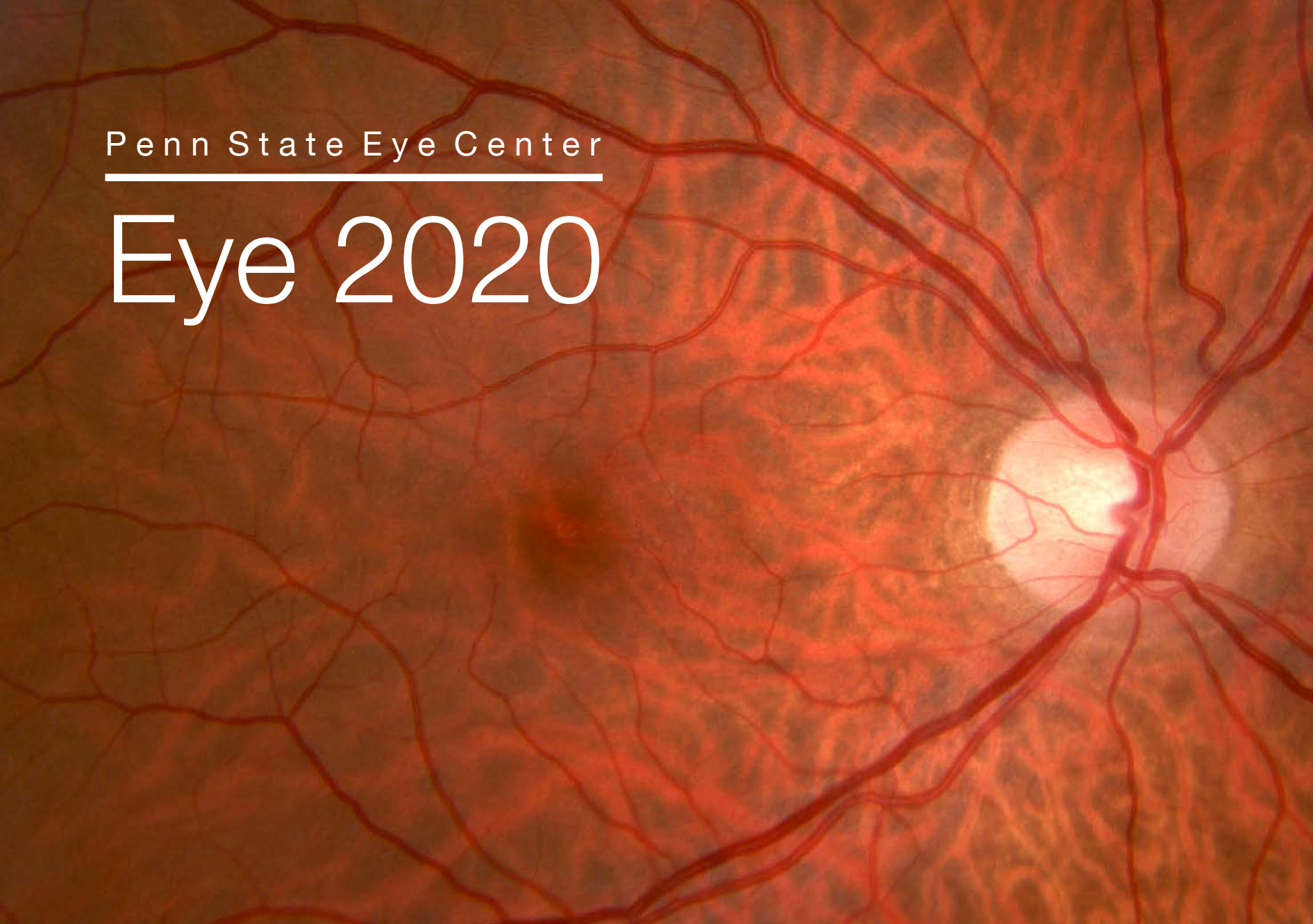


Penn State Eye Center

Eye 2020

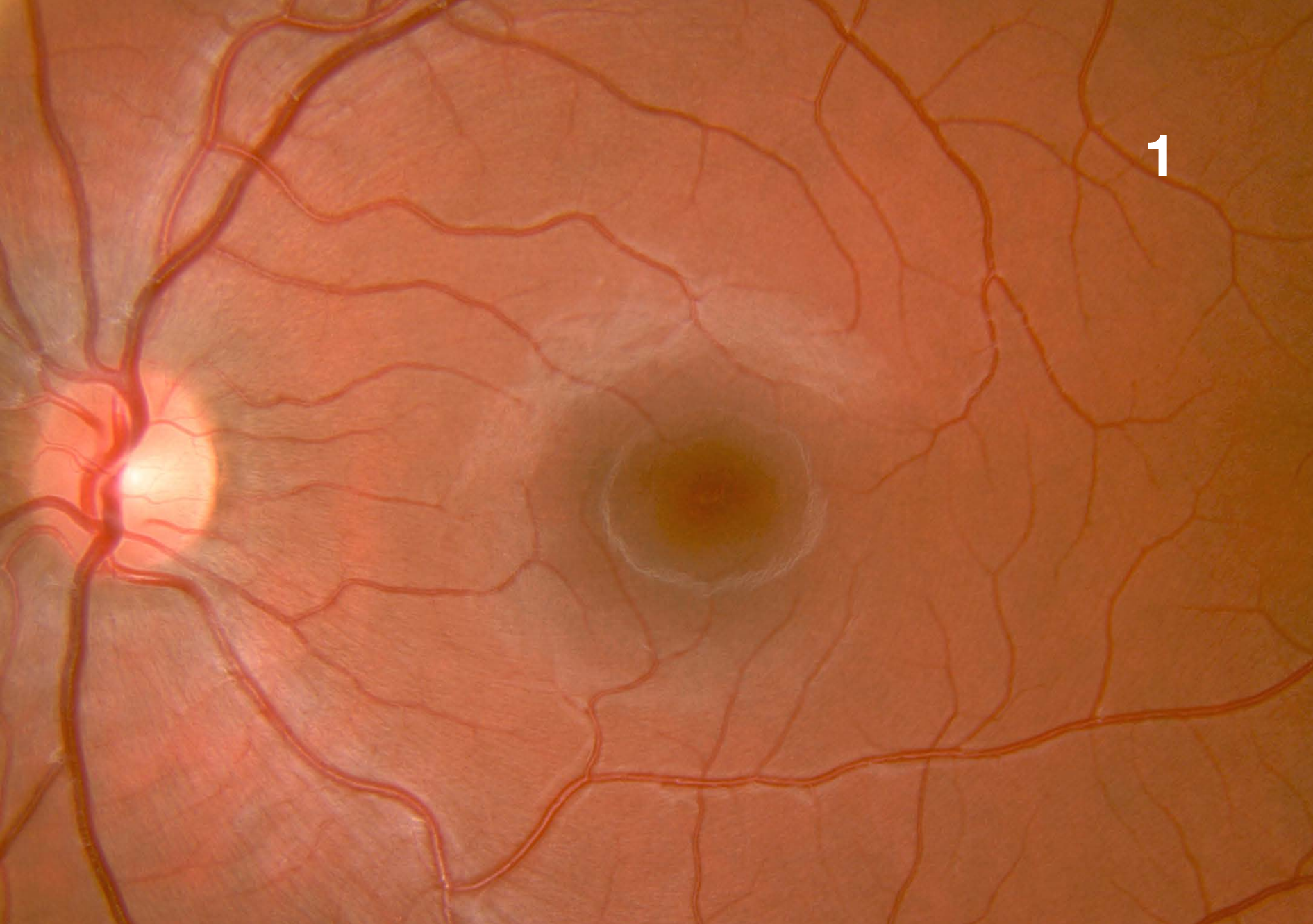
PennState Health

Welcome to E*ye 2020*. We are pleased to share this collection of images with the Penn State Health community. All of the images are from patients cared for by the dedicated faculty, residents, and staff at the Penn State Eye Center in Hershey, Pennsylvania. Our vision is to transform eye care so everyone can thrive; we accomplish this by relentlessly pursuing our mission:

- To provide the highest quality eye care to our patients
- To improve this care through education and research
- To create an environment where our people can develop professionally and find fulfillment in their work

Eye care specialists have access to innovative imaging technologies that enhance our ability to diagnose and care for patients. *Eye 2020* is intended to provide you a glimpse into this world. A special "thank you" goes out to our outstanding ophthalmic photographers—Timothy Bennett, James Strong, and Karin Shipe—who have served the people of Central Pennsylvania for more than three decades. A brief description of each image can be found at the end of the document.

We hope you enjoy *Eye 2020.*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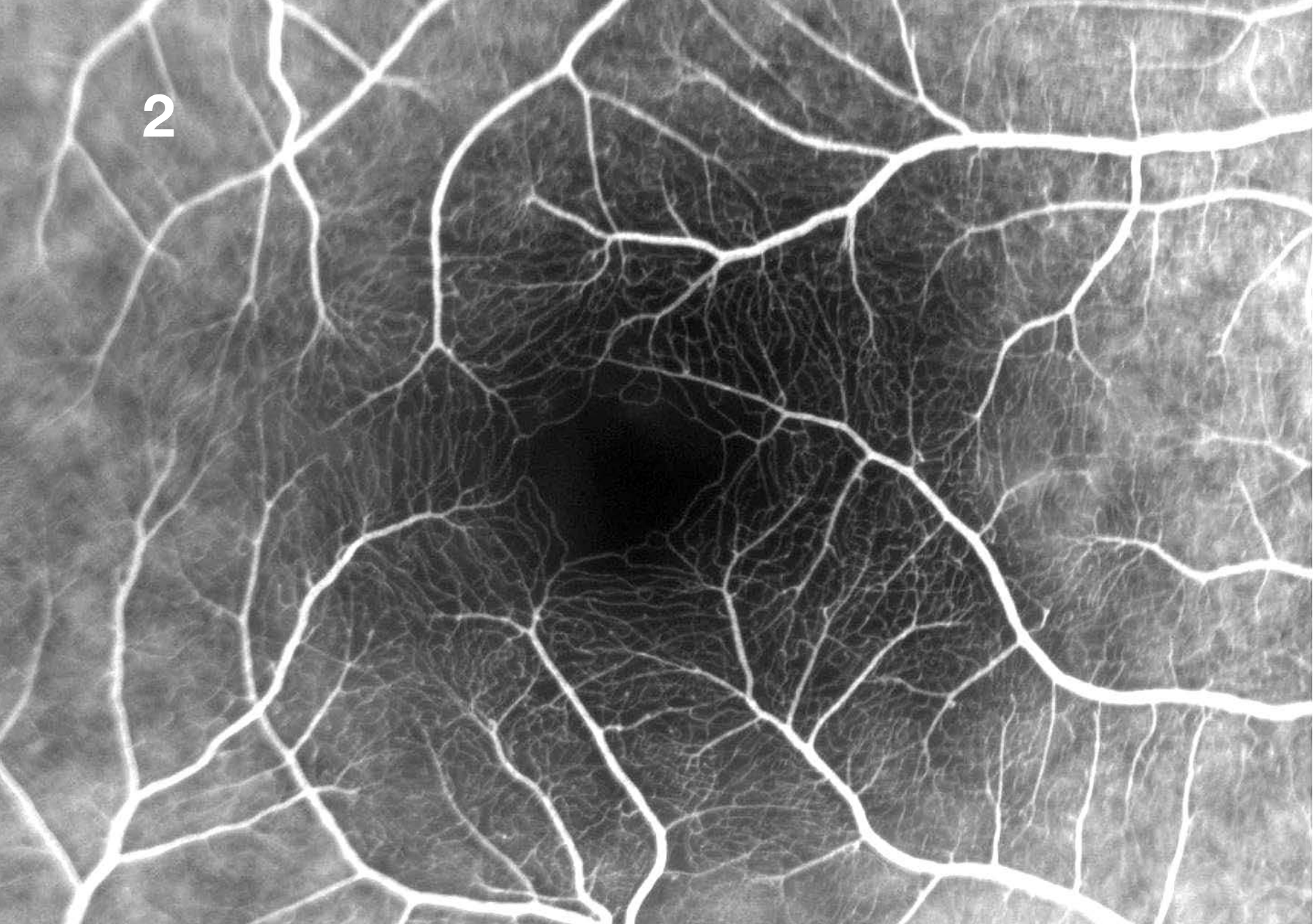
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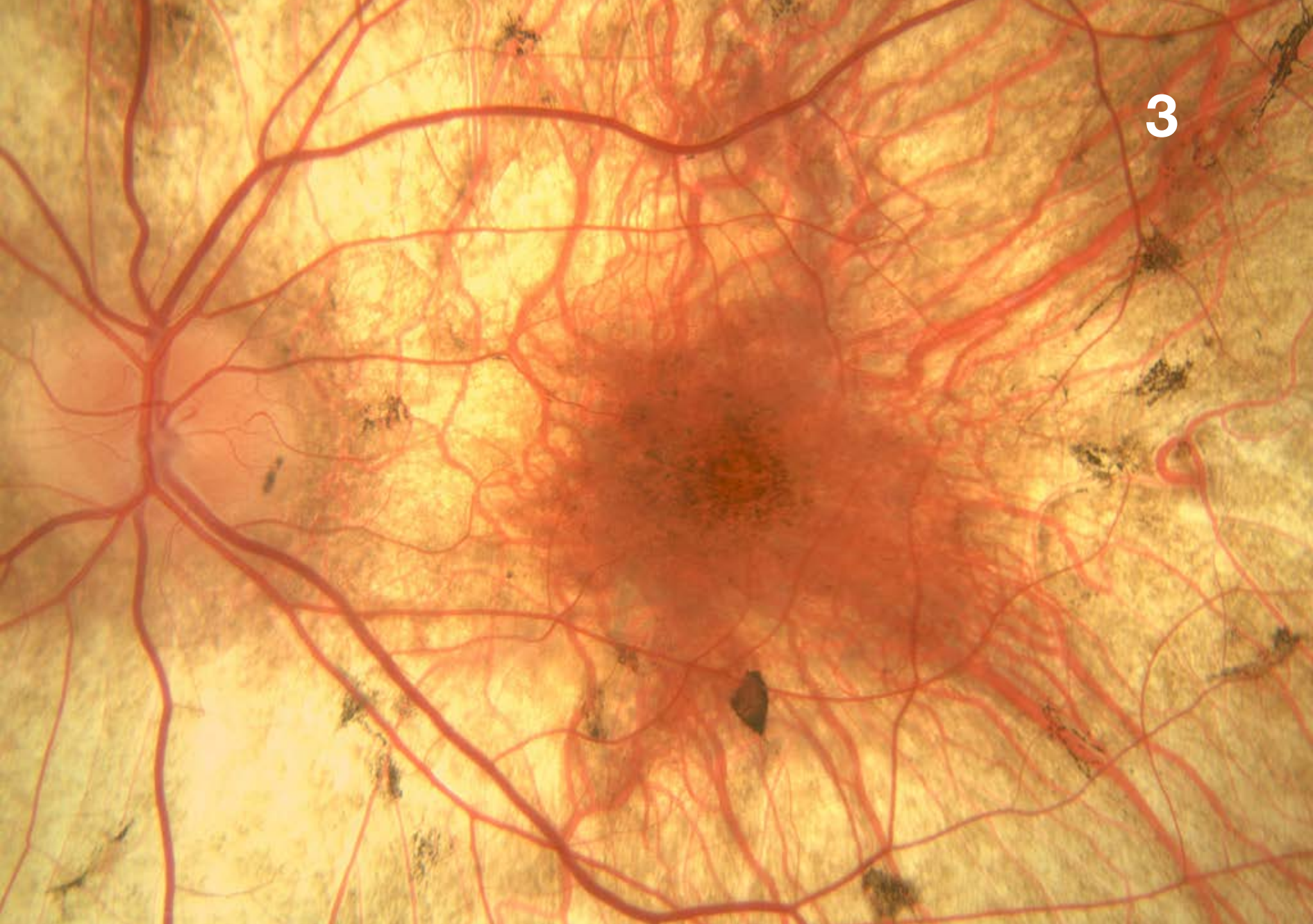
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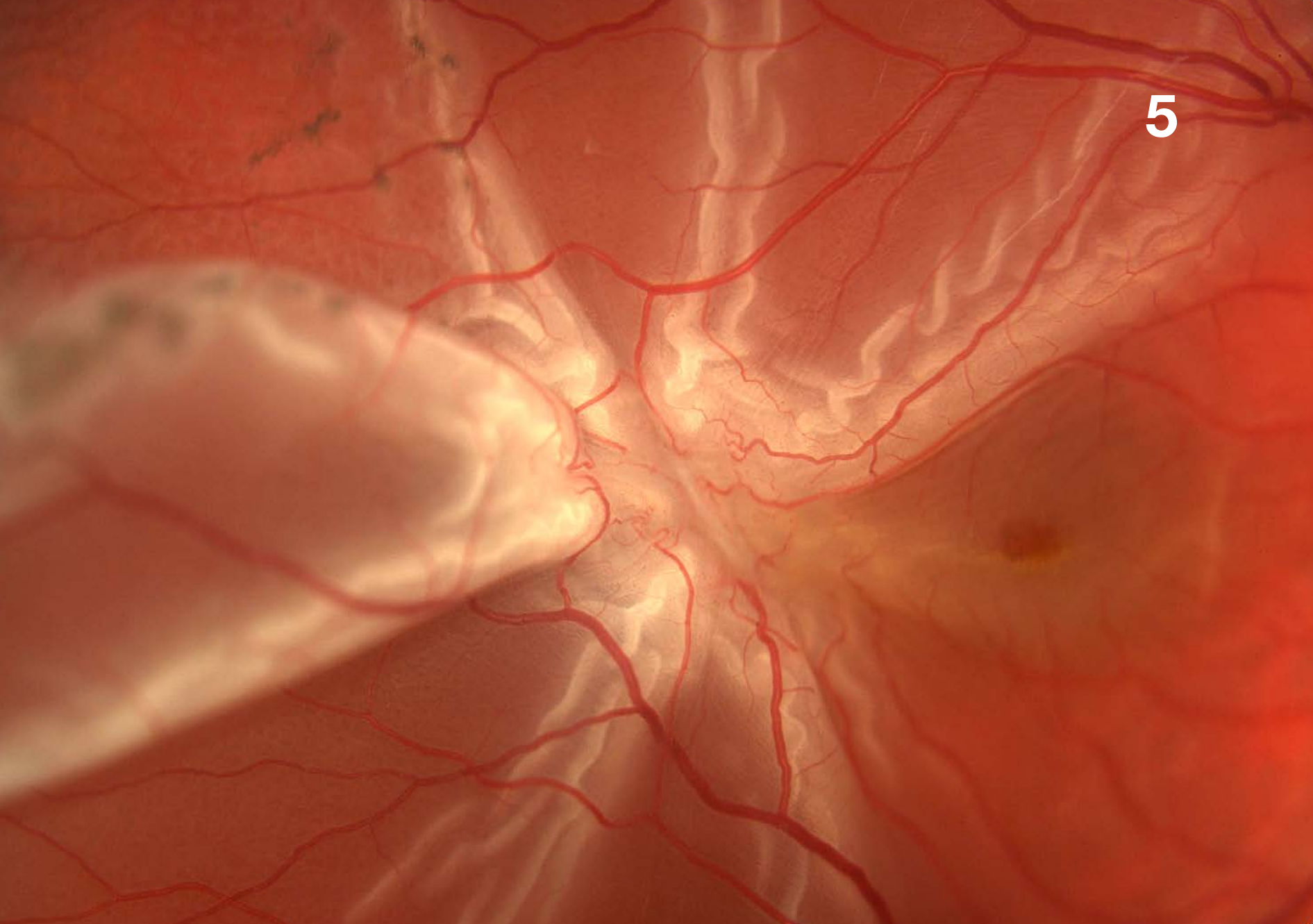
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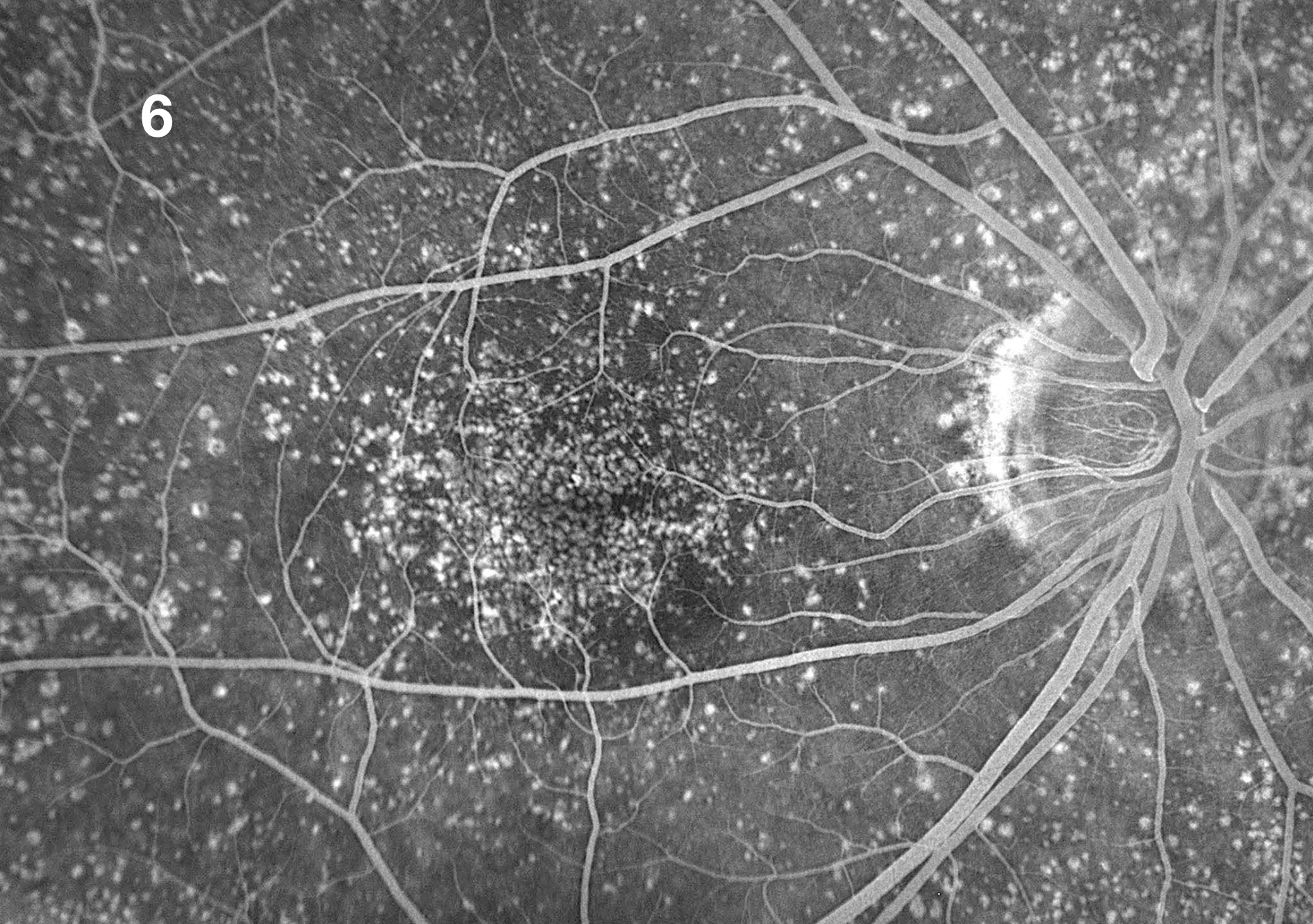
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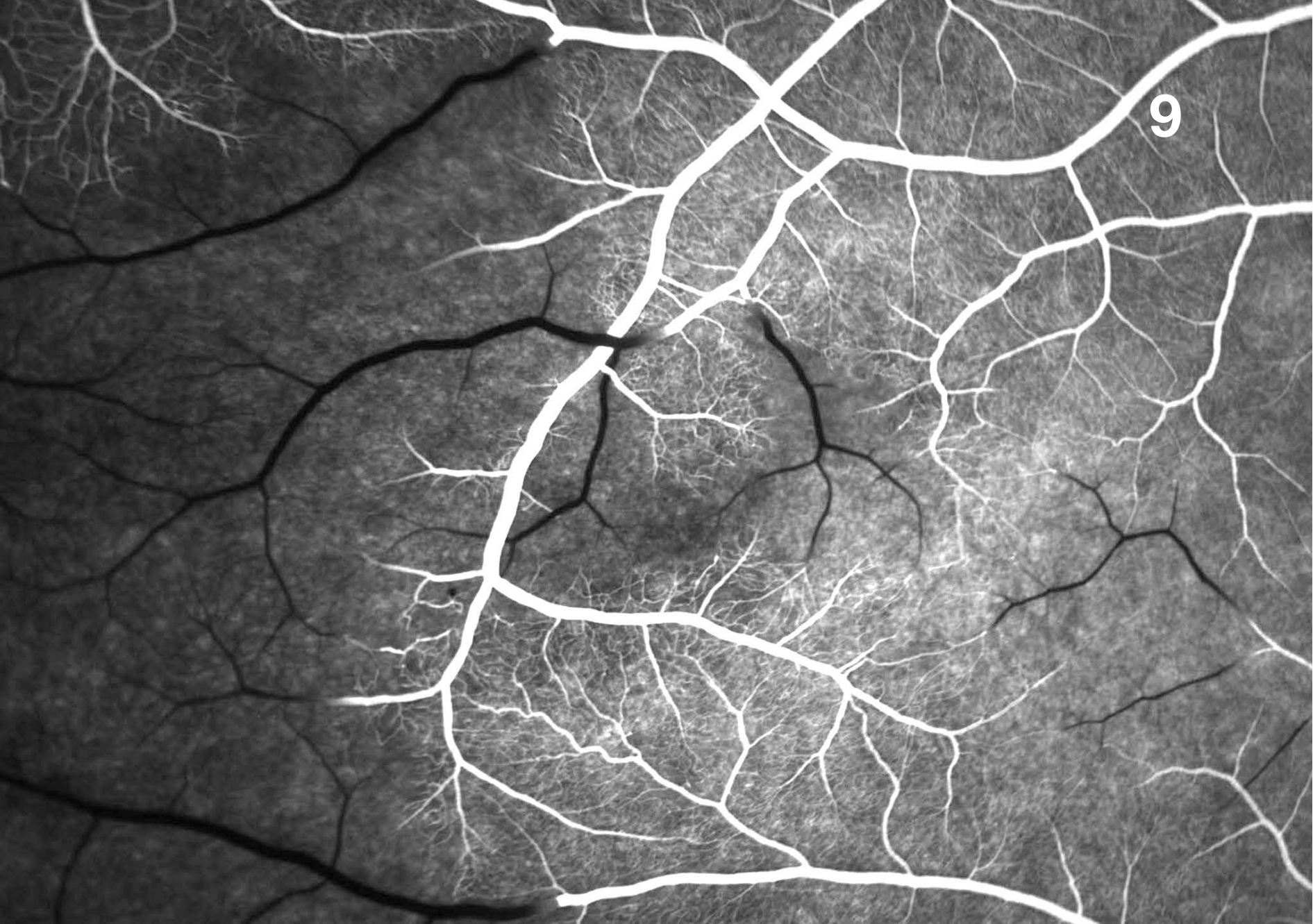
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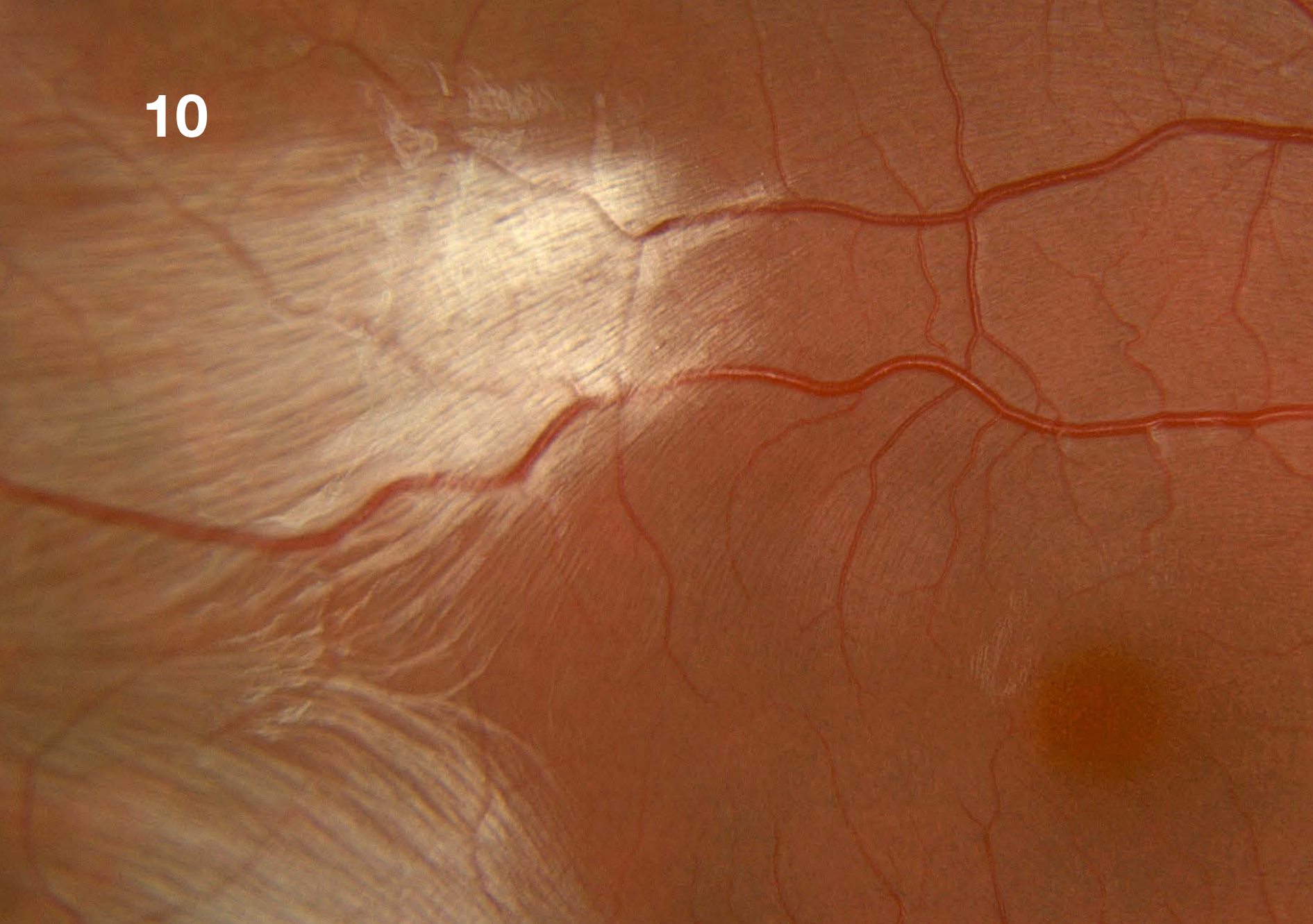
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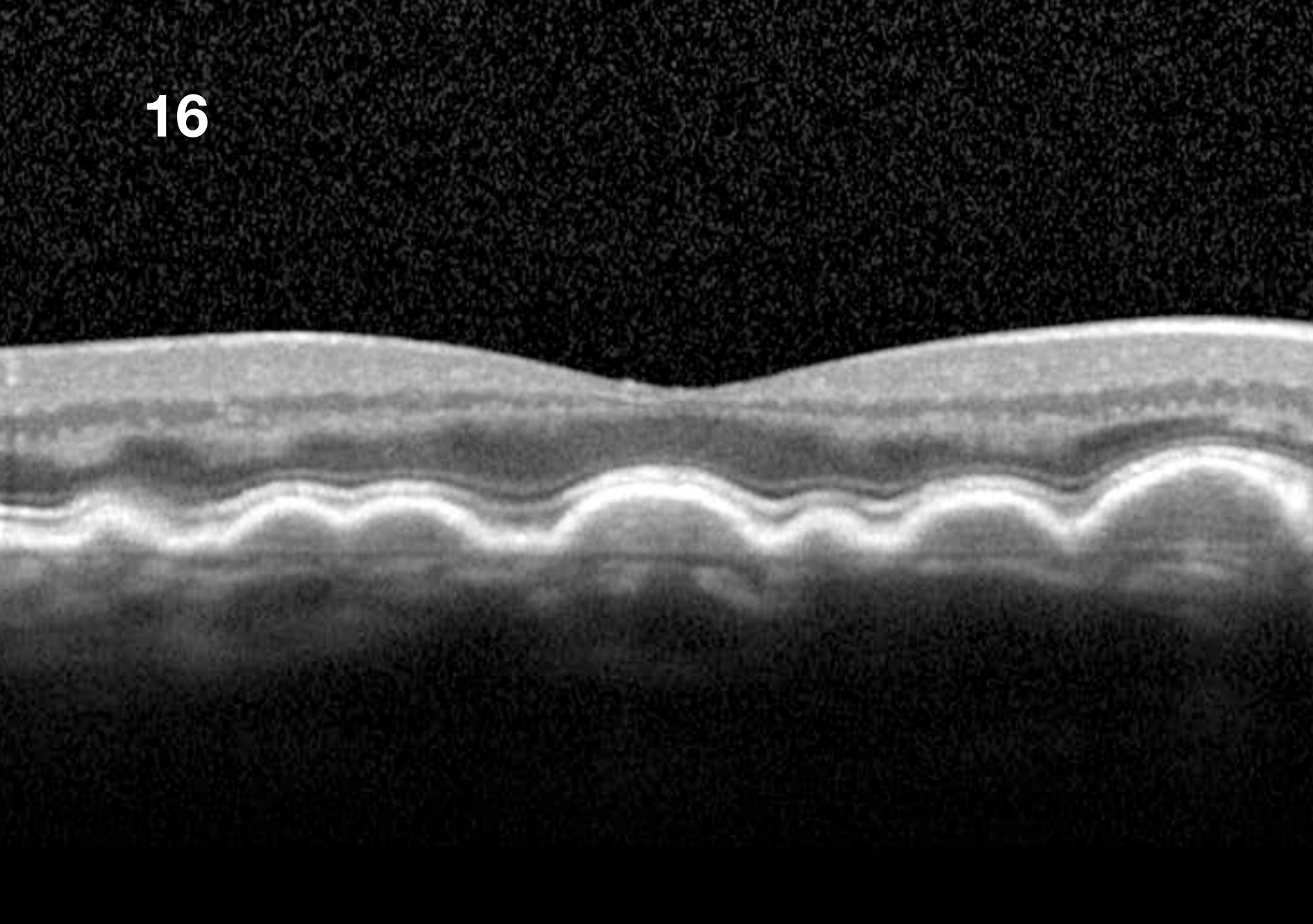
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Images

1. The normal optic disc, macula, and fovea. The optic disc is a collection of over one million nerve fibers that transmit information from the retina to the brain. The macula is the central portion of the retina. The fovea, located in the center of the macula, is responsible for our fine vision.

2. Intravenous fluorescein angiography is an imaging technique used to visualize the retinal and choroidal circulations. This image of a normal retina reveals the exquisite intricacy of the retinal circulation.

3. Choroideremia is an x-linked recessive inherited retinal degeneration resulting in loss of the retinal pigment epithelium and choriocapillaris. The central macula is usually spared until late in the disease process. Patients often retain good central acuity but experience profound reduction of peripheral visual field “like looking through a straw.”

4. Cat-scratch neuroretinitis is caused by exposure to *Bartonella henselae*, one of the most common types of bacteria in the world. The classic scenario involves a patient being scratched or bitten by an infected kitten. The bacteria is transmitted to the patient via the kitten’s saliva. The fundus image reveals a distinctive pattern of optic disc swelling associated with a radiating macular star centered on the fovea.

5. Proliferative vitreoretinopathy (PVR) is a relatively rare finding seen in association with rhegmatogenous retinal detachment, the most common form of retinal detachment caused by a retinal hole or tear. Preretinal and/or subretinal fibrosis may result in the “star-fold” pattern depicted in the image.

6. This “starry sky” pattern of hyperfluorescent dots is consistent with the diagnosis of familial drusen. This autosomal dominant inherited retinal degeneration is characterized by the presence of numerous small drusen deposits at the level of the retinal pigment epithelium that stain with fluorescein.

Images

7. Wyburn-Mason Syndrome is a sporadic condition characterized by arteriovenous malformations of the retina and brain. This patient was found to have marked dilation and tortuosity of the retinal vessels.

8. Angioid streaks are “cracks” in the retinal pigment epithelium and Bruchs membrane complex. They typically are found radiating from the optic disc region in a vessel-like pattern. Patients with angioid streaks are at risk for the development of choroidal neovascularization which may result in scarring and vision loss.

9. Intravenous fluorescein angiogram image of a patient with sickle cell anemia. Sickling of red blood cells may result in occlusion of the fine vessels within the retina. The loss of retinal blood flow is revealed by the lack of fluorescein dye or “hypofluorescence” within retinal vessels and capillaries.

10. Myelination of the nerve fibers usually stops at the optic disc; however, on rare occasion, it may be observed in various locations throughout the retina. The presence of myelination highlights the beautiful pattern of the nerve fiber layer.

11. Asteroid hyalosis is characterized by innumerable yellowish-white deposits scattered throughout the vitreous. The vitreous is the clear gel-like structure located between the intraocular lens and the retina. Despite the extent of deposits, most patients with asteroid have no symptoms.

12. Stargardt disease is an autosomal recessive inherited retinal disease. It is characterized by a peculiar pattern of yellowish flecks located at the level of the retinal pigment epithelium. The mutation occurs in the ABCA4 gene which encodes for an ATP-binding cassette transporter protein located on the outer segments of the rod photoreceptors.

Images

13. Monochromatic image of a patient with acute branch retinal artery occlusion. Note the small embolus within the affected artery. The whitish area represents retinal ischemia resulting from blockage of blood flow in the distribution of the artery.

14. Fluorescein angiogram image of a patient with hypotony maculopathy following glaucoma surgery. Extremely low intraocular pressure or hypotony is associated with the development of “tiger-stripe” folds of the choroid and retina.

15. Tamoxifen is a selective estrogen receptor modulator used in the setting of breast cancer treatment and prevention. Rarely, toxicity may result in the deposition of crystals in the superficial retinal layers within the macula. For most patients, the crystals do not impact vision and may resolve spontaneously with discontinuation of the medication.

16. This is an optical coherence tomography (OCT) image of a patient with age-related macular degeneration (AMD). The “bumps” represent drusen deposits which are observed commonly in patients with the nonexudative or “dry” form of AMD.

17. Vogt-Koyanagi-Harada (VKH) is a systemic inflammatory syndrome resulting from a T-cell mediated autoimmune response targeting melanocytes. This patient has swelling of the optic disc and a yellowish glow to the retina from inflammation and subretinal fluid.

https://hmc.pennstatehealth.org/ophthalmology

Penn State Eye Center

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PennState Health

Transforming eye care so everyone can thrive