

OCTA in Retinal and Glaucoma Diagnostics

AAO Tech Day 2026
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Casey Eye Institute

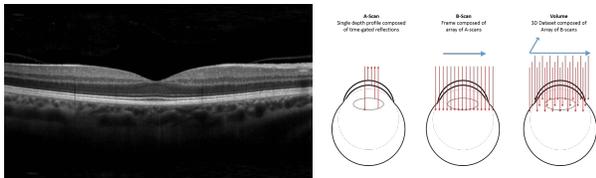
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Optical Coherence Tomography Angiography

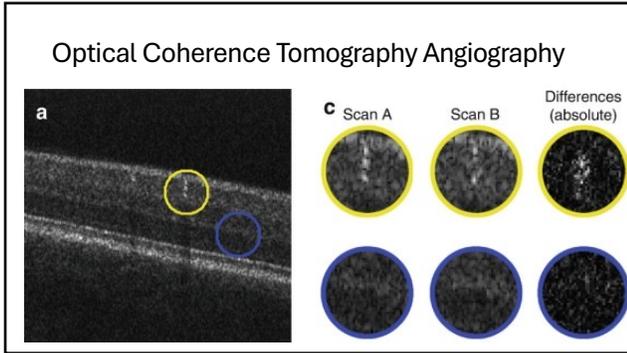
- Mechanism
- Retina
- Glaucoma
- Pitfalls
- Future

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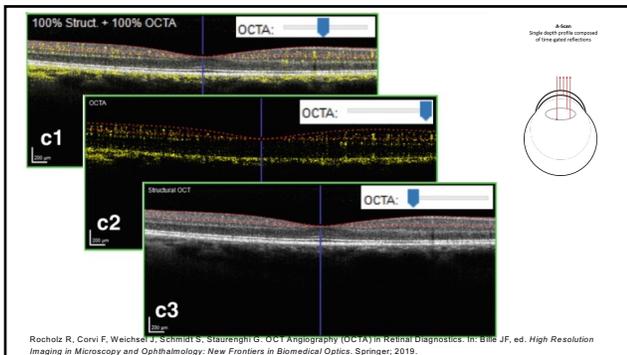
Optical Coherence Tomography (OCT)



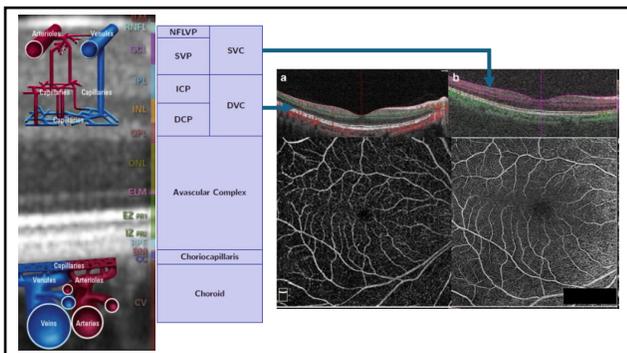
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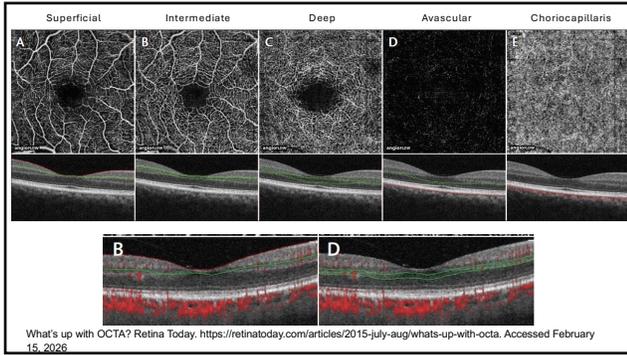
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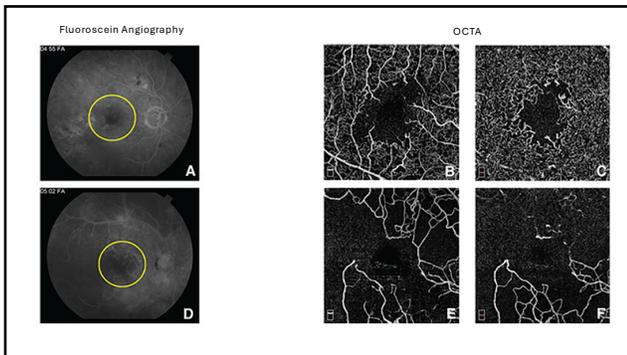
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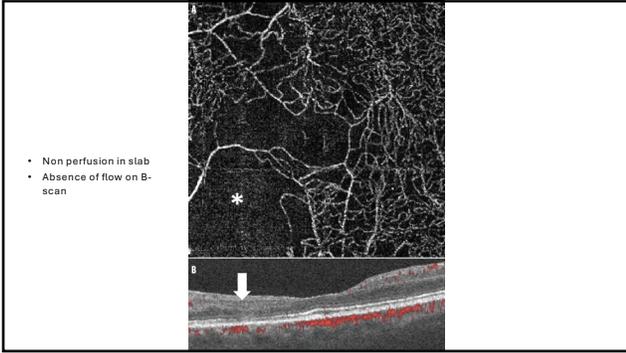
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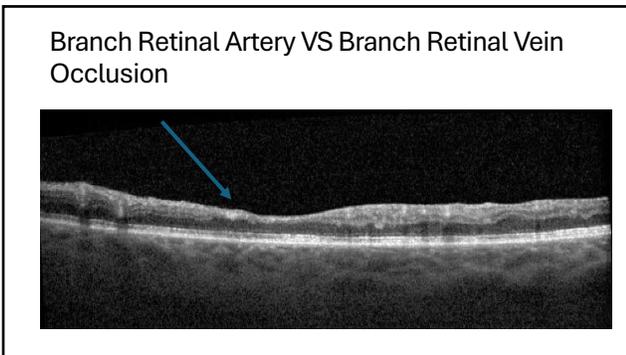
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Fluorescein Angiography	OCTA
Gold standard of retinal imaging	Non-standardized
2 Dimensional	3 Dimensional
Large field of view	Small field of view
Unilateral	Bilateral
Intravenous	Non-invasive
15-30 minutes	Minutes
Fewer errors	Artifacts

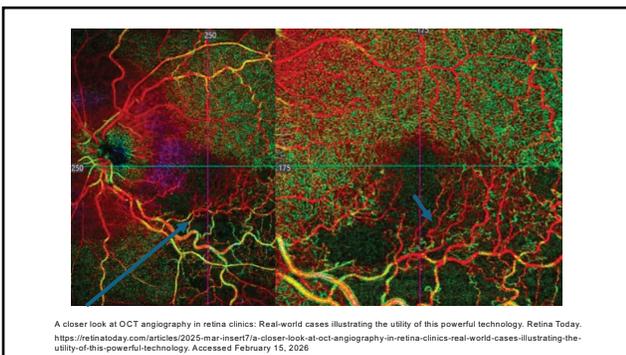
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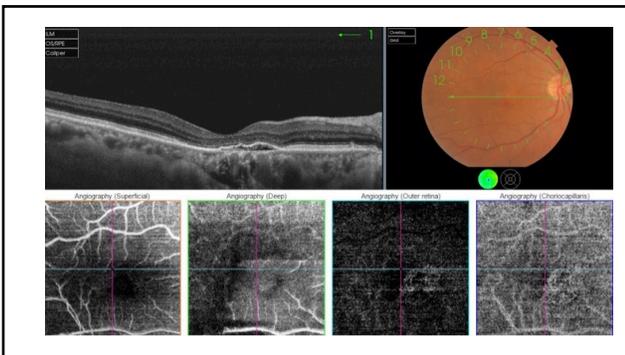
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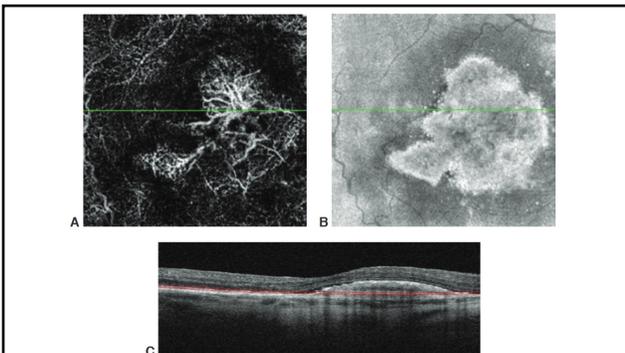
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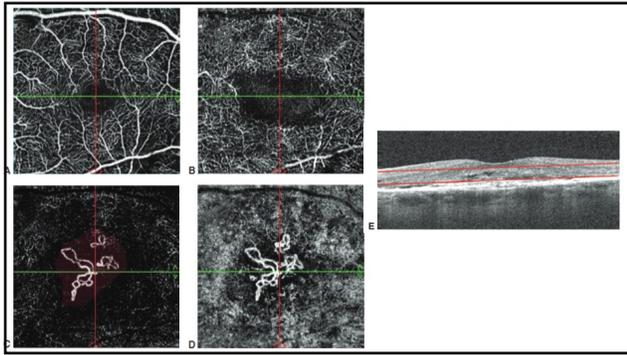
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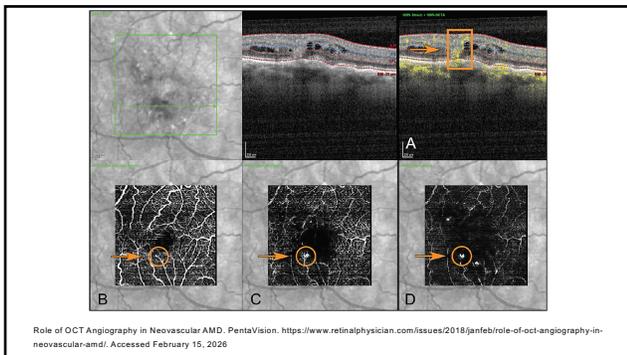
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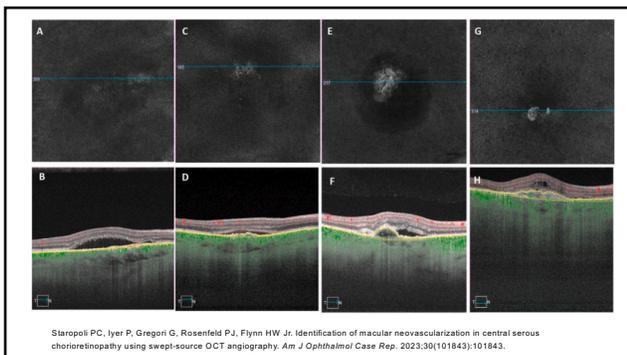


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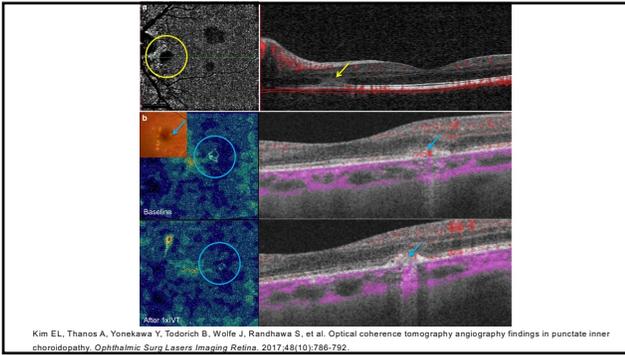
Role of OCT Angiography in Neovascular AMD. PentaVision. <https://www.retinalphysician.com/issues/2018/janfeb/role-of-oct-angiography-in-neovascular-amd/>. Accessed February 15, 2026.

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Staropoli PC, Iyer P, Gregori G, Rosenfeld PJ, Flynn HW Jr. Identification of macular neovascularization in central serous chorioretinopathy using swept-source OCT angiography. *Am J Ophthalmol Case Rep.* 2023;30(101843):101843.

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OCTA in Retina

- Can examine provide angiographic data in 3D
- Best for evaluation of choroidal neovascularization in the macula
- Advantages over FA in some cases

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Glaucoma



	OD	OS
Average RNFL Thickness	77 µm	81 µm
RNFL Symmetry	95%	
Thin Arcs	0.80 arc	0.79 arc
Disc Area	1.91 mm²	2.01 mm²
Average C/D Ratio	0.75	0.80
Vertical C/D Ratio	0.82	0.76
Capillary Density	0.472 cap	0.517 cap

Figure 2: Optic Nerve Head Analysis

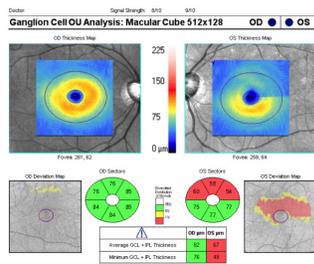
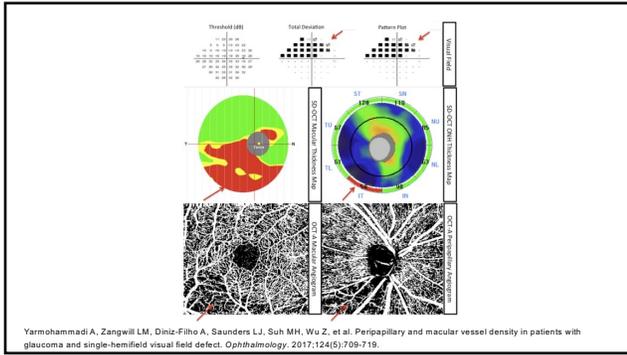
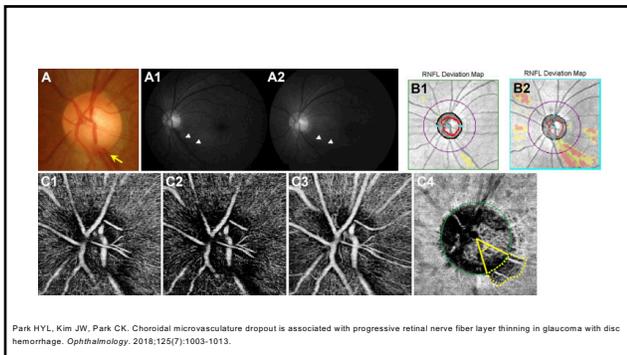


Figure 3: Ganglion cell complex analysis

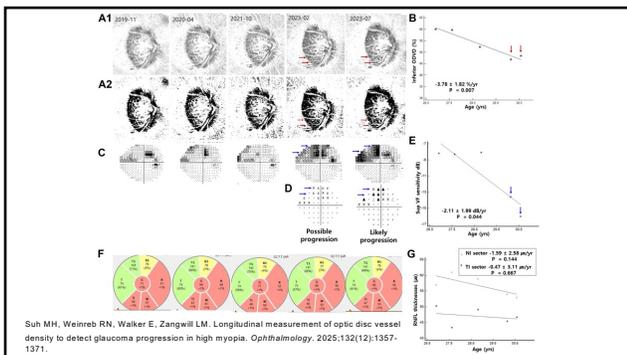
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OCTA in Glaucoma

- Microvascular changes within the ganglion cell and nerve fiber layer and choroid correspond to glaucomatous damage observed on other functional and structural tests
- Research is showing promise but not commonly used clinically yet

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Pitfalls

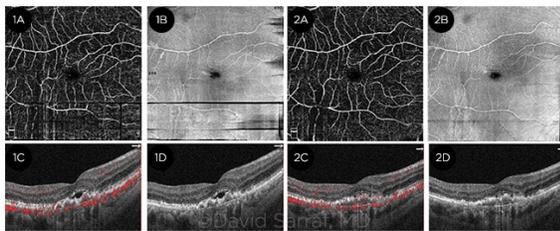
Prevalence of Artifacts

- Eye movement 93.1%
- Defocus 74.9%
- Shadow 62.3%
- Tilt 50.5%
- Z-offset 43.8%
- Refraction shift 31.8%
- Segmentation error 24.6%
- Decentration 21.4%
- Projection 6.7%

Holmen IC et al. *JAMA Ophthalmol.* 2020;138(2):119-126.

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Motion Artifacts



Interpreting OCTA Artifacts. American Academy of Ophthalmology, Published September 1, 2020. <https://www.aao.org/eyenet/article/interpreting-octa-artifacts>. Accessed February 14, 2026

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Projection Artifacts

Spaide RF, Fujimoto JG, Waheed NK, Sadda SR, Staurenghi G. Optical coherence tomography angiography. *Prog Retin Eye Res.* 2018;64:1-55.

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Optimization

- Move eye to get vitreous opacities out of the way
- Inability to fixate will make it difficult (GA, AMD)
- Optimize ocular surface with tears
- Redo if there are significant motion artifacts or poor signal

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Billing and Coding

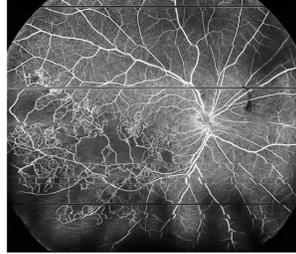
- 2025 CMS approved new CPT code 92137 for OCTA
- Cannot bill 92134 and 92137 in same encounter

CPT Code	Procedure	2025 Total RVU	2025 MPFS National Average
92134	OCT of retina	0.97	\$31.38*
92137	OCTA of retina	1.76	\$56.93*
92235	FA	4.72	\$152.68*

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Future Directions

- Wide field OCTA to evaluate for neovascularization without FA
- Not commercially available



Gawęcki M, Kiciński K. Advantages of the utilization of wide-field OCT and wide-field OCT angiography in clinical practice. *Diagnostics (Basel)*. 2024;14(3):321.

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Summary

- OCTA allows to non-invasively image the retinal microvasculature
- Retina: non-perfusion and neovascularization
- Glaucoma: future structural test
- Increasingly used clinically

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