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# Spontaneous Closure of a Chronic Idiopathic Full-thickness Macular Hole

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## BACKGROUND

Spontaneous closure of idiopathic full-thickness macular holes is rare but has been reported in 5-6% of cases. This report describes a unique case of a stage IV macular hole that self-sealed nine years after onset, as monitored with optical coherence tomography (OCT).

## CLINICAL FINDINGS

A 73-year-old African American male presented with an ocular history of an idiopathic full-thickness macular hole in his left eye since 2012 (Fig. 1) with a complete PVD noted since 2019. The patient had continuously declined surgical intervention and was being monitored annually.

### Medical History:

- 1) Type 2 diabetes
- 2) Hypertension
- 3) Hyperlipidemia
- 4) Coronary artery disease

Medical Allergies: hydrochlorothiazide, niacin, felodipine, lisinopril, terazosin

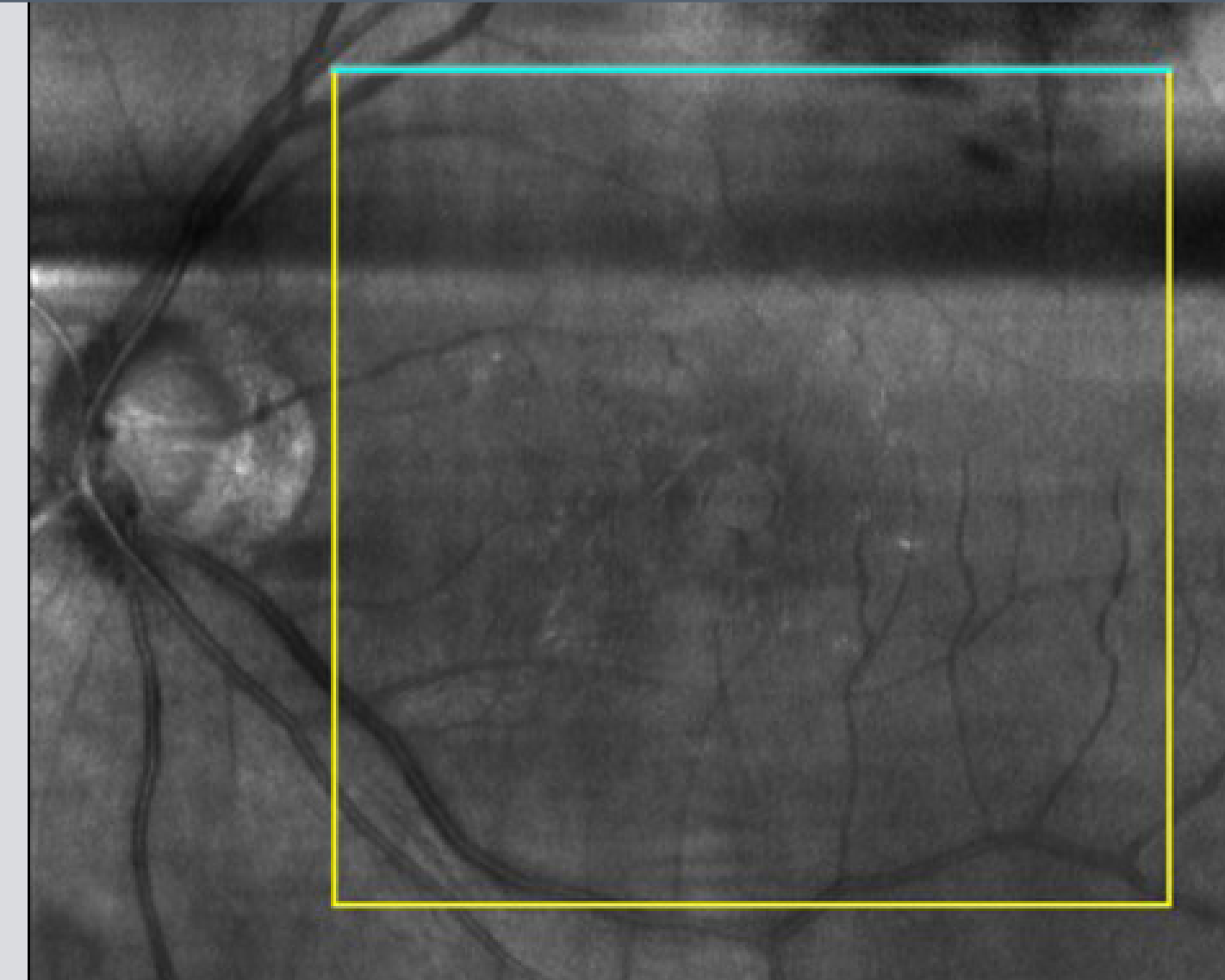
In 2021, the patient reported stable vision, but his potential visual acuity had improved from 20/70 to 20/30 (Table 1).

**TABLE 1**  
Summary of ocular exams from 2012 and 2021

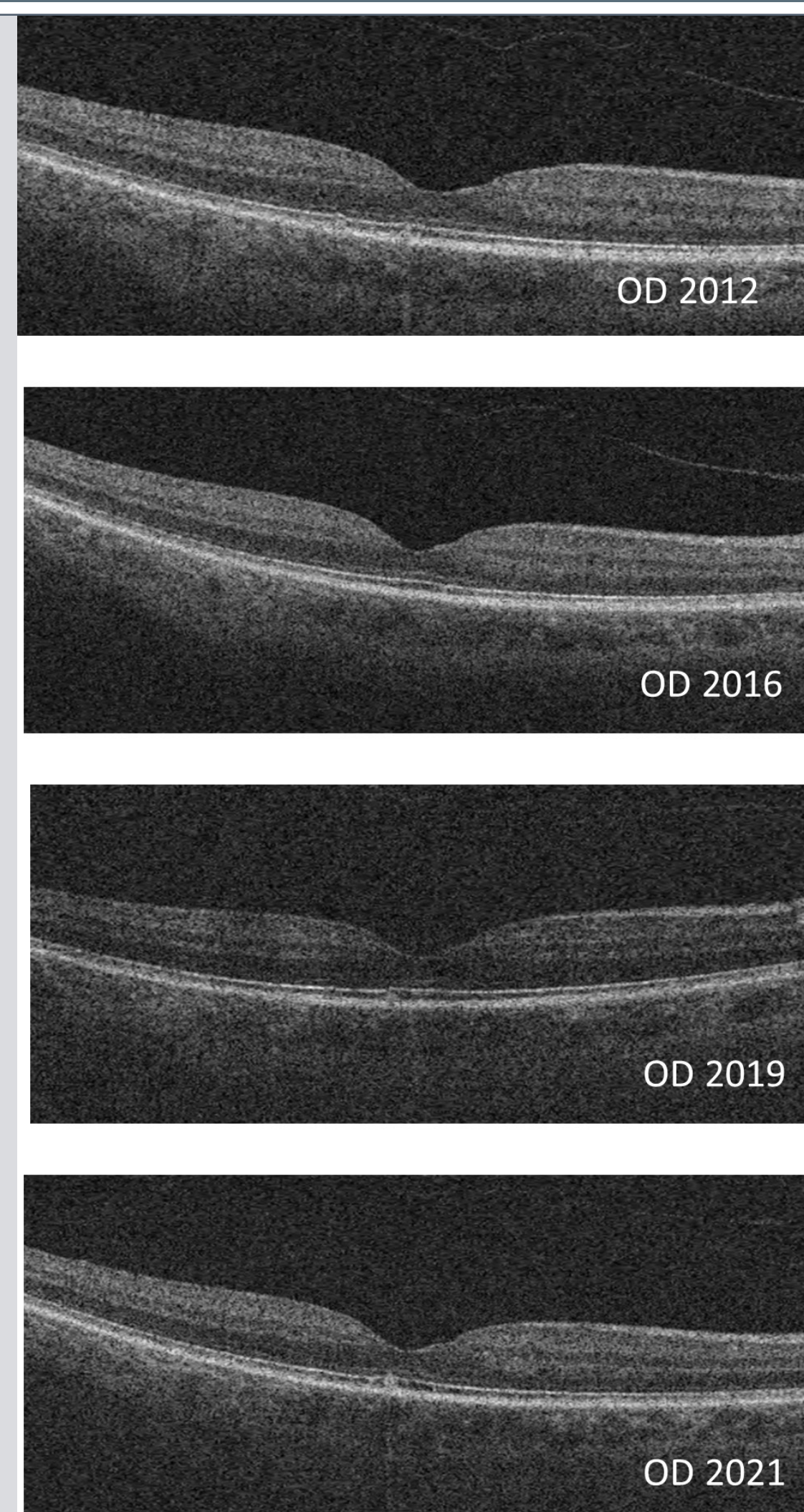
2012 Exam			2021 Exam		
CC: Central blur OS x 7 months			CC: Vision stable OU, no complaints		
	OD	OS		OD	OS
VA	20/20	20/70 PHNI, PAP NI	VA	20/25 PAP: 20/20	20/70 PAP: 20/30
Pupils	NL	NL	Pupils	NL	NL
EOM's	NL	NL	EOM's	NL	NL
IOP	19 mm Hg	18 mm Hg	IOP	21 mm Hg	19 mm Hg
Lens	1+ NS	1+ NS	Lens	1+ NS, 2+ ACS	1+ NS, 3+ ACS
C/D	0.60	0.55	C/D	0.60	0.55
Periphery	NL	NL	Periphery	NL	NL

Serial OCT's of the macula since 2012 documented a full-thickness hole with an operculum in the vitreous cavity and an epiretinal membrane. A complete PVD OS was documented in 2019 and the previously seen operculum was no longer appreciated on the OCT. A repeat OCT of the macula in 2021 showed resolution of the macular hole with a residual sub-foveal area of focal photoreceptor loss (Fig. 2a, 2b).

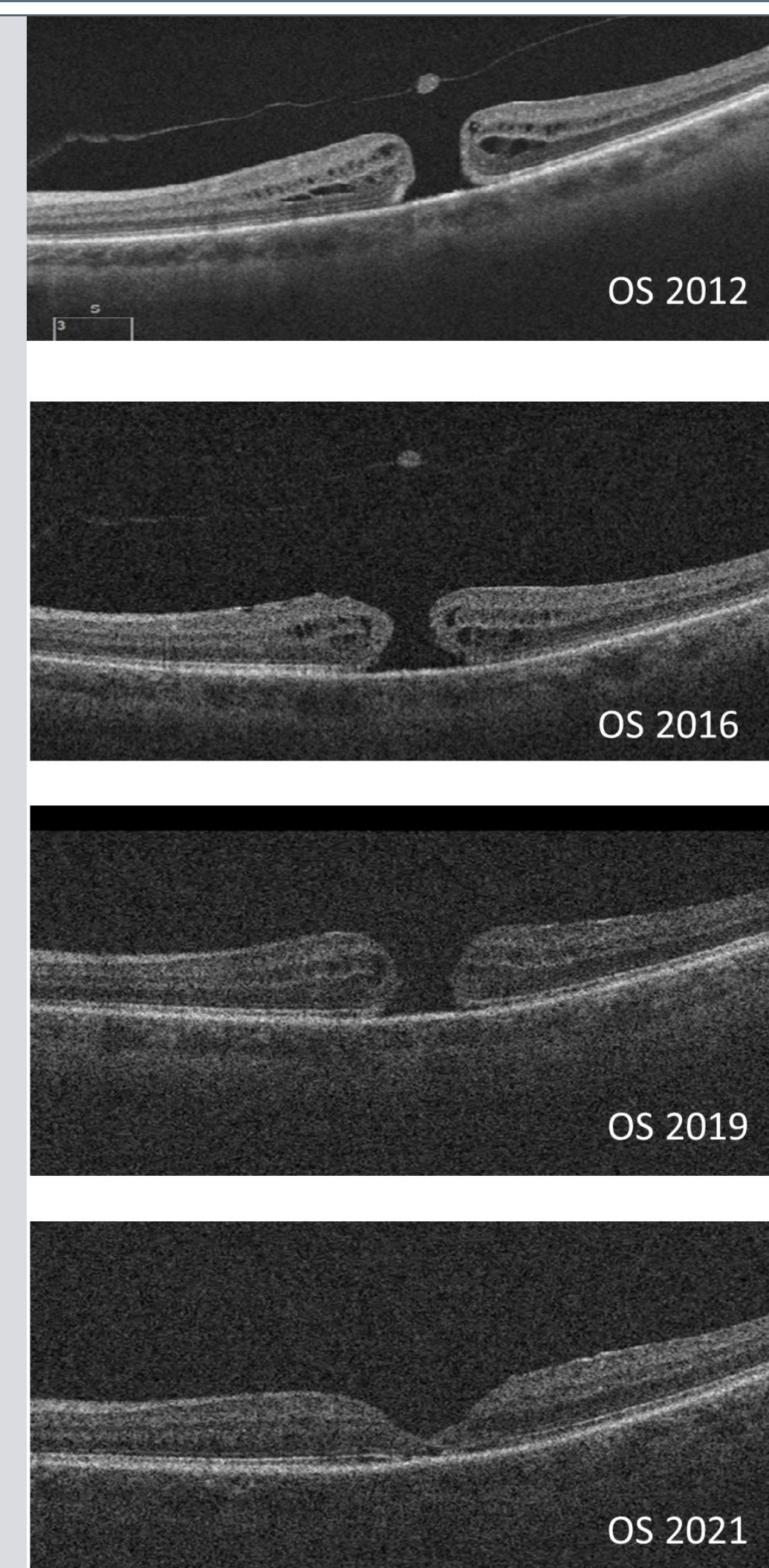
**FIGURE 1**



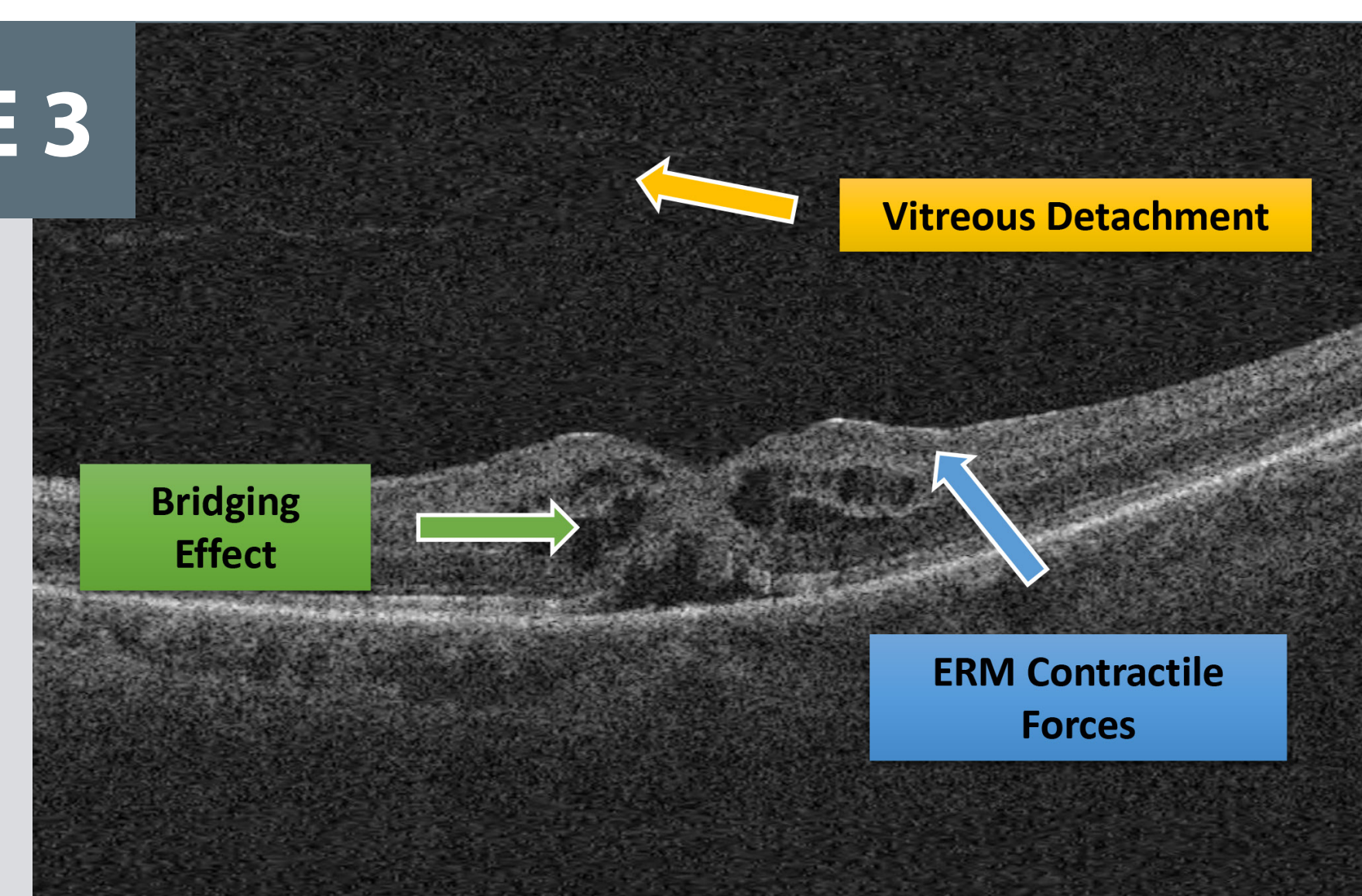
**FIGURE 2A**



**FIGURE 2B**



**FIGURE 3**



Although the patient's acuity was reduced from visually significant cataracts, the patient declined intervention and elected to monitor annually.

### Assessment:

- 1) Chronic full-thickness macular hole OS with spontaneous resolution
- 2) Visually significant cataracts OS>OD

### Plan:

- 1) Continued observation at annual exam
- 2) Patient declined intervention

## DISCUSSION

- Prior to the OCT era, spontaneous closure of stage III and IV idiopathic macular holes was reported to occur in 5-6% of cases (Michalewska et al, 2008)
- *Observation of Idiopathic Full-thickness Macular Holes* (Yuzawa et al, 1994)
  - o Spontaneous closure occurred at an average of 25 months with an overall range from 7 to 41 months.
  - o BCVA Outcome
    - Initial exam: 20/200 or 20/100
    - Spontaneous closure within 24 months: 20/30 or better
    - Spontaneous closure 38 months or longer: 20/50 or worse
- Possible mechanisms for spontaneous closure (Fig. 3)
  - 1) Complete vitreous detachment relieving traction
  - 2) Bridging of retinal tissue across the hole
  - 3) Contractile forces from an epiretinal membrane
  - 4) Glial cell proliferation at the base
- This case of a self-sealing hole likely had multiple contributing factors given the presence of an ERM, a complete PVD in 2019, and a bridge at the edges of the hole
- The timeline of self-resolution in this case is unique as it resolved 9 years after onset.

## CONCLUSION

This report describes a unique example of spontaneous closure of a chronic full-thickness macular hole. Mechanisms for closure are not fully understood, but utilization of OCT has helped elucidate potential contributing factors. Although spontaneous closure has been reported, the occurrence is rare and surgical intervention should still be considered in cases of macular holes.

## CONTACT INFORMATION

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