

Diabetes, Hypertension, and Heart Disease: How Do They Affect the Eye?

Dr. Lorraine Snead
Optometrist
Nashville, TN

Dr. Edward Berger
Optometrist
East Greenbush, NY

Disclosures and Disclaimers

- **Dr Lorraine Snead:**

I have the following relevant financial relationship with a commercial interest: I am a public relations and marketing consultant for OnSite Vision Plans, Inc.

- **Dr Edward Berger:**

I have the following relevant financial relationship with a commercial interest: I am the President of OnSite Vision Plans, Inc.

- **Disclaimer Statement:**

- **This informational presentation was developed by independent experts. The information provided in this presentation is not the official position or recommendation of NCCHC but rather expert opinion. This information is not intended to be appropriate for every clinical situation nor does it replace clinical judgment.**
- **NCCHC does not endorse or recommend any products or services mentioned.**

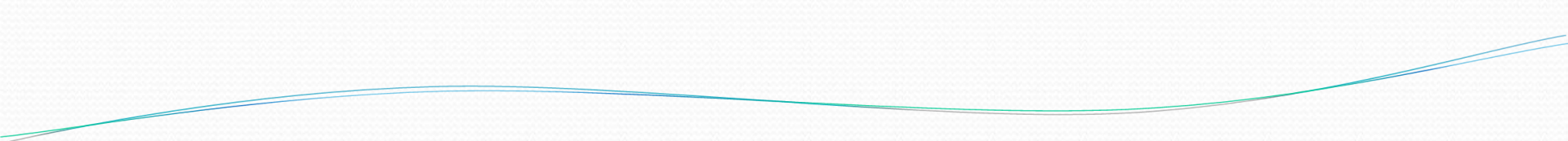
Educational Objectives

- **Describe** the ocular symptomatology of diabetes, hypertension and heart disease.
- **Discuss** the clinically visible signs of the ocular manifestations of diabetes, hypertension and heart disease.
- **Examine** the current treatment modalities of diabetic eye disease, hypertensive retinopathy and heart disease - related ocular pathology.

Today's format:

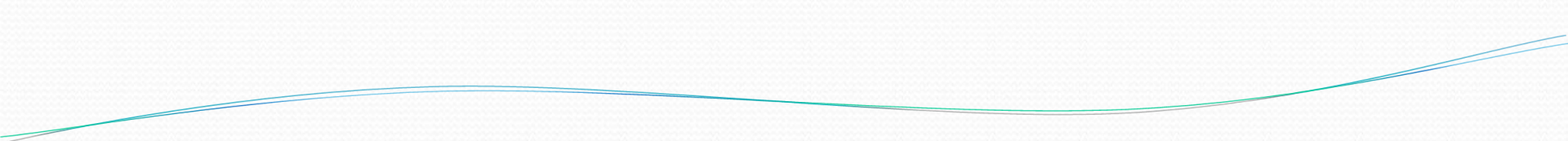
First, the ocular symptoms of these diseases will be discussed so they are better understood by the practitioner when an inmate talks. In other words,

WHAT CAN YOU HEAR?



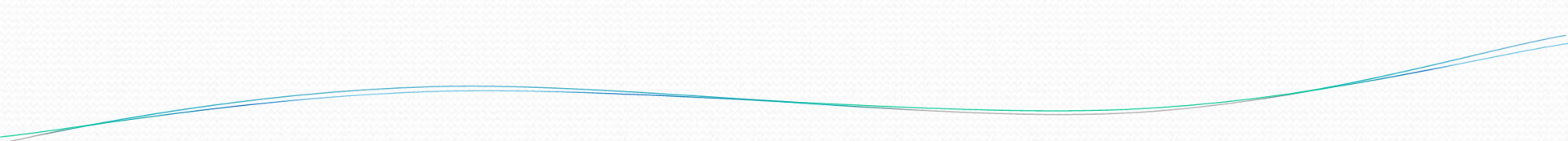
This will be followed by an explanation of the clinically visible ocular signs of the disease so that the practitioner can identify what is going on with the eyes. In other words,

WHAT DO YOU SEE?



Lastly we will talk about current treatments- what they are and when they are used for best visual outcome. In other words,

WHAT CAN BE DONE?

A decorative wavy line in shades of blue and green spans the top of the slide.

It has been said that the eyes are the window to the soul, but today we are here to discuss that the eyes are also a window to:

- 1. Our overall health.**
- 2. The many systemic diseases that manifest themselves in the eye.**

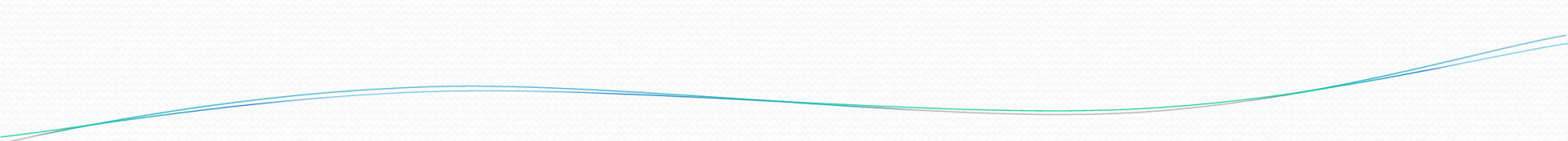


What makes eyes special?

The eyes are the only place in the body where one can see the live action of blood vessels, nerves and connective tissue without relying on an invasive procedure.



Let's start with diabetes...



**What do the numbers
34 million, 96 million and
the number one
mean to you?**

According to the World Health Organization and the CDC

- 34 million Americans have diabetes.
- 96 million have what is called pre-diabetes(either abnormally high blood sugar or cannot control their blood sugar)
- and lastly, #1...



**Diabetes is the #1
cause of blindness in
the United States.**



**“My vision gets blurry then
clears up and then gets blurry
again.”**

“My glasses are wrong.”

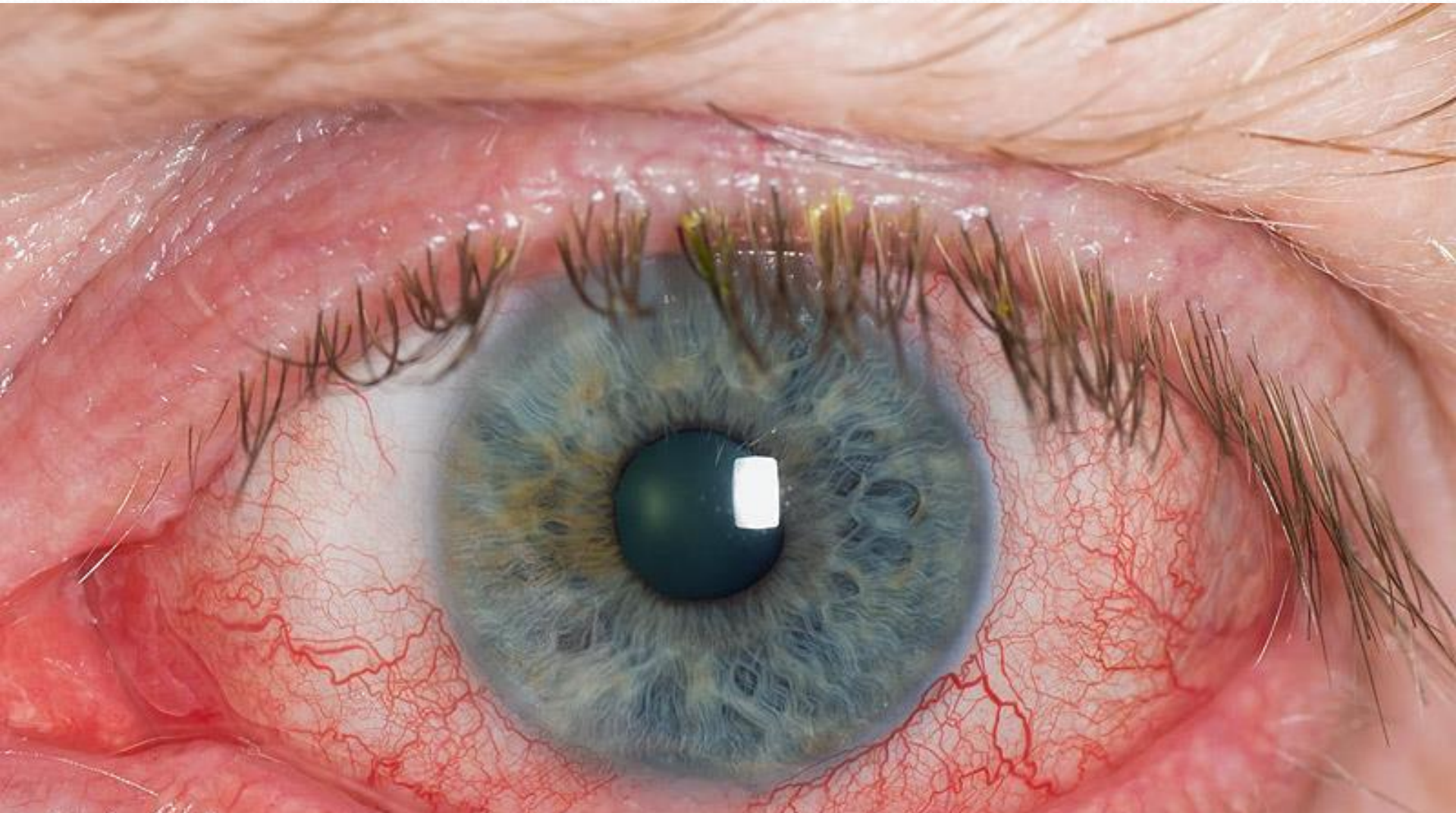
Fluctuating vision





**“My eyes burn, especially at
the end of the day.”**

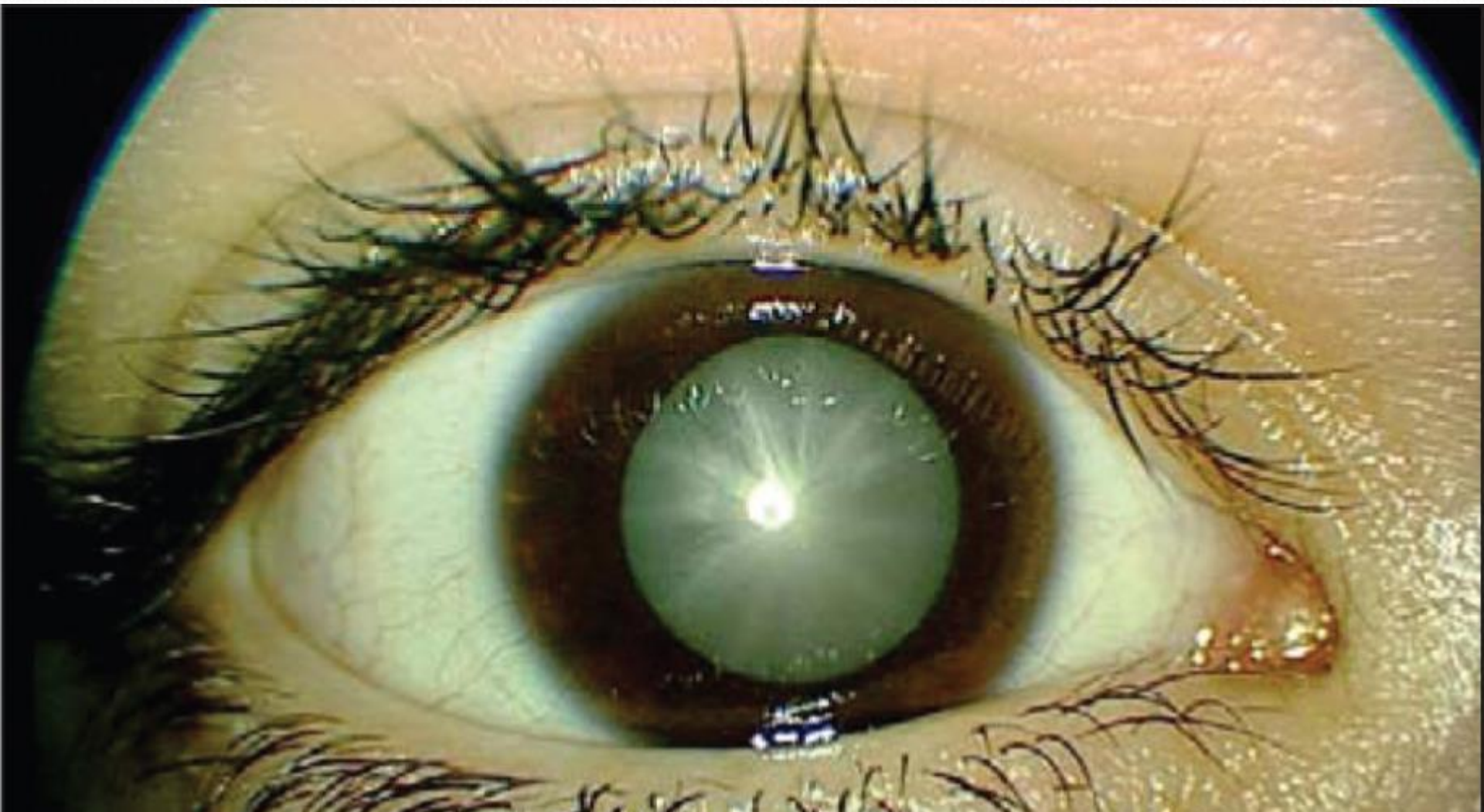
Dry Eye



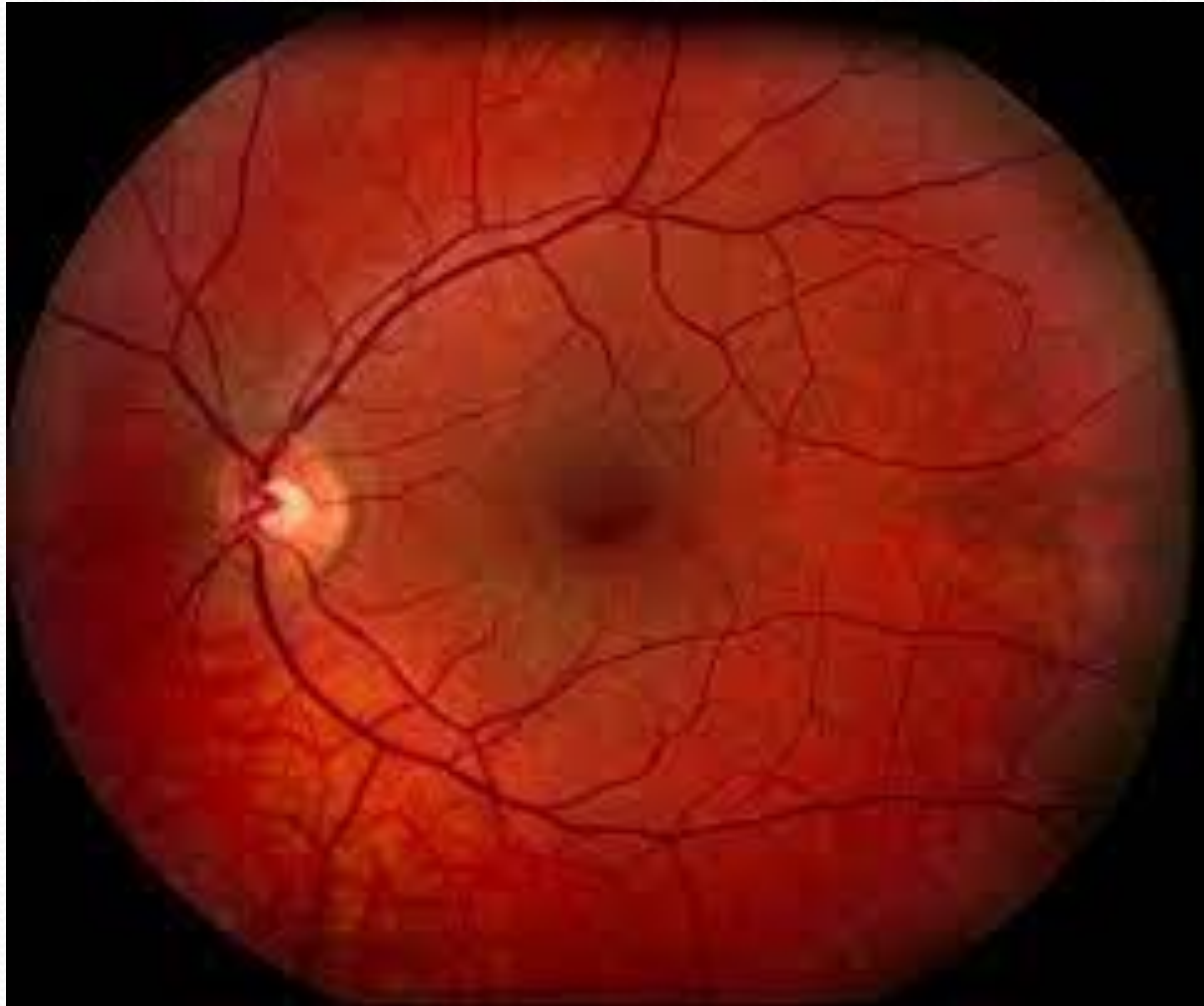


**“My eyes are getting worse.
It has been harder and harder to
see in the last six months.”**

Cataract



Normal Retina



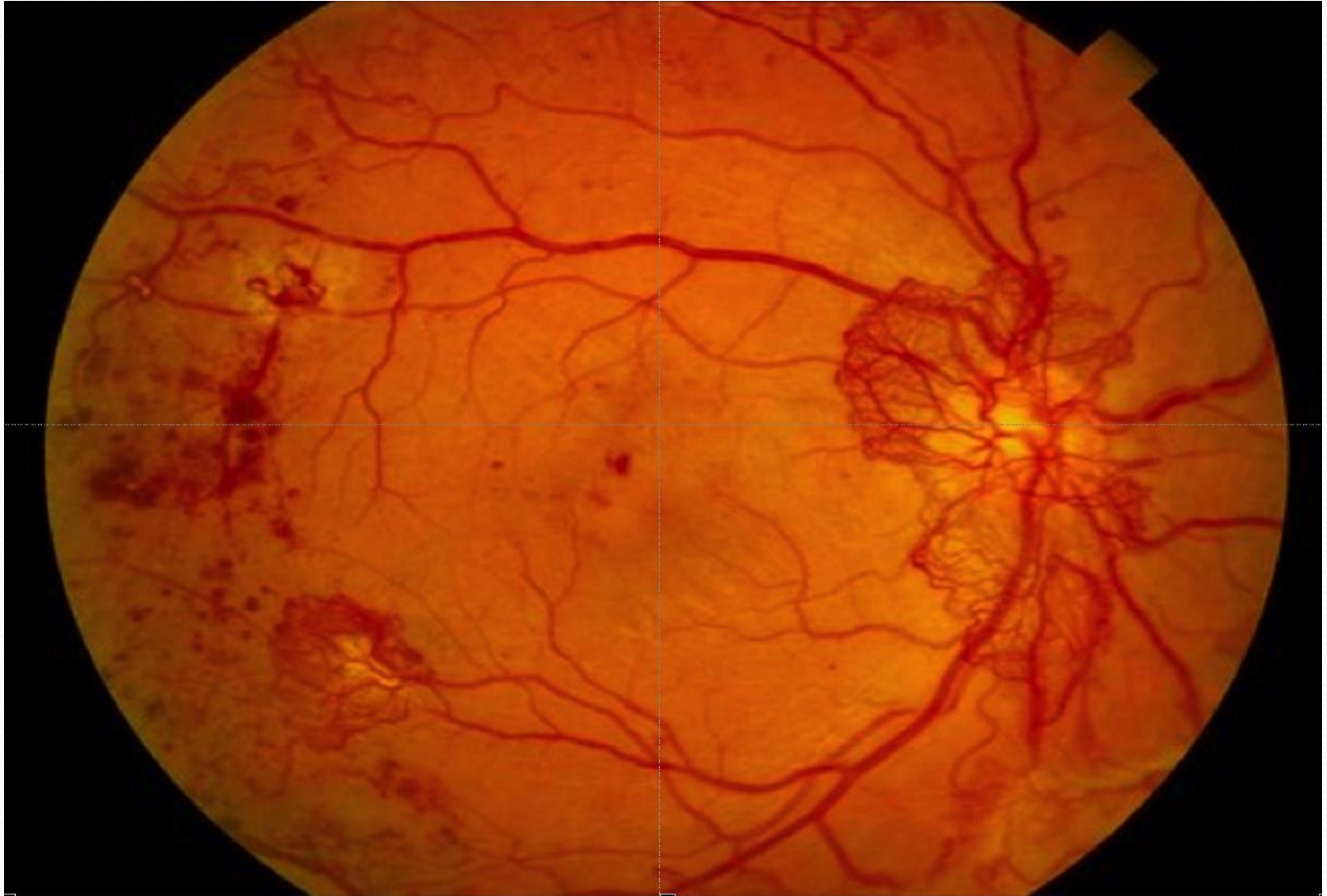


“The last few days my vision is kind of weird or distorted and I can’t read any more.”

Diabetic Macular Edema



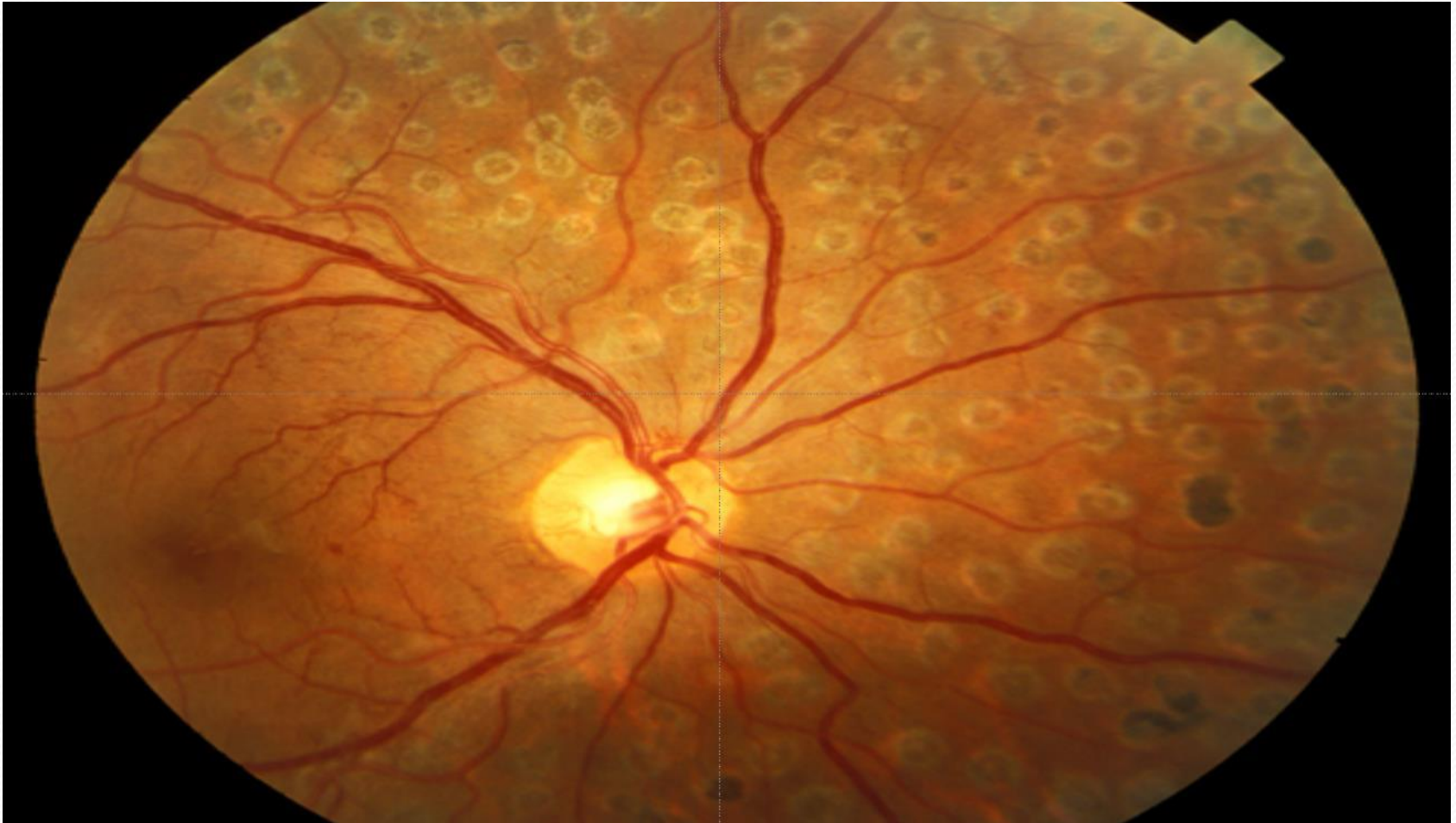
Severe PDR



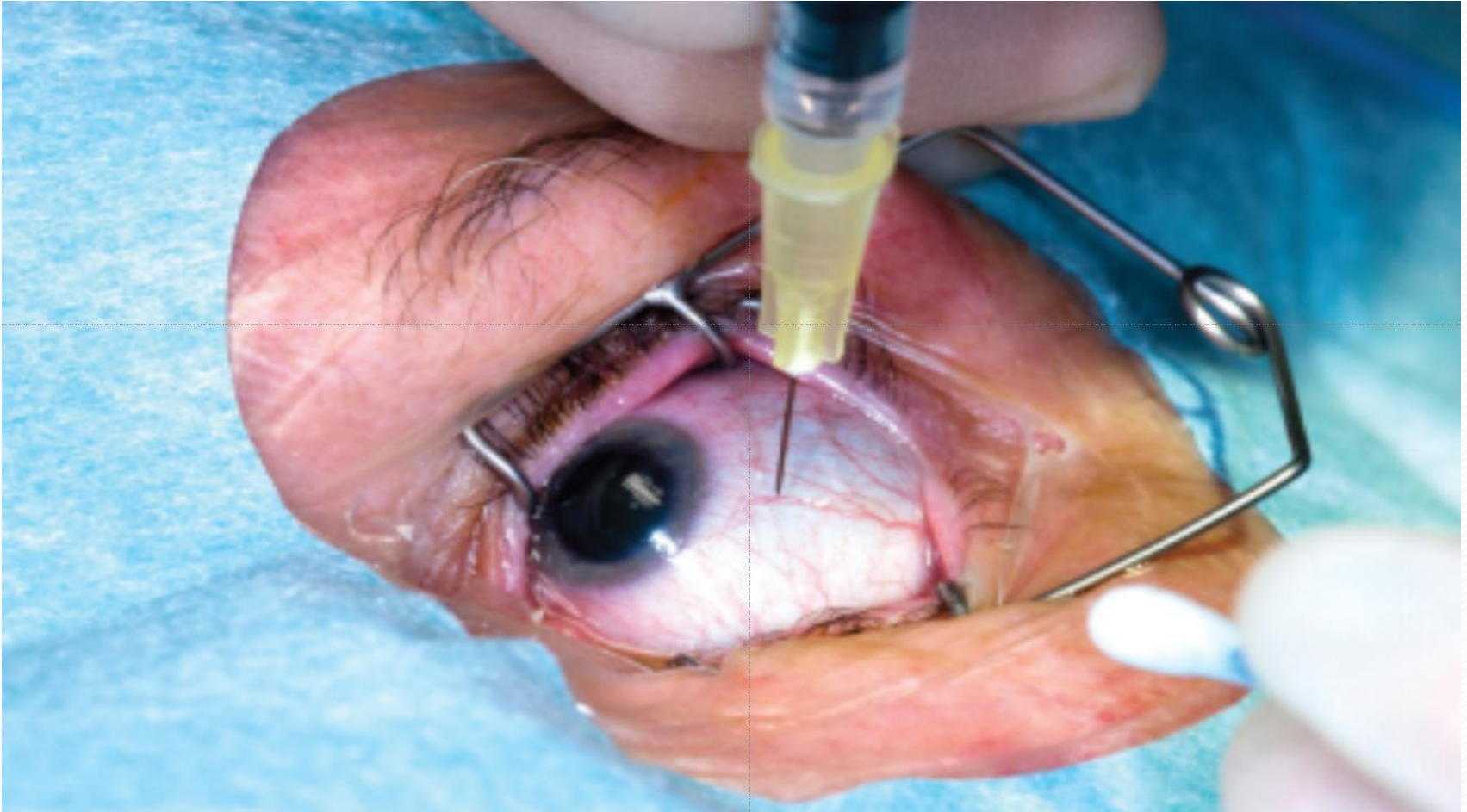


**What can be done to help preserve
this patient's sight?**

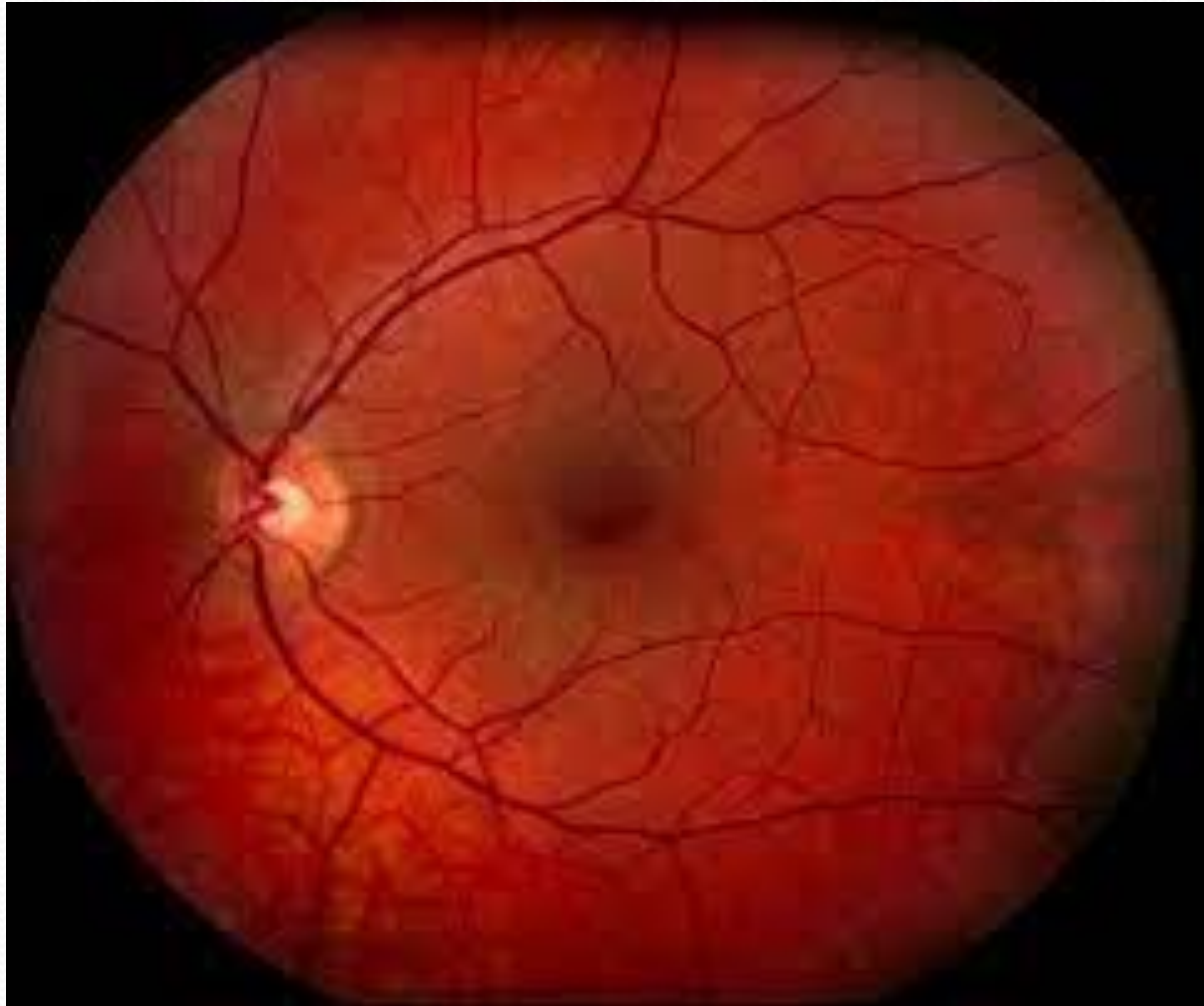
PRP

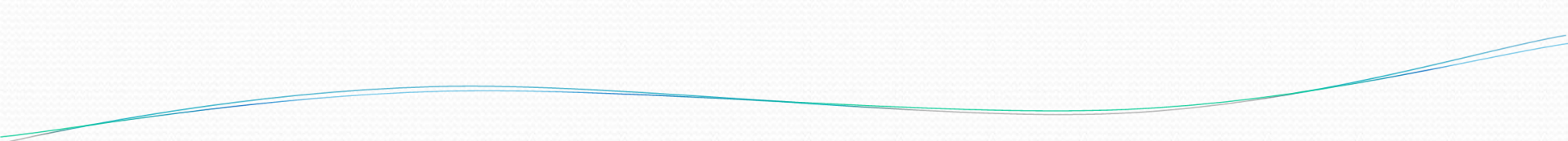


Anti VEGF Treatment



Normal Retina





**“All of a sudden I see spots.
A lot of them.
Sometimes flashing lights or
lightning streaks too.
And they are not going away.”**

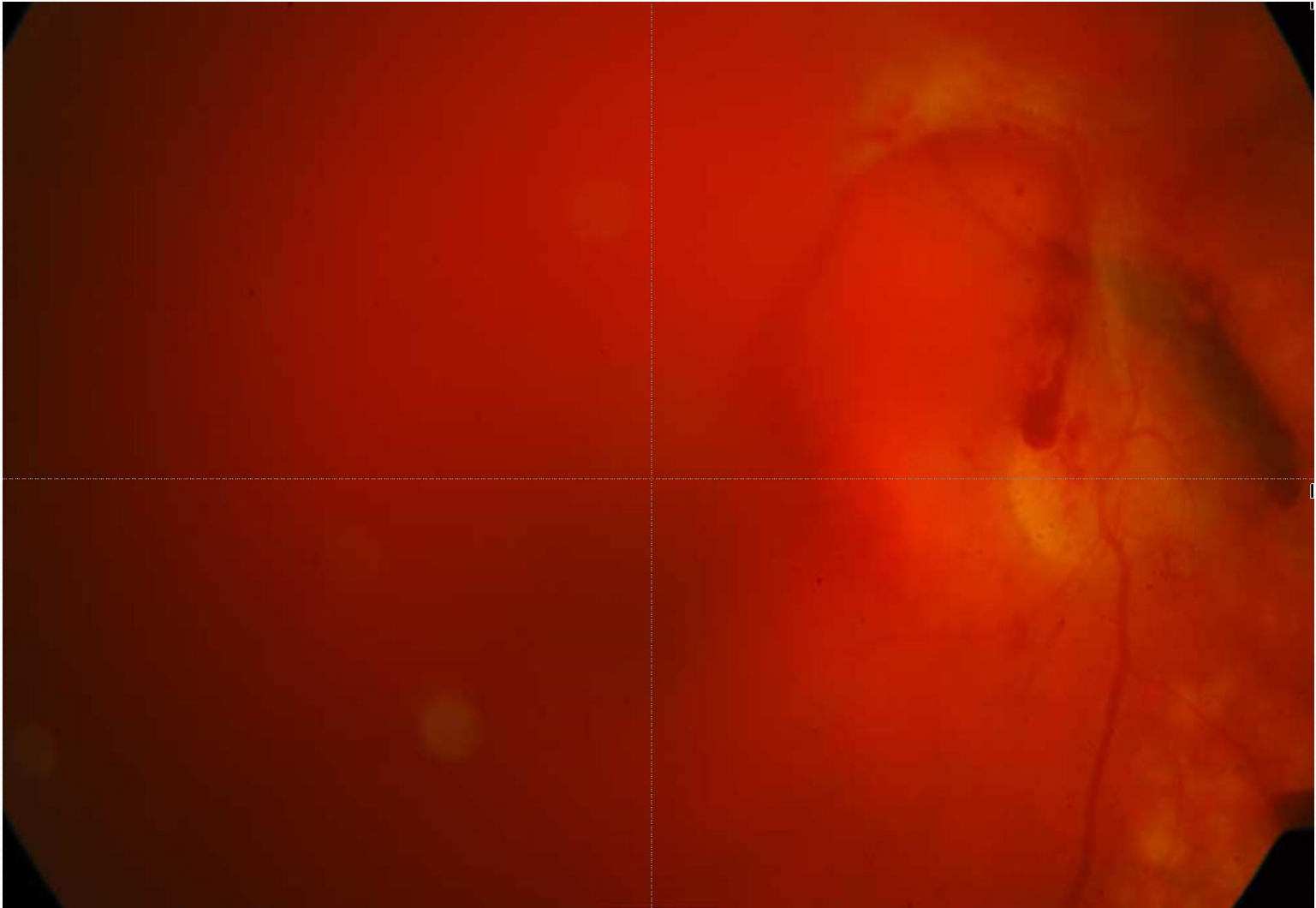
Diabetic Retinal Detachment

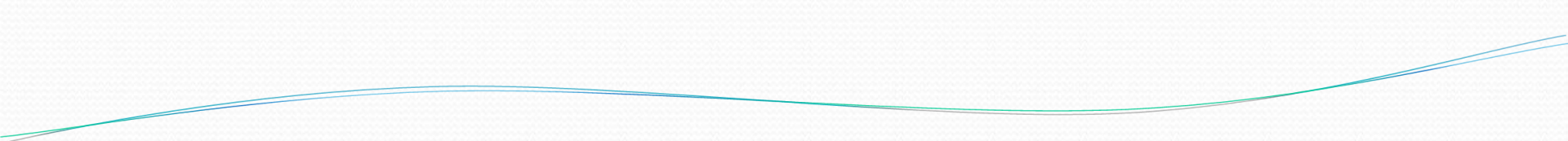


A series of thin, wavy lines in shades of blue and green, spanning the width of the slide at the top.

“I can’t see. It’s all black.”

Diabetic Vitreal Hemorrhage





**“I see double when I look
to the left (or to the right).
That’s never happened
before.”**

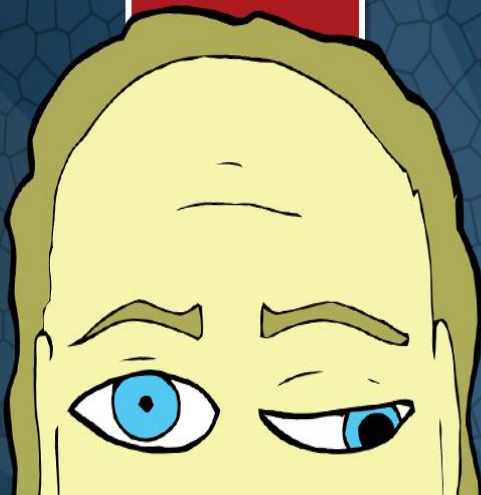
Cranial Nerve Palsies

THIRD

vasculopathic

tumor

aneurysm



FOURTH

vasculopathic

tumor

congenital
trauma

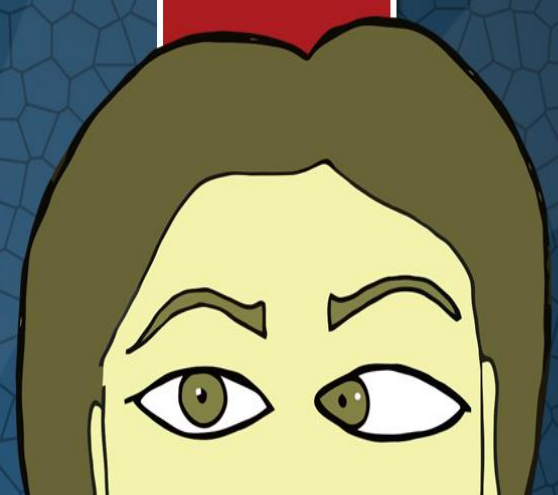


SIXTH

vasculopathic

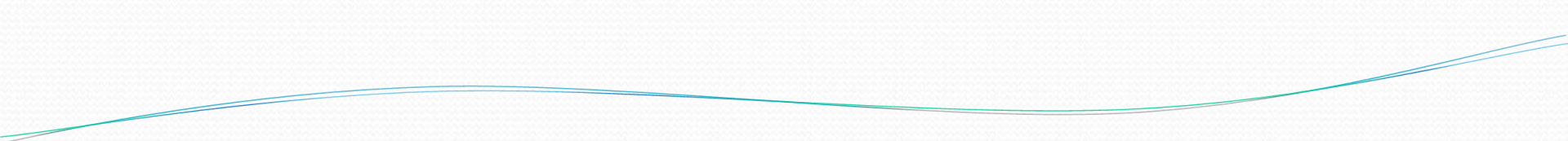
tumor

cranial pressure

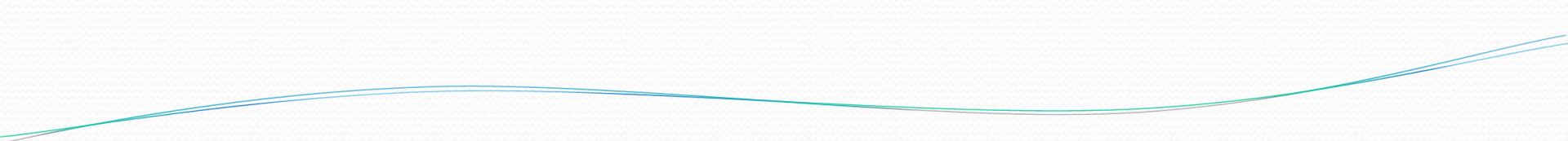




Hypertension and the Eye



**According to the CDC,
65% of US adults 60 or older have
hypertension.
Most are asymptomatic.**

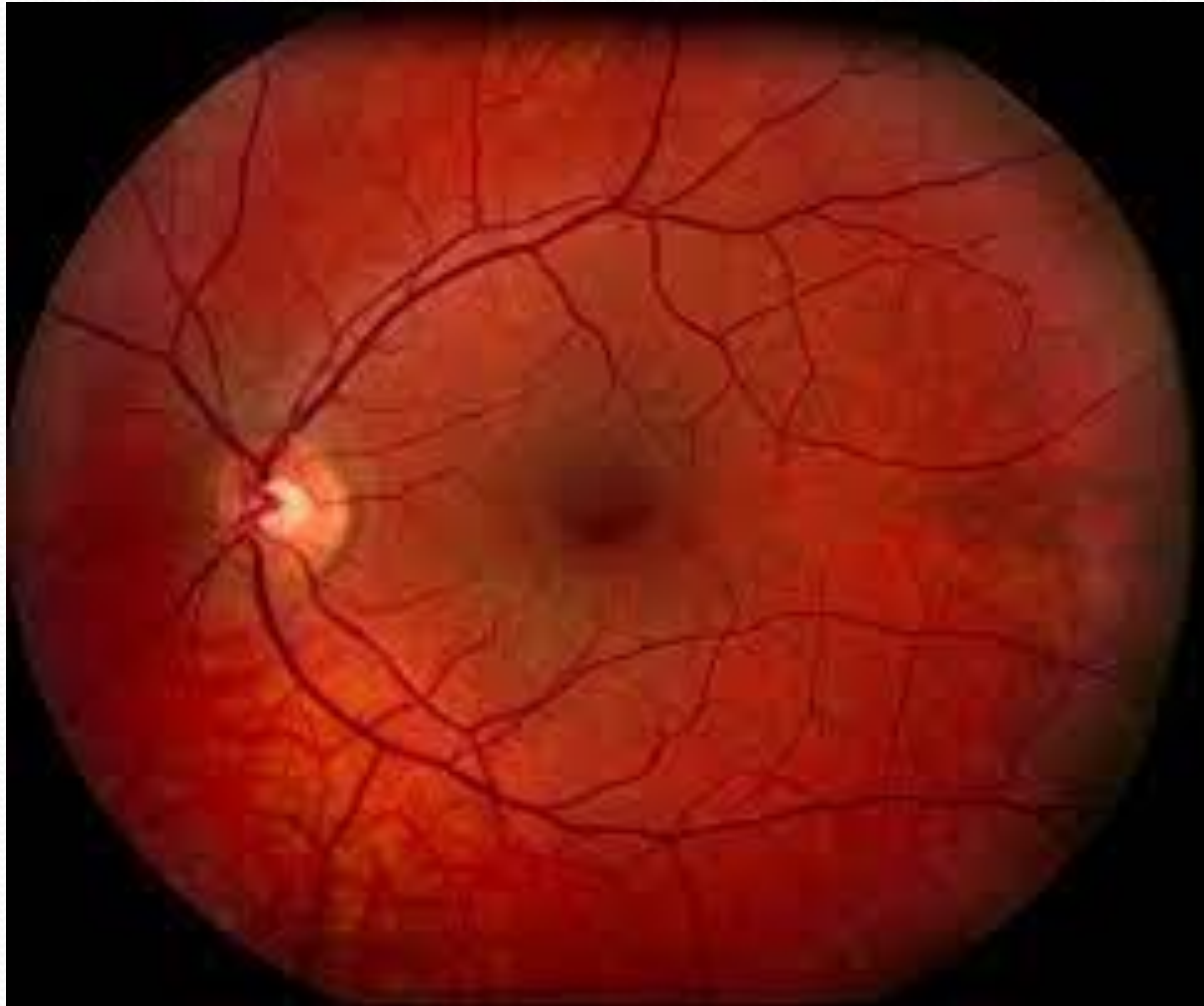


**“Nah, it doesn’t hurt.
And I didn’t poke myself.
But why is my eye bleeding?”**

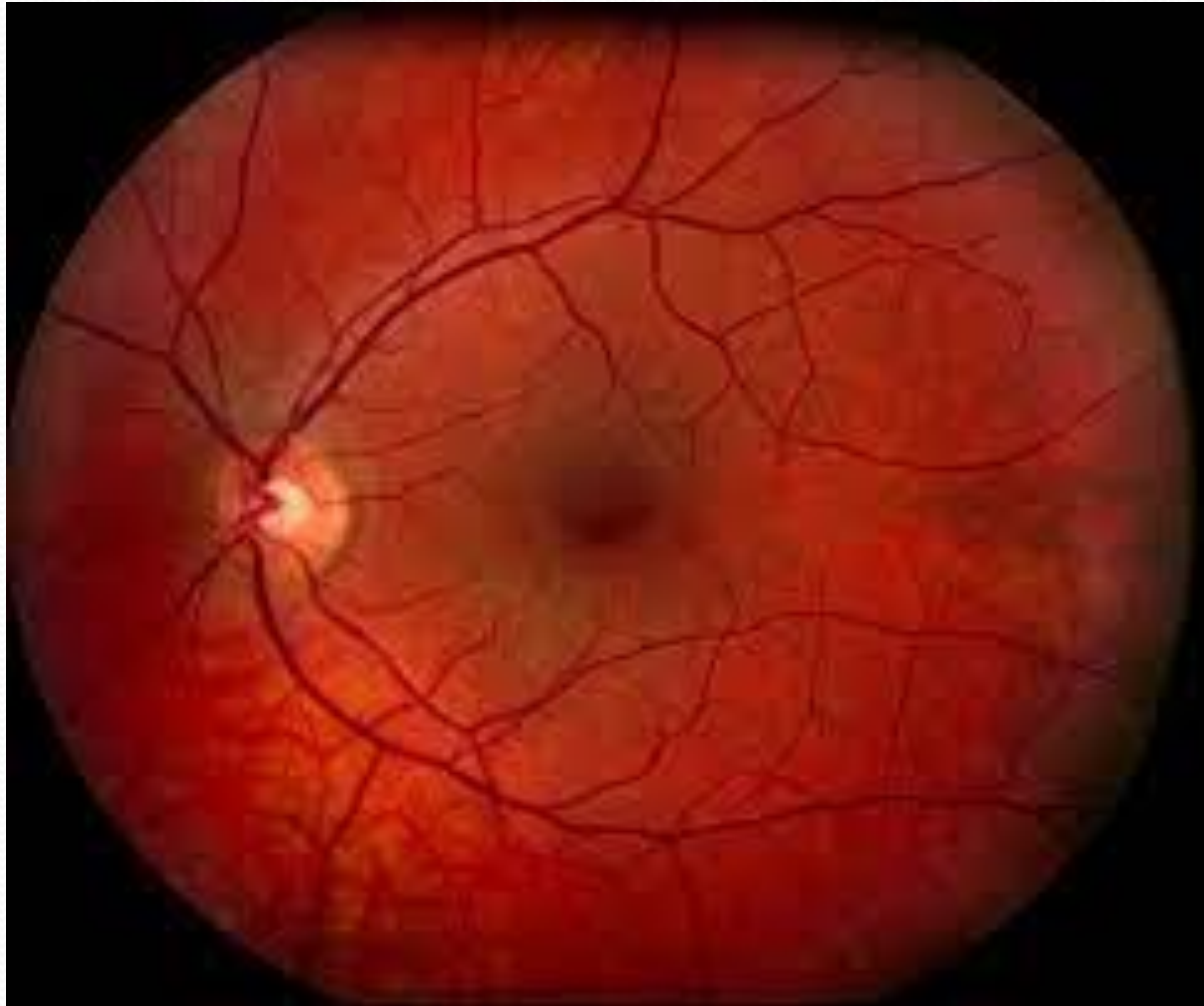
Subconjunctival Hemorrhage



Normal Retina



Normal Retina





**“Just need an eye check up,
probably new glasses.”**

Hypertensive Retinopathy





“Part of my vision is blurry, like I’m looking through water.”

Alternatively, no symptoms at all (!)

Branch Vein Occlusion



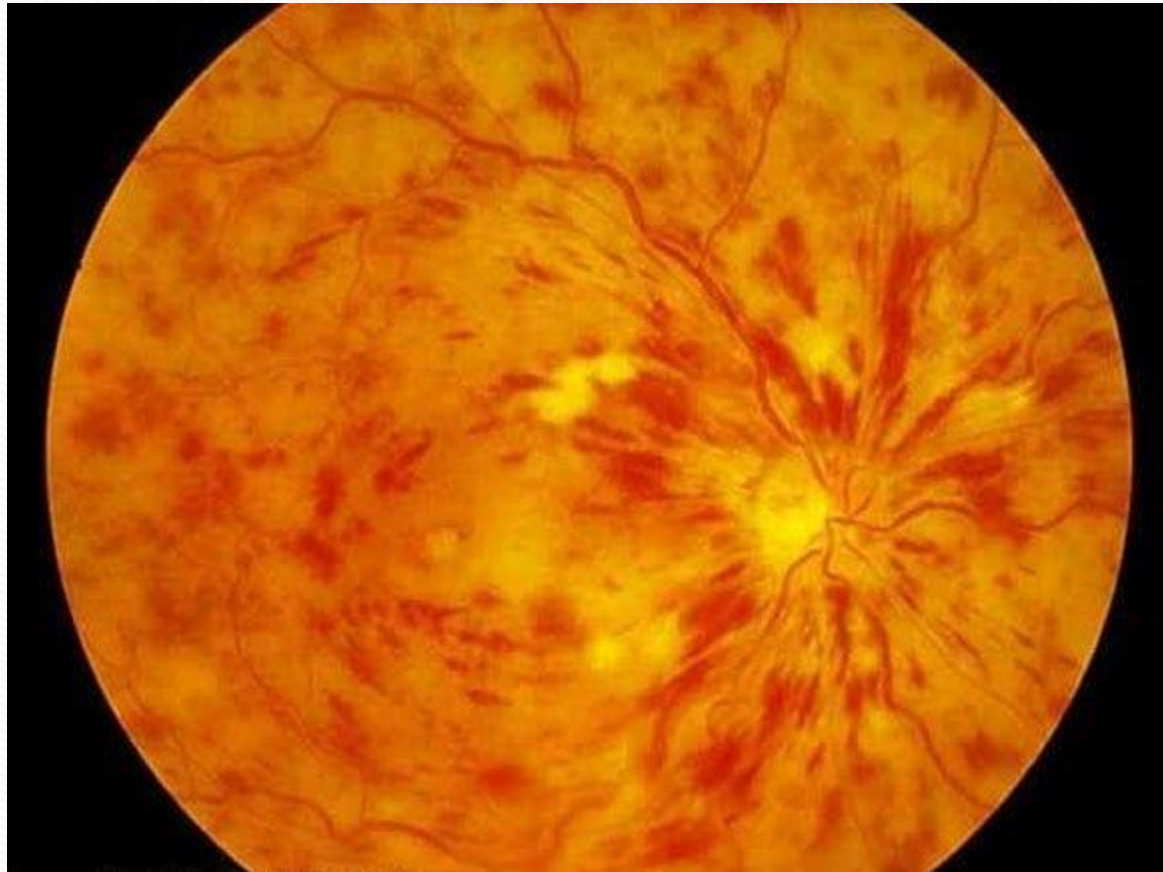


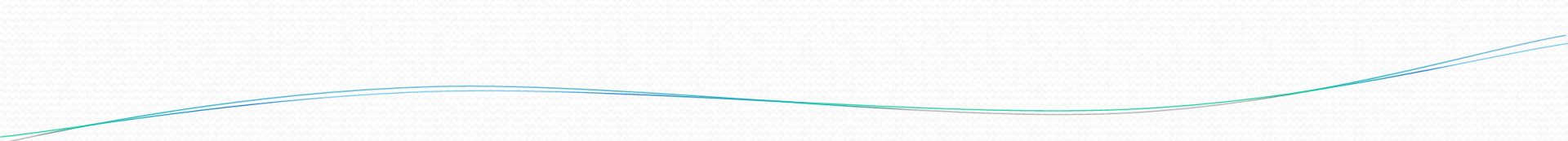
“I see spots.”

Alternatively: “My vision is blurry and it is getting worse by the hour.”

Alternatively: “My vision is gone.”

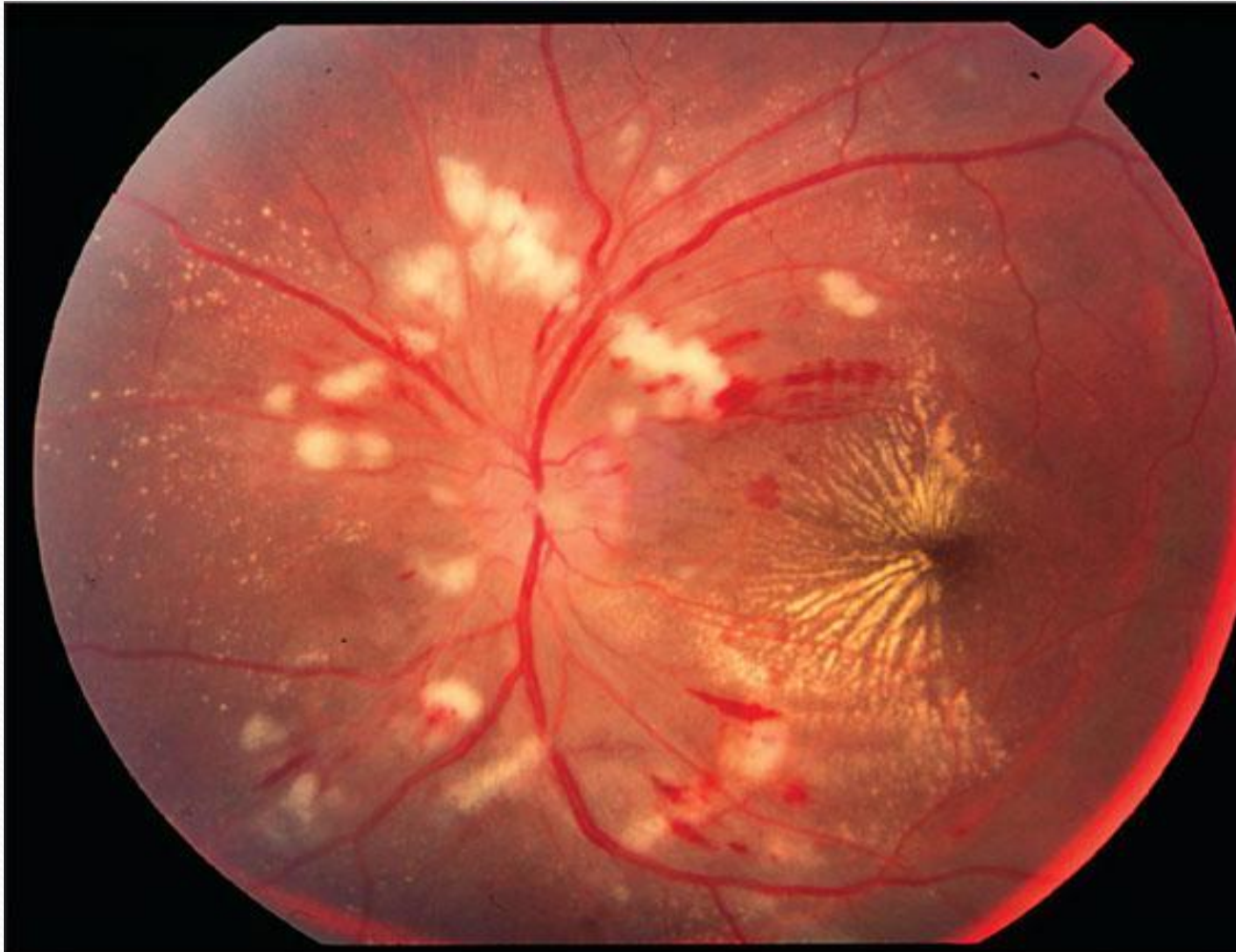
Central Retinal Vein Occlusion





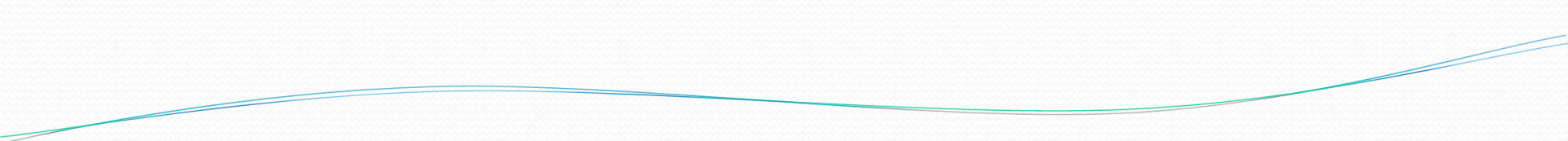
“My vision is blurry, kind of double, and I have a bad headache.”

Malignant Hypertension



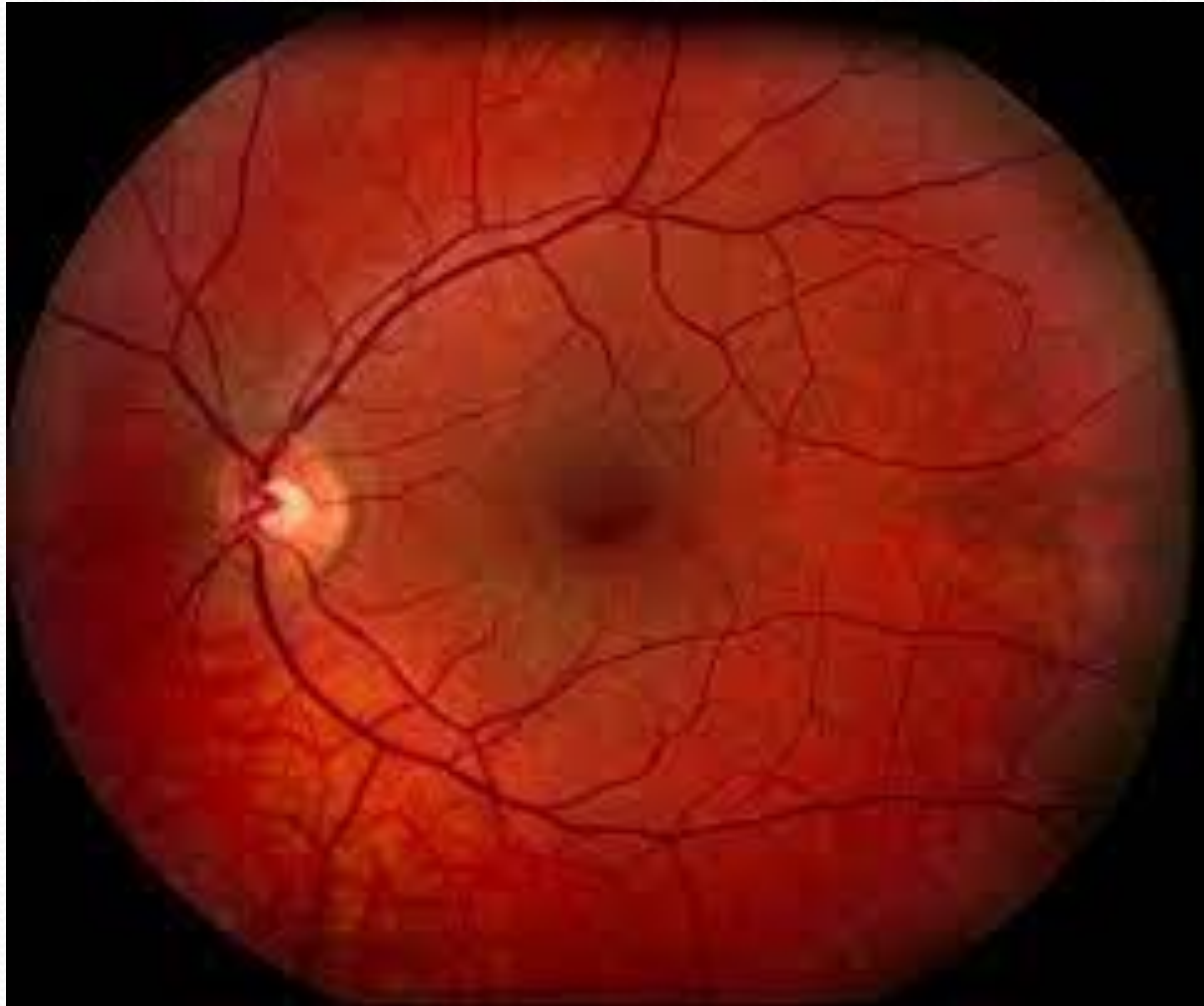


Heart Disease and the Eye

A decorative wavy line in shades of blue and green spans the top of the slide.

Every year heart disease kills more Americans than any other medical condition. Cardiovascular disease (ischemic heart disease) is also the number one cause of death worldwide.

Normal Retina

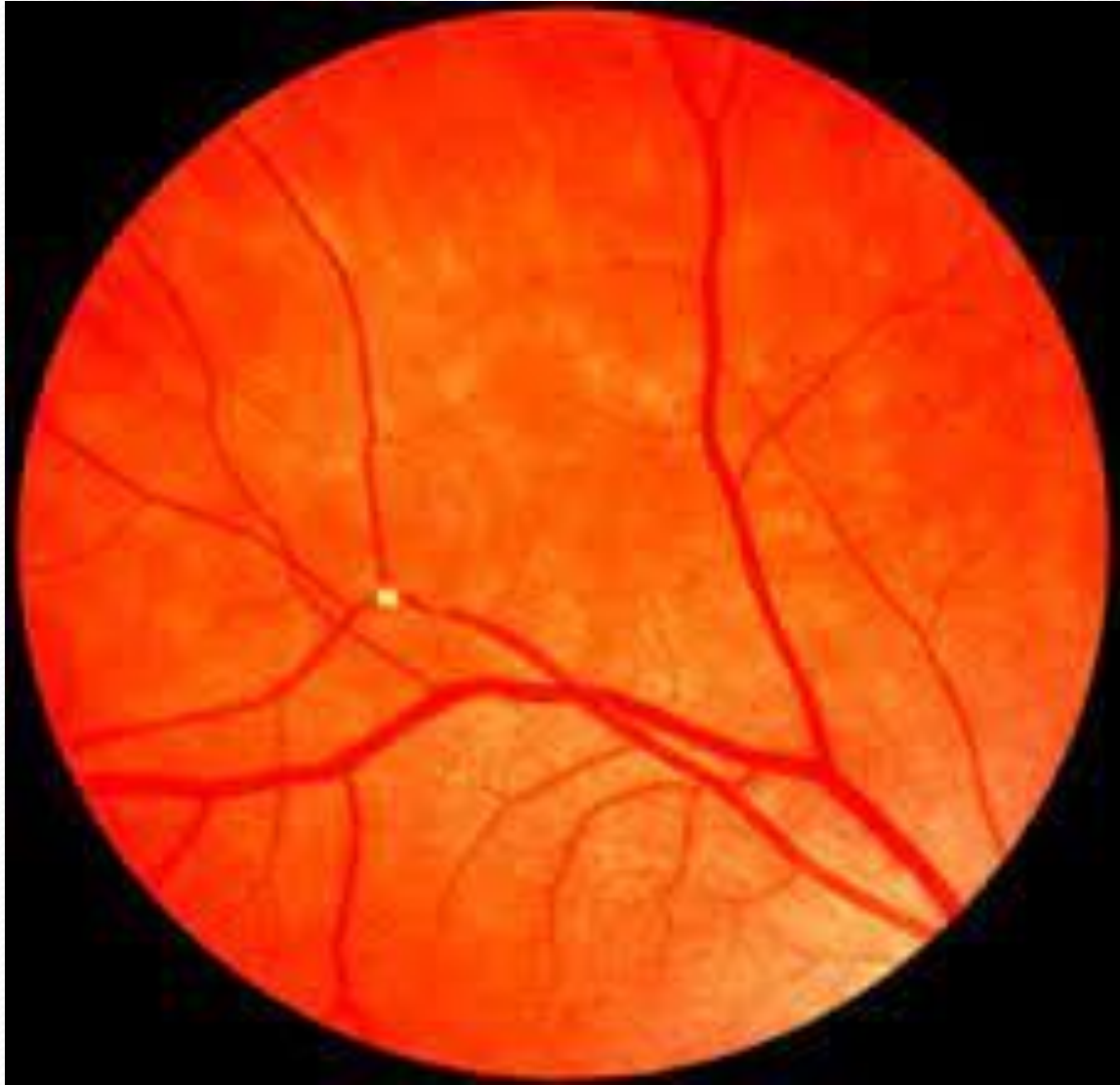




Inmate:

No symptoms of note.

Hollenhorst Plaque





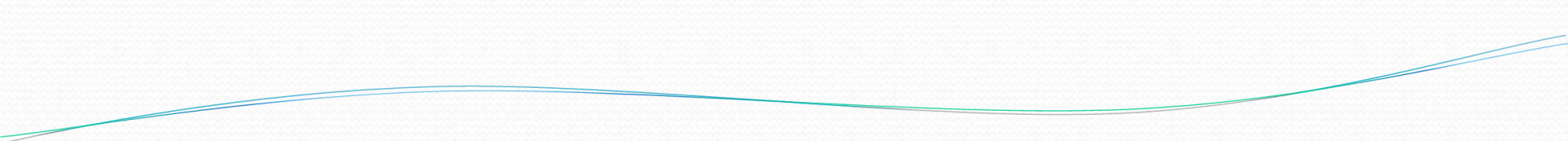
**“My vision keeps going dim
then coming back. It also
hurts when I comb my hair
or chew.”**

Pronounced Temporal Artery



Giant Cell Arteritis





The ability to recognize, differentiate, and manage the presentation of these diseases can preserve sight, quality of life, and even life itself.

References

1. World Health Organization Diabetes Fact Sheet, 10 November 2021, www.who.int
2. Centers for Disease Control and Prevention, What is Diabetes? www.cdc.gov
3. Mayo Clinic, Diabetic Retinopathy, www.mayoclinic.org
4. Ficco OD, Build Relationships with the Diabetes Care Team, OM April 2020
5. YuenOD Phd, Reconsider Your Approach to Diabetic Retinopathy, Rev of Opt June 2020
6. Gentry OD et al, Diabetes, Today and Tomorrow, Rev of Opt June 2019
7. Schechtman OD et al, Hypertension: More Than Meets the Eye, Rev of Opt Sept 2007
8. Ma & Yu MD, Window to Heart; Ocular Manifestations of Hypertension, HMR, July 2016
9. Labb OD, Wild and Woolly, How Cotton Wool Spots Manifest, Rev of Opt, March 2021
10. Weidmayer, Sara OD, Hints from the History, Rev of Opt, February 2020



References

11. Madonna, RJ OD, Optometry and the Carotid Artery, J Am Optom Assoc June 1993
12. Myers & Gurwood OD, Stroke of the Eye: Are You Prepared? Rev of Opt June 2021
13. Singh MD et al, Window to the Circulatory System: Oc Manifest Eur J Ophth April 2020
14. Stuart, The Heart and the Eye: Seeing the Links, EyeNet Magazine, December 2015
15. Wills Eye Hospital, Central Retinal Vein Occlusion, www.willseye.org

A decorative graphic at the top of the slide consisting of several thin, overlapping wavy lines in shades of blue and green.

**Thank You
and
Safe Travels**