acting gas like C3F8. New method of resistant hole closure is described with a case series.

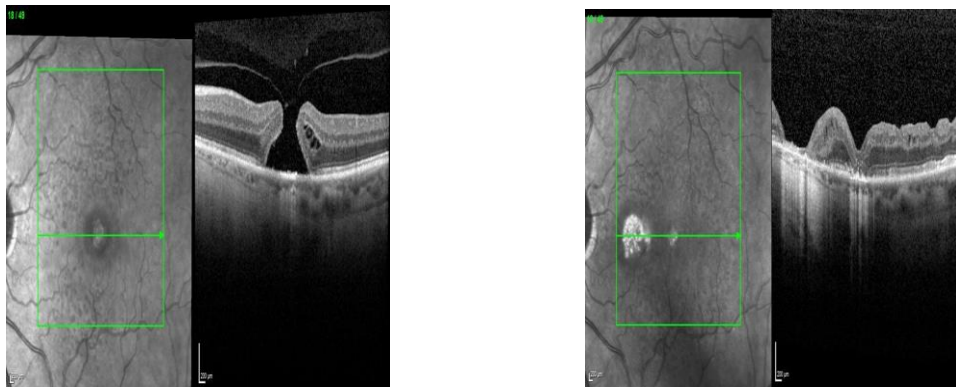
METHODS This a retrospective interventional case series of 6 eyes of 6 patients which previously had at least one attempted surgery to close a large >400 micron macula hole. We introduce a method that is simple and safe that may help to increase amount of tissue available in nasal macula by creating a circular retinotomy with the use of endocautery and a aspiration with soft tip cannula. ILM has already been peeled and the eye has been vitrectomized in previous surgery. The eye is filled up with C3F8 gas and up to one week face down positioning is advised.

RESULTS 6 patients had the procedure with a relaxing retinectomy in nasal macula. All cases have had at least one attempted closure previously. 5 out of 6 patients achieved closure of the central macula hole. Visual acuity improved in 3 patients (20/100 to 20/80, 20/500 to 20/80, (Counting fingers (CF) to 20/200). One patient had no improvement of acuity and stayed at CF vision due to chronic nature of the hole with treatment delay for 9 months. One patient had a nice anatomic result but suffered an occipital cerebrovascular accident with a homonymous hemianopsia effecting central vision. The patient with failed closure had a chronic large hole 1550 microns in size and

after surgery had improved reduced size of the hole for several months which eventually enlarged again. She had similar acuity at CF level.

CONCLUSION The procedure is designed for resistant cases and serves as a viable option for macula hole closure. In most cases there was robust evidence that rNFL was not damaged and patients had subjective improvement in acuity and no complaint of a paracentral scotoma.

TAKE HOME MESSAGE Creation of a paracentral hole between nasal macula and optic disk can be used safely during the vitrectomy to close resistant macula holes.



HUMAN RESEARCH This study involves human research.

IRB Approval Status: Approved by institutional review board