

INTRODUCTION

Macular holes (MHs) represent a clinical disease characterized by a full-thickness defect in the retina, adversely impacting detailed, central vision. The etiology of the majority of macular holes is idiopathic, but can be secondary to trauma and high myopia, among other causes¹. The risk of MH is increased with age and with female sex². Anatomic closure rates with pars plana vitrectomy (PPV) exceed 90%³. Despite this, some MHs persist or recur following initial surgical management. As stated by Cao and Kaiser, "several options are available for secondary repair, including extension of the internal limiting membrane (ILM) peel, creation of an ILM flap, pedunculated ILM flap, lens capsule flap transplantation, autologous retinal transplantation, use of a human amniotic membrane plug (hAMG), adjuvant autologous platelet concentrate, induction of macular detachments with subretinal blebs, and creation of retinal incisions."⁴

PURPOSE

The purpose of this study is to provide a review of failed MH cases from a single surgeon and to examine prognostic factors and alternative approaches for re-operation.

METHODS

This study was conducted as a single surgeon retrospective review of patient charts. The study reviewed 618 MH patients, identifying 18 failed MH cases that underwent repeat surgery and examining anatomic and visual outcomes for these cases.

RESULTS

Reoperation was performed on 18 failed MH cases (3%). 12 were primary idiopathic MHs and 6 were secondary MHs: 3 myopic, 1 trauma, 1 PFT, 1 ARMD. Primary MHs had a significantly higher reoperation closure rate (9/12, 75%) compared with secondary MHs (1/6, 17%), $P = 0.02$. Baseline MH size was similar between primary (506 +/- 179 μm) and secondary (506 +/- 478 μm) MH groups. Surgical techniques attempted included confirming vitreous removal, widening the ILM peel, peri-foveolar stretching, MH plugging with tissue such as ILM, blood or hAMG, transretinal fluid infusion, and longer acting vitreous tamponades.

DISCUSSION

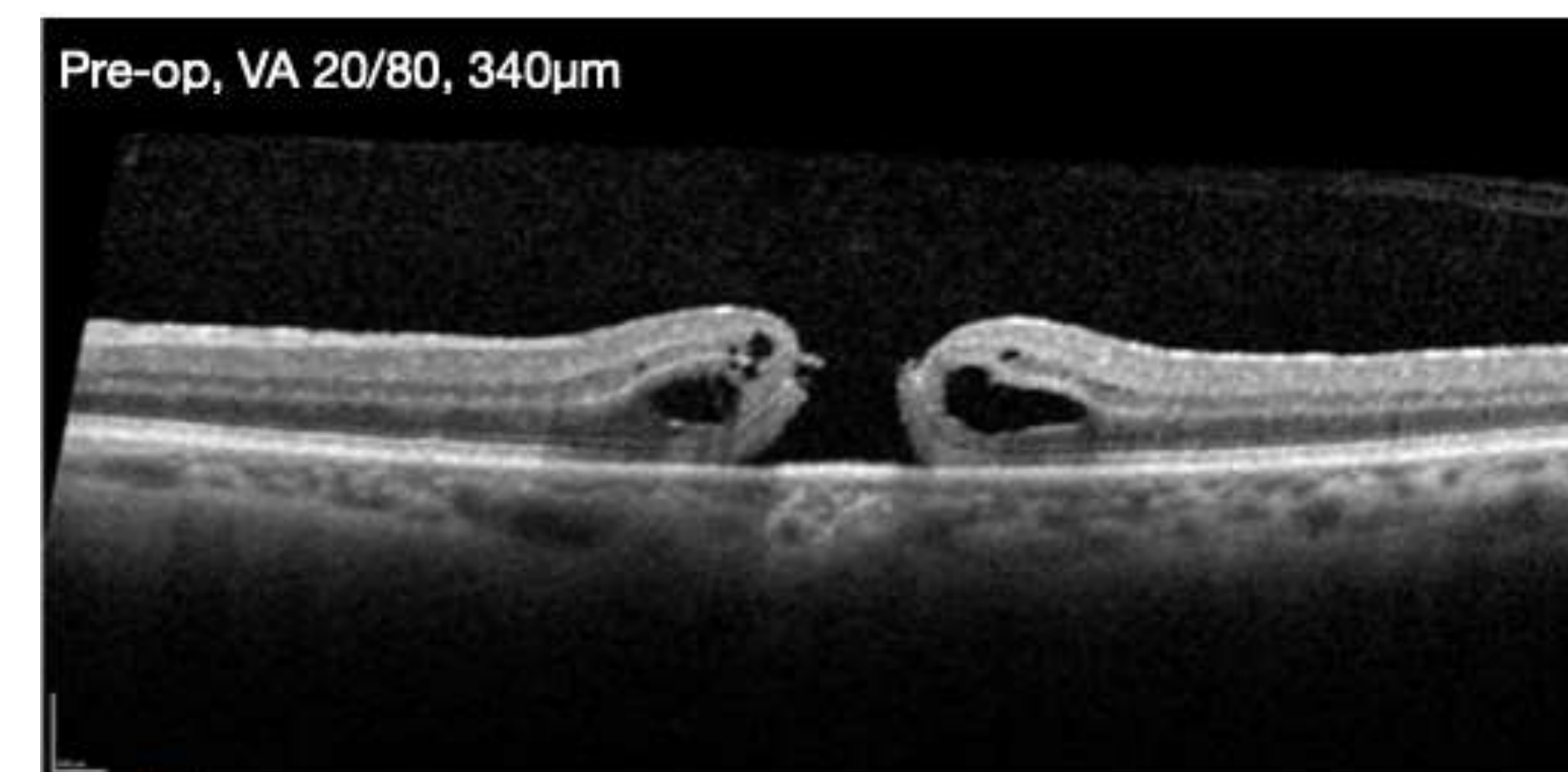
The overall reoperation success rate was 10/18 cases or 56%; reoperation success was much higher for primary MH (9/12, 75%) compared to secondary MHs (1/6, 17%). **Reoperation for failed MH can still lead to improvements in both anatomic and visual outcomes.** Several alternative techniques and options were utilized in this series for treatment of persistent MH. **No specific surgical technique was found to be associated with significantly improved anatomic or visual outcomes.**

CONCLUSION

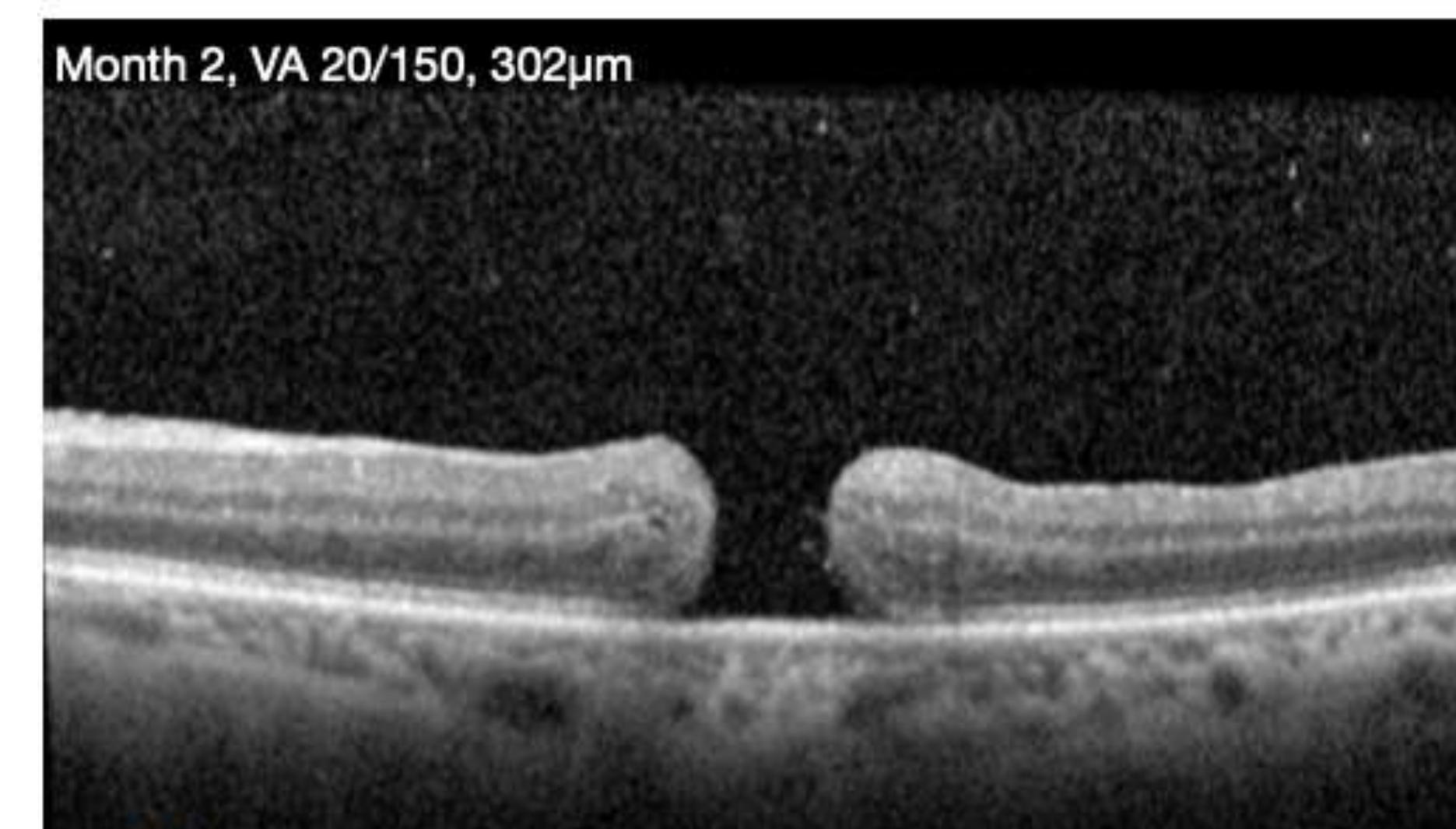
Overall, this study demonstrates **that reoperation of failed MHs can still yield good anatomic and visual outcomes** especially for primary MHs. However, persistent secondary MHs tend to be more difficult to close through reoperation.

CASE EXAMPLE

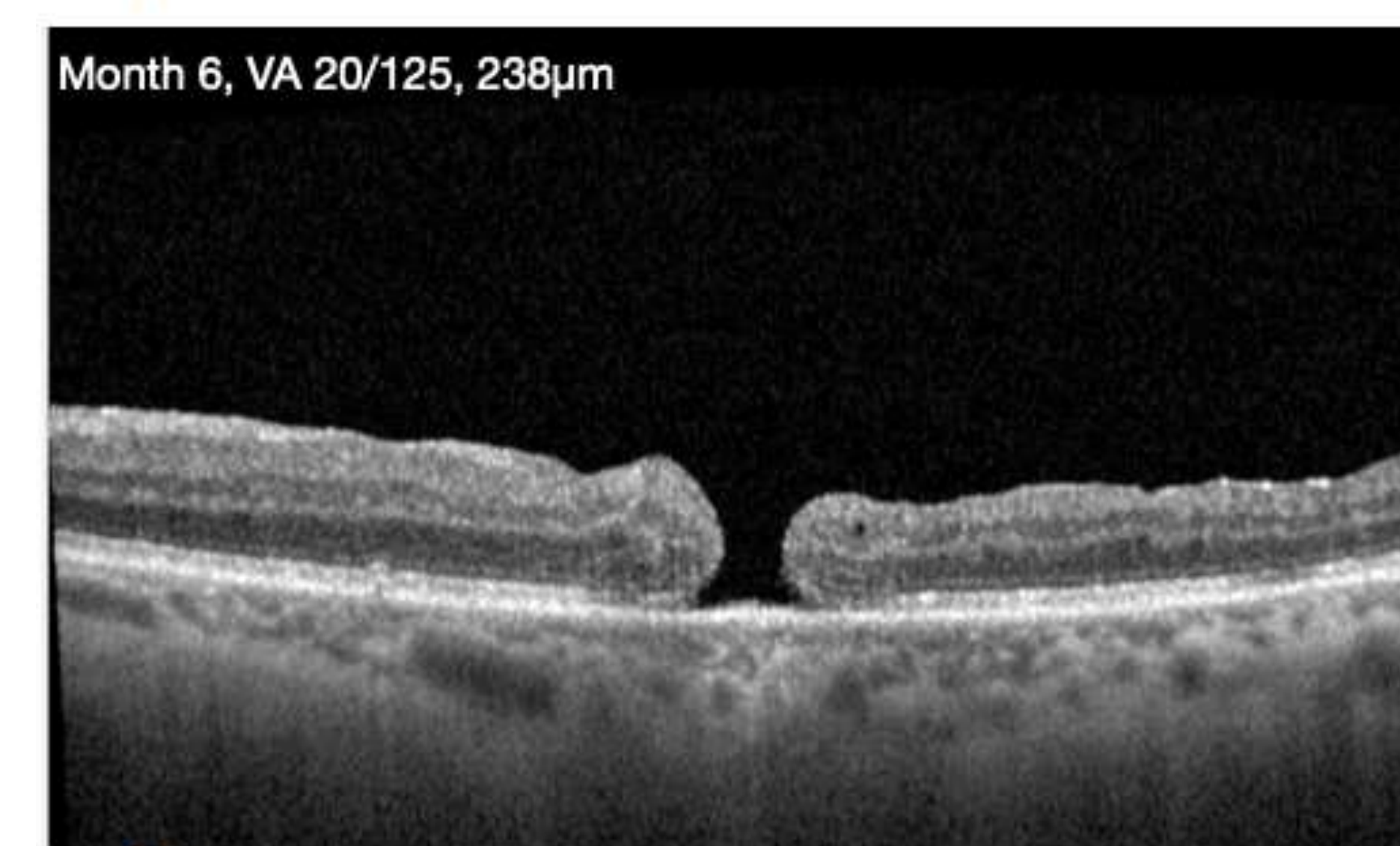
77 year old male with a BMI 55 (which limited positioning) underwent repeat surgery for persistent macular hole OS to achieve anatomic closure.



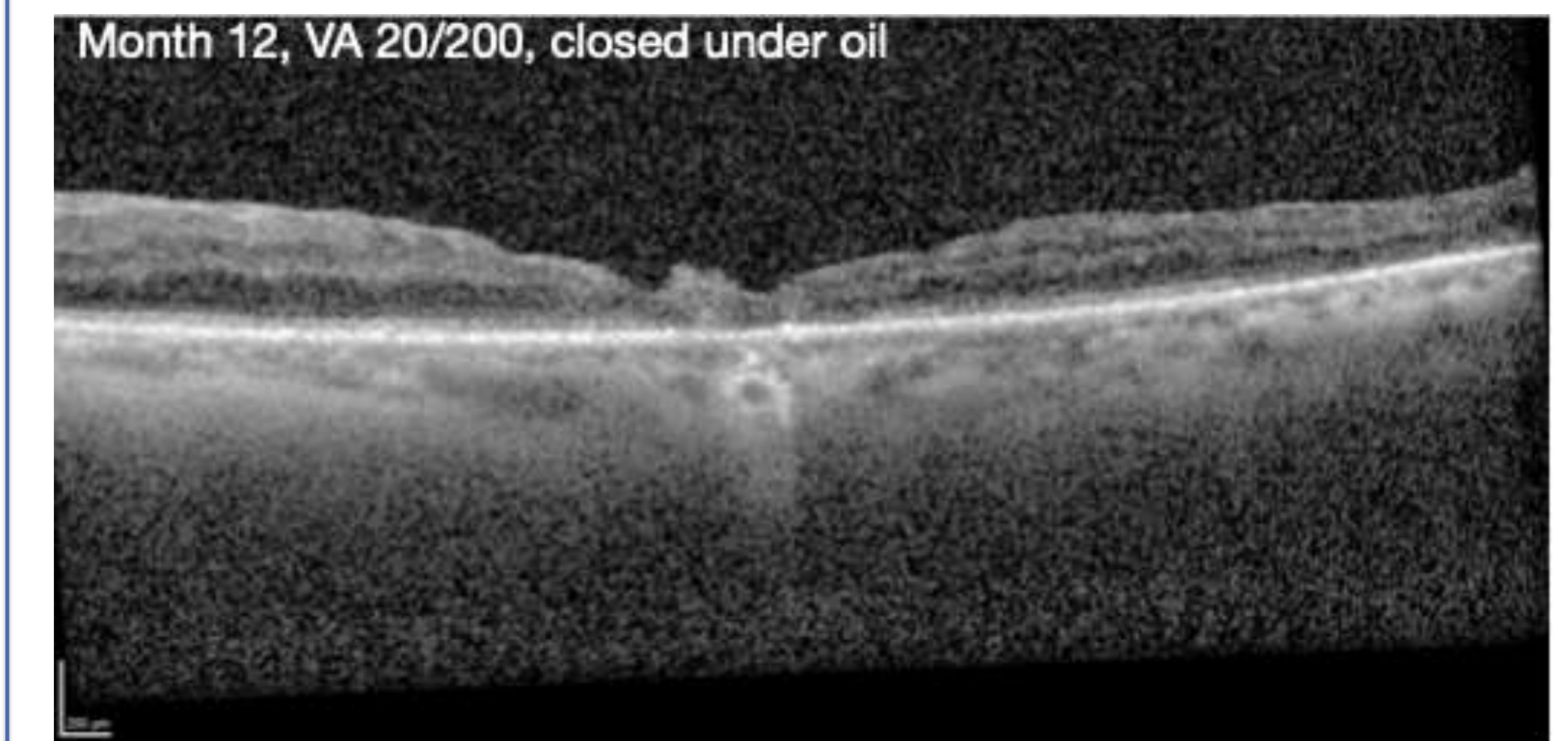
Vitrectomy, PCIOL, ILM peel, 25% SF6



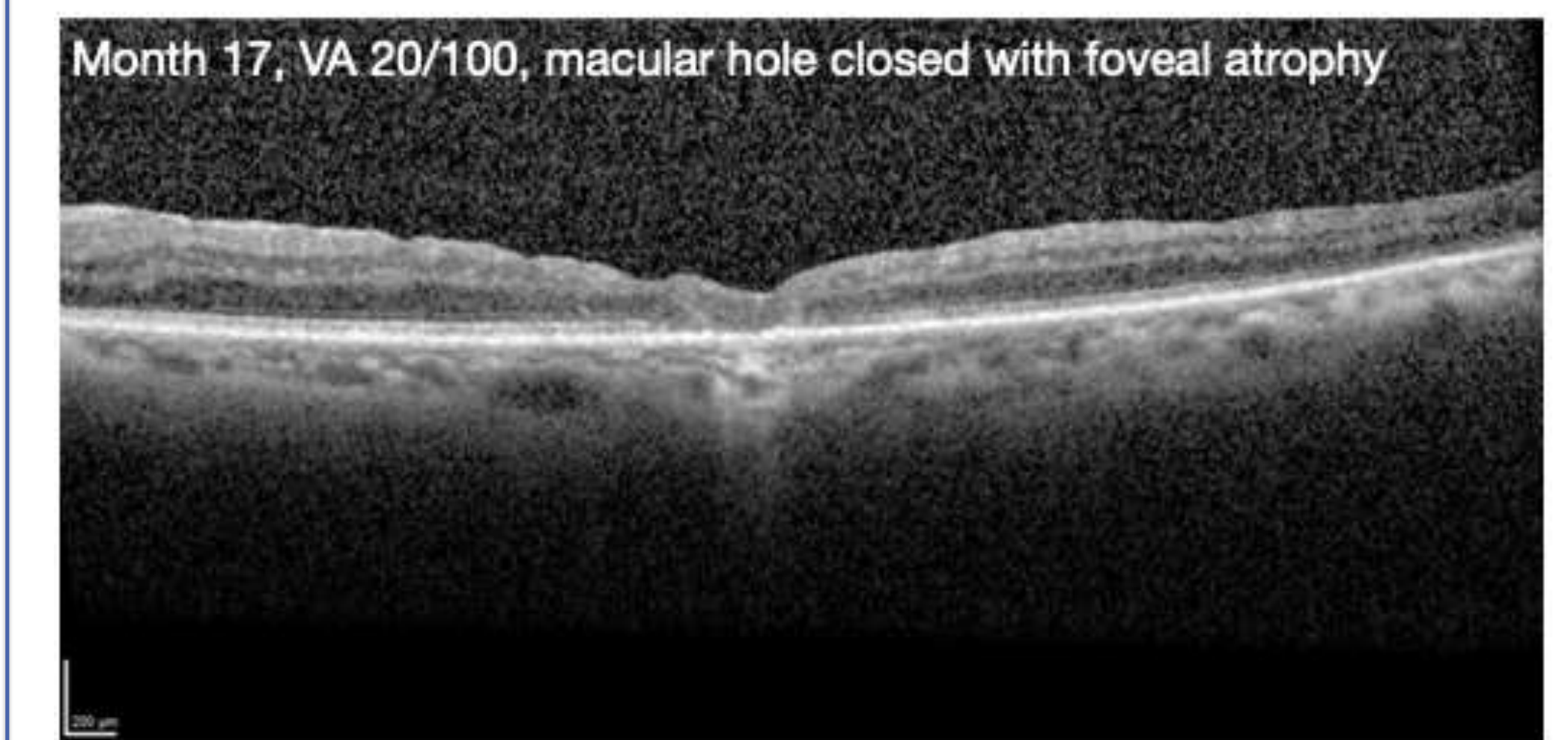
Vitrectomy, ILM extension, heme plug, 15% C3F8



Vitrectomy, heme plug, transretinal fluid infusion, densiron xtra oil



Vitrectomy, oil removal, multiple air fluid exchanges



ACKNOWLEDGMENTS

The authors would like to thank Shellina Kherani, BScN, April Ingram, MA, and Calgary Retinal Consultants for their contributions.



References