



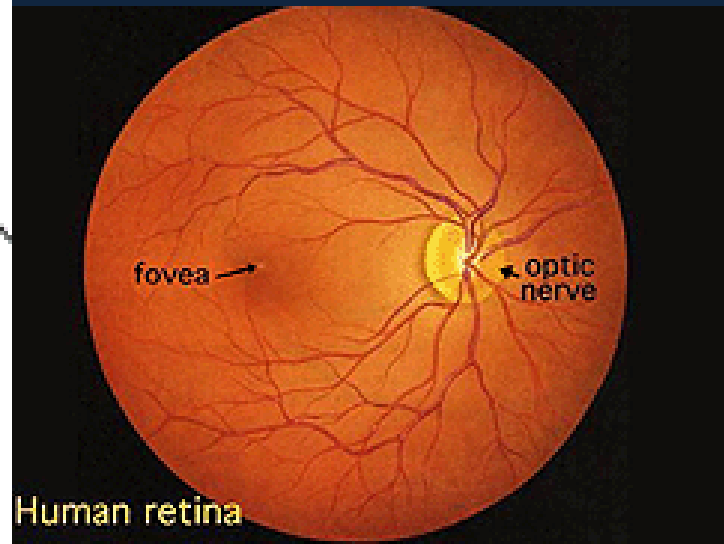
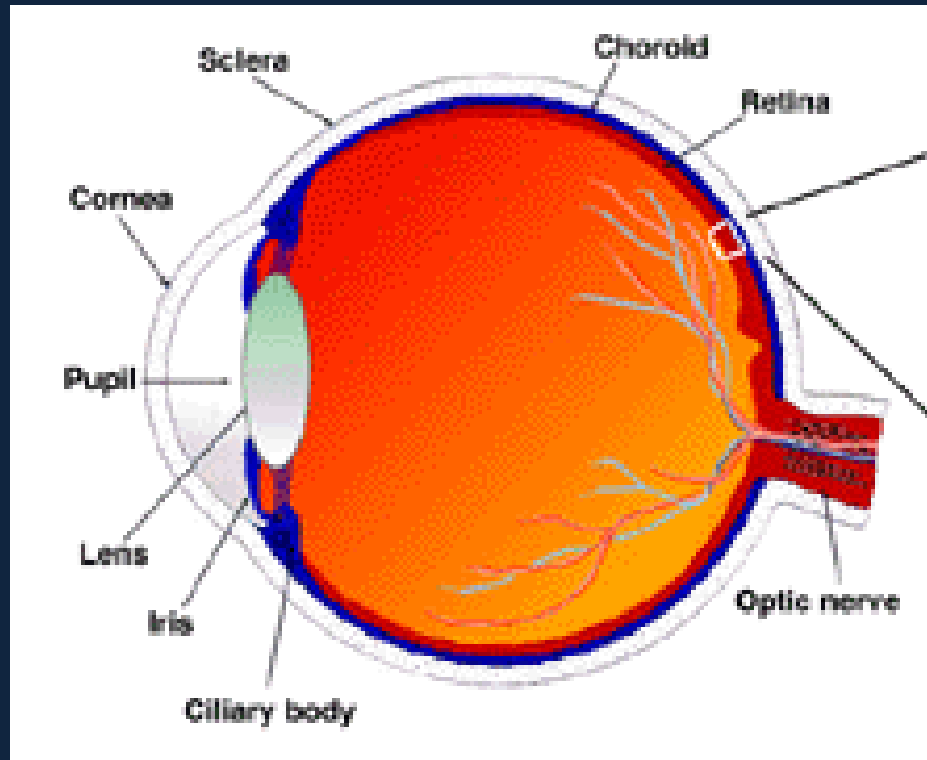
Ageing, Diabetes & Hypertension Preventing vision loss

Mallika Goyal, MD

Retina Service, Apollo Hospitals

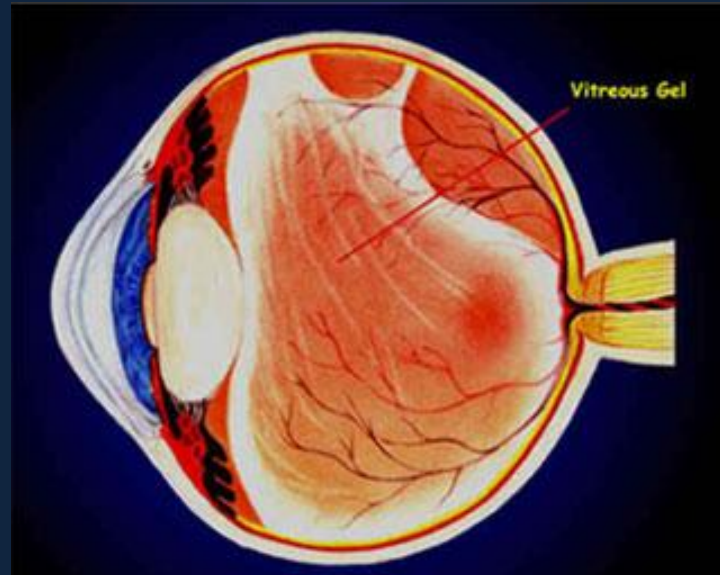
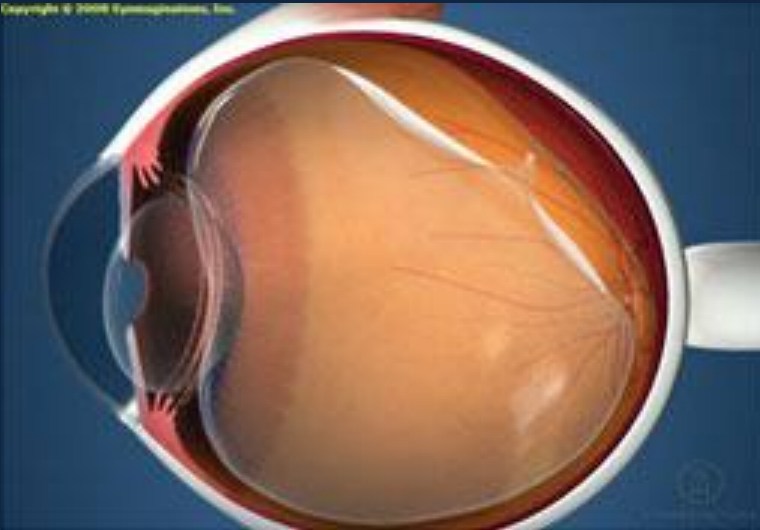
Jubilee Hills, Hyderabad

The Normal Eye & Retina



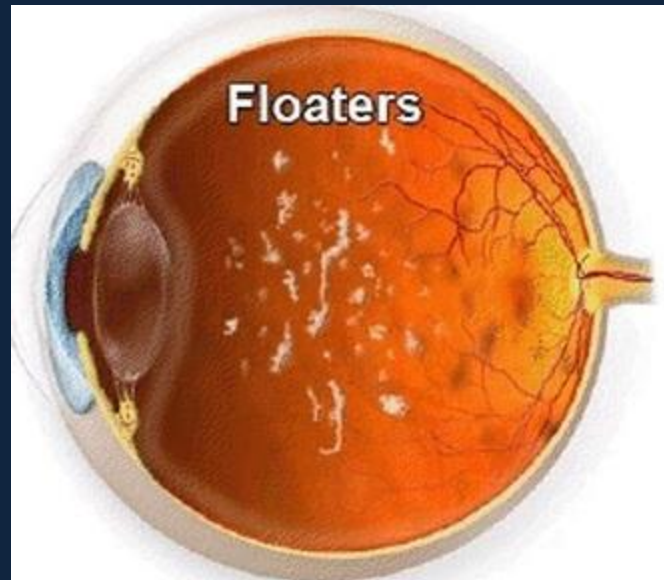
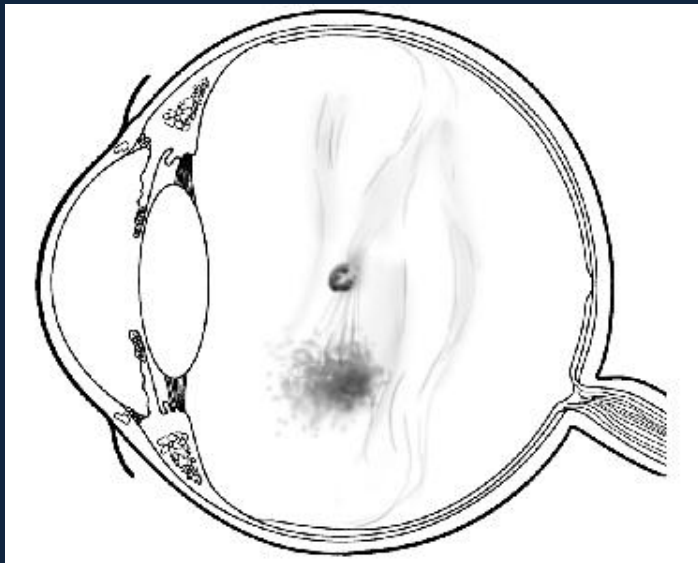
Posterior Vitreous Detachment

- Vitreous liquefaction & separation from retina
- Can happen after age 45 years



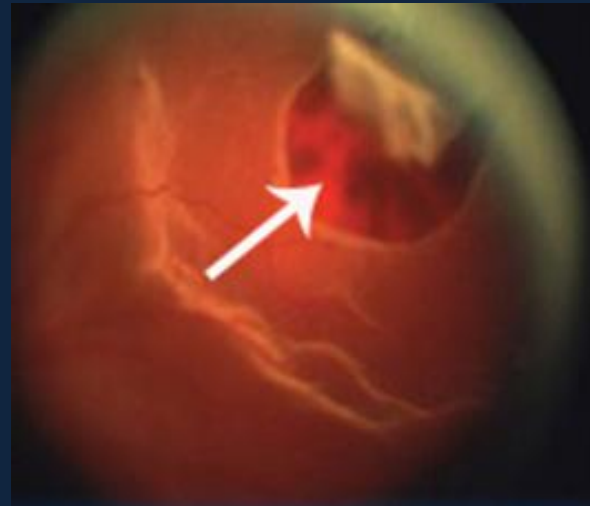
Posterior Vitreous Detachment

- Felt as floating particles and flashes of light
- Floaters persist for several months then settle down



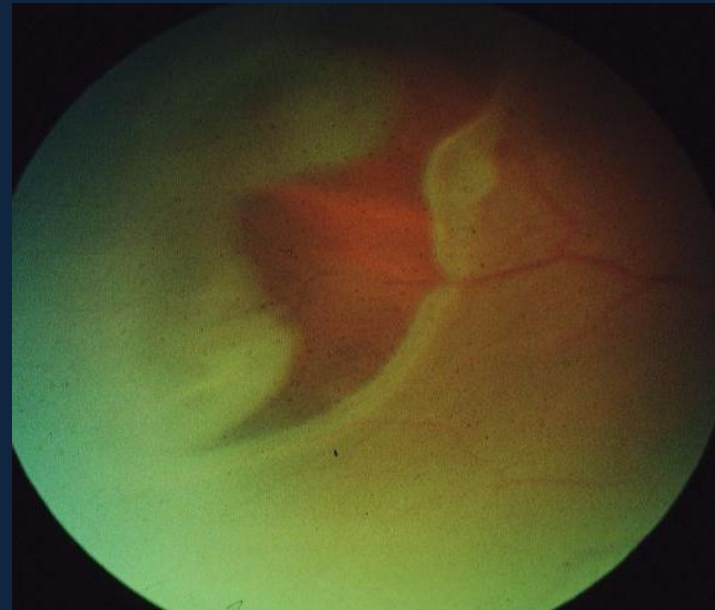
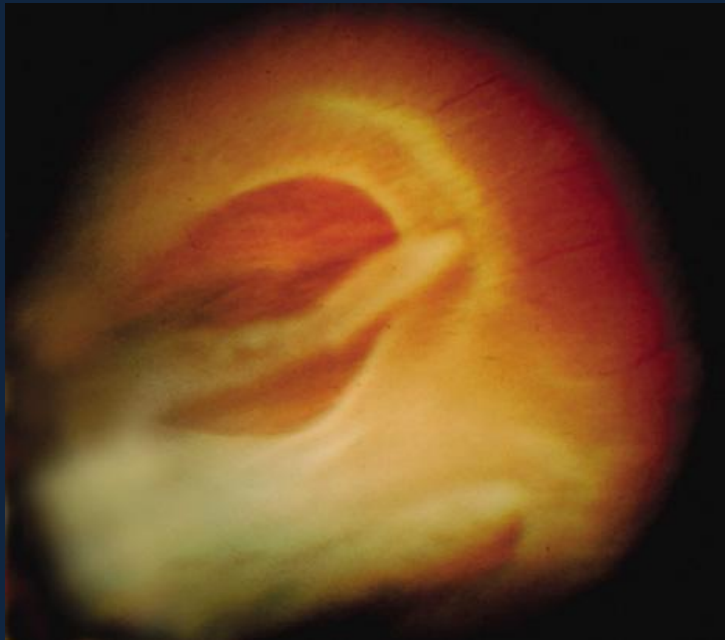
Complications

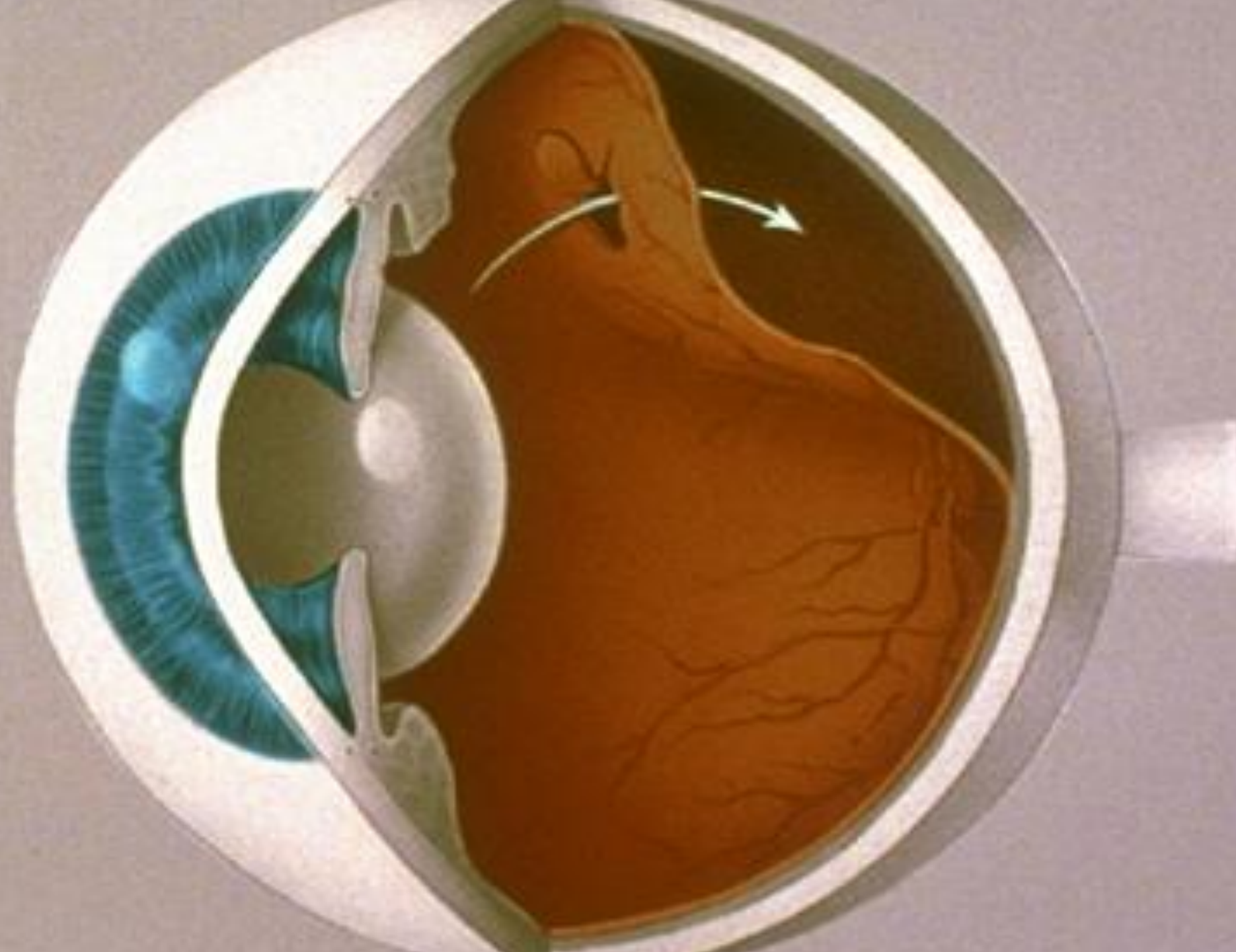
- Usually harmless
- Can cause retinal tears & retinal detachment
- Specially in myopia (using thick minus glasses) or family history of retinal detachment

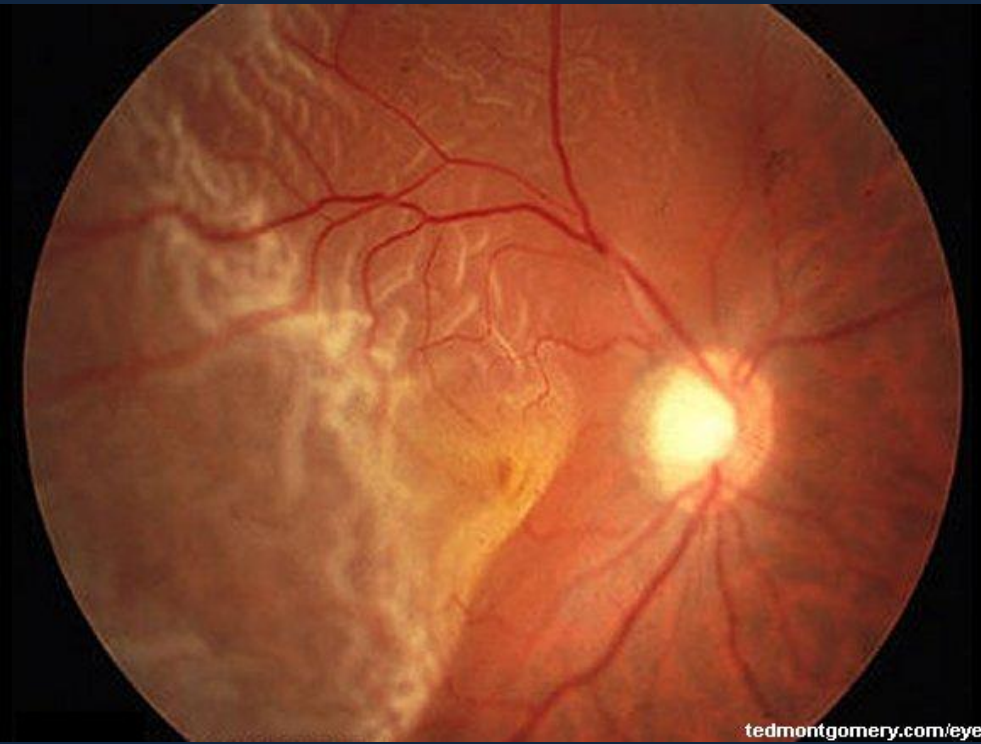


Complications

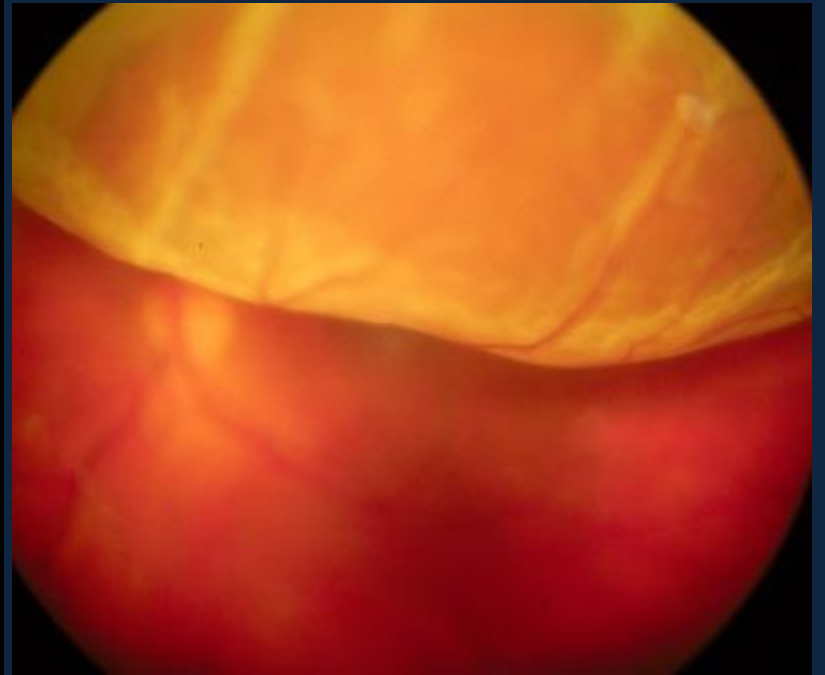
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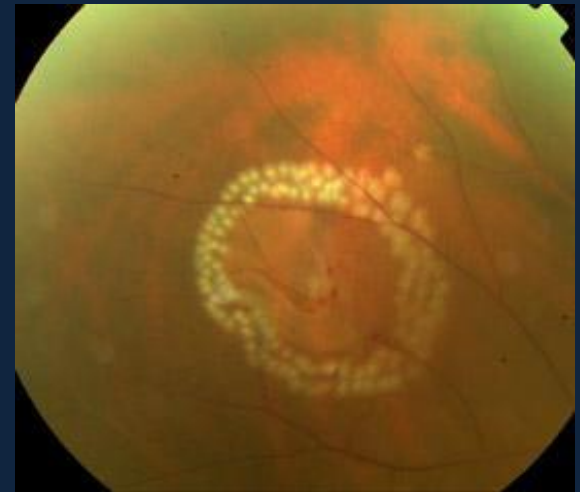
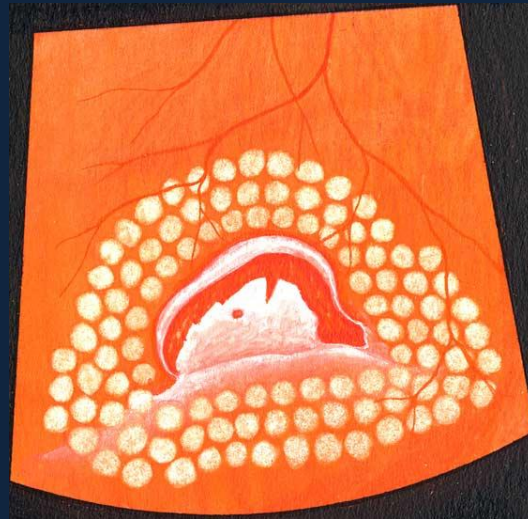
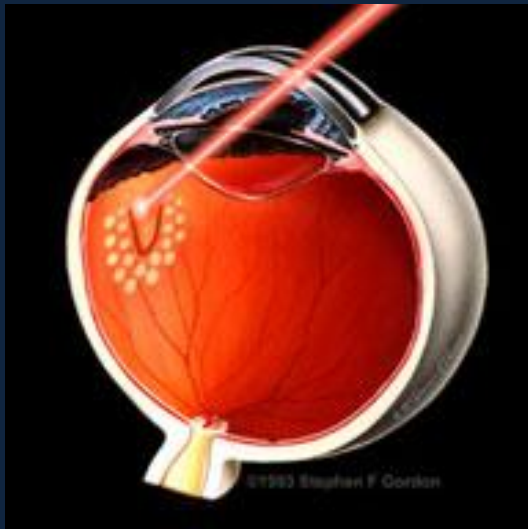


tedmontgomery.com/eye



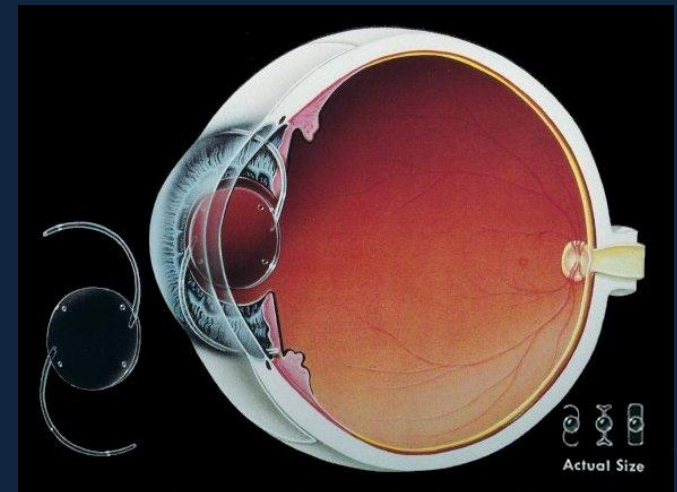
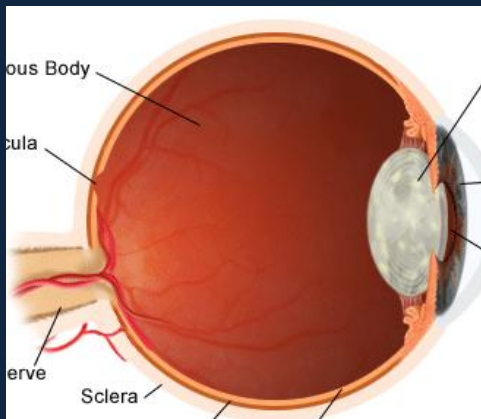
Management

- Retina should be examined periodically at the onset of floaters and flashes for any retinal tears
- Any tears should be closed with retinal laser to prevent retinal detachment



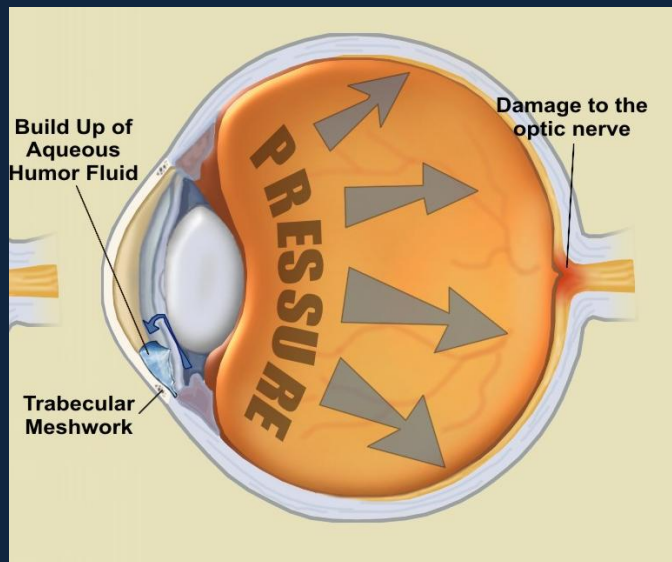
Cataract

- Lens gets opaque
- Surgery to replace opaque lens with artificial lens (IOL)
- Not an emergency, can be done when patient unable to perform daily tasks

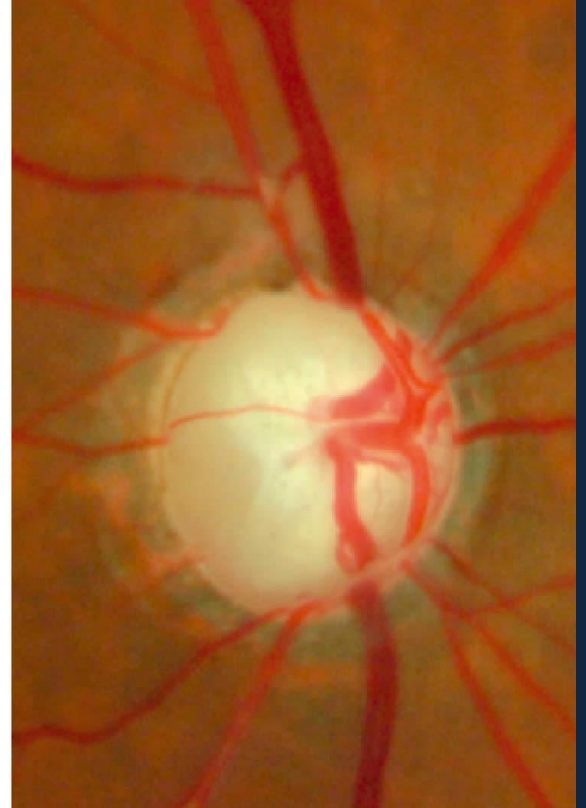


Glaucoma

- Serious silently blinding disease due to high eye pressure
- Normal eye pressure is 10-22 mm Hg
- High eye pressure damages the Optic Nerve

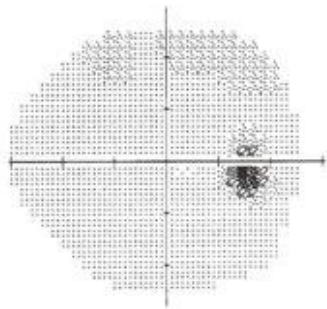


Glaucomatous Disc

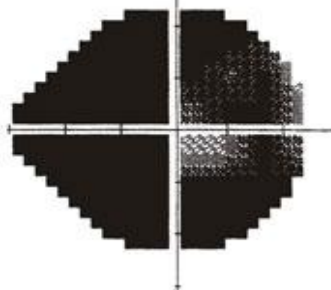
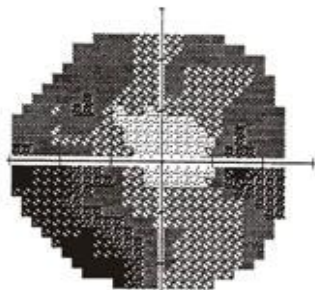
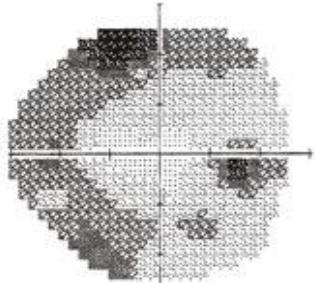


Perimetry

Vision is lost from sides towards centre, so patient may realise only after losing most of the field



Normal visual field



Severe damage from glaucoma

Glaucoma Risk factors

- Family history of Glaucoma
- Diabetes
- Increasing Age
- Myopia

Prevention of vision loss from Glaucoma

Periodic eye exam

- Every 2 years after age 45 years
- Every year if there is family history of glaucoma, or if diabetic
- Inform the doctor about the family history
- *Treatment* is with Eye Drops
- Surgery is done when drops not enough to lower pressure

Age related Macular Degeneration (AMD)

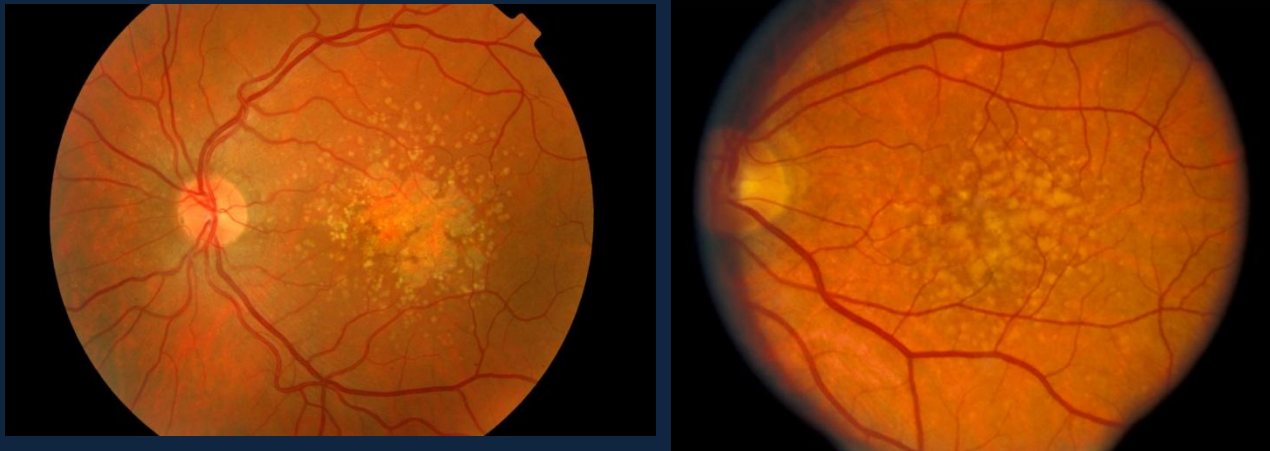
- Affects macula, the most specialised central part of retina
- Loss of fine or sharp vision
- Unable to read/ write/ recognize faces/ enjoy TV
- Can see from sides so they can move independently

Normal Macula

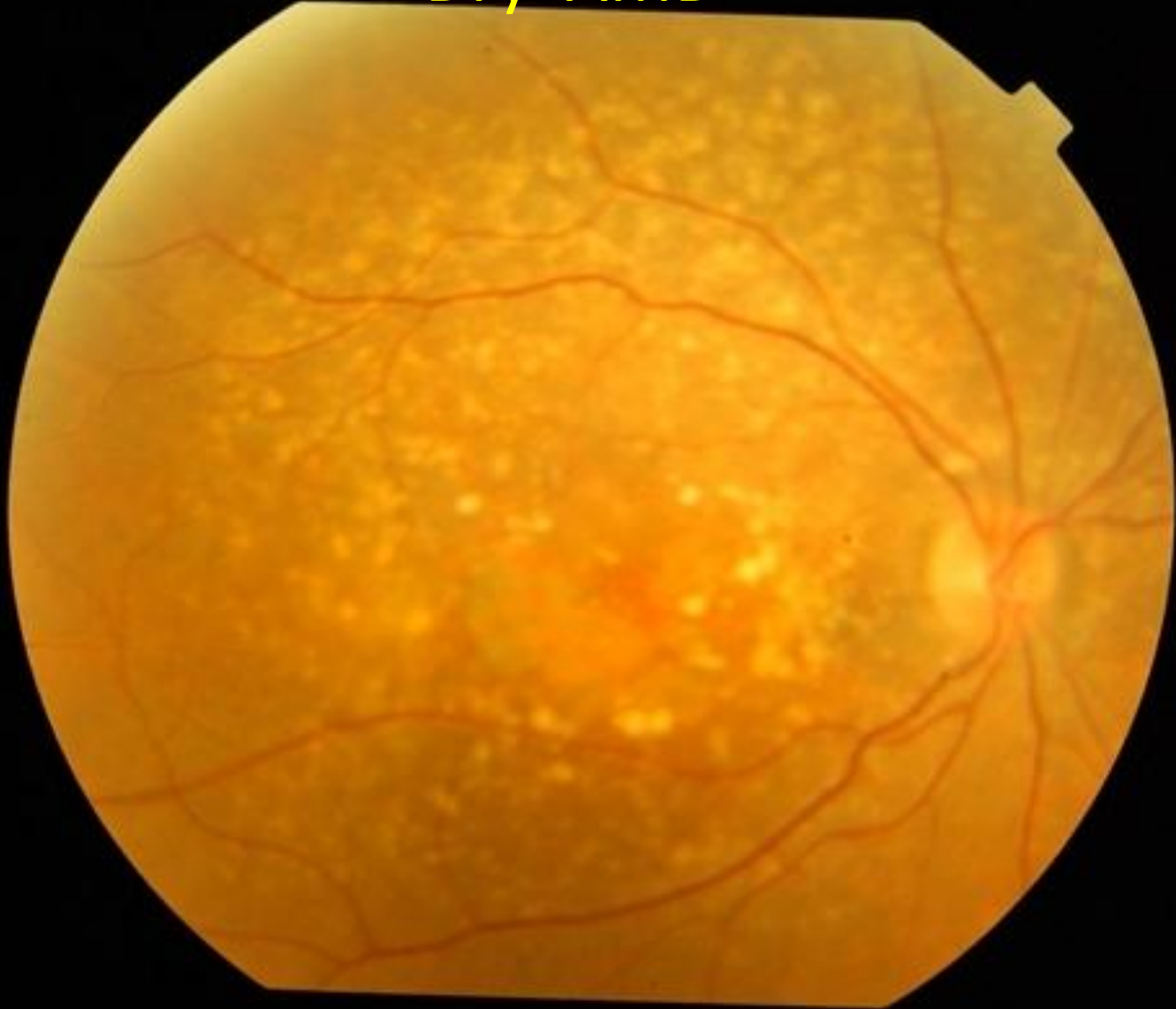


Dry AMD

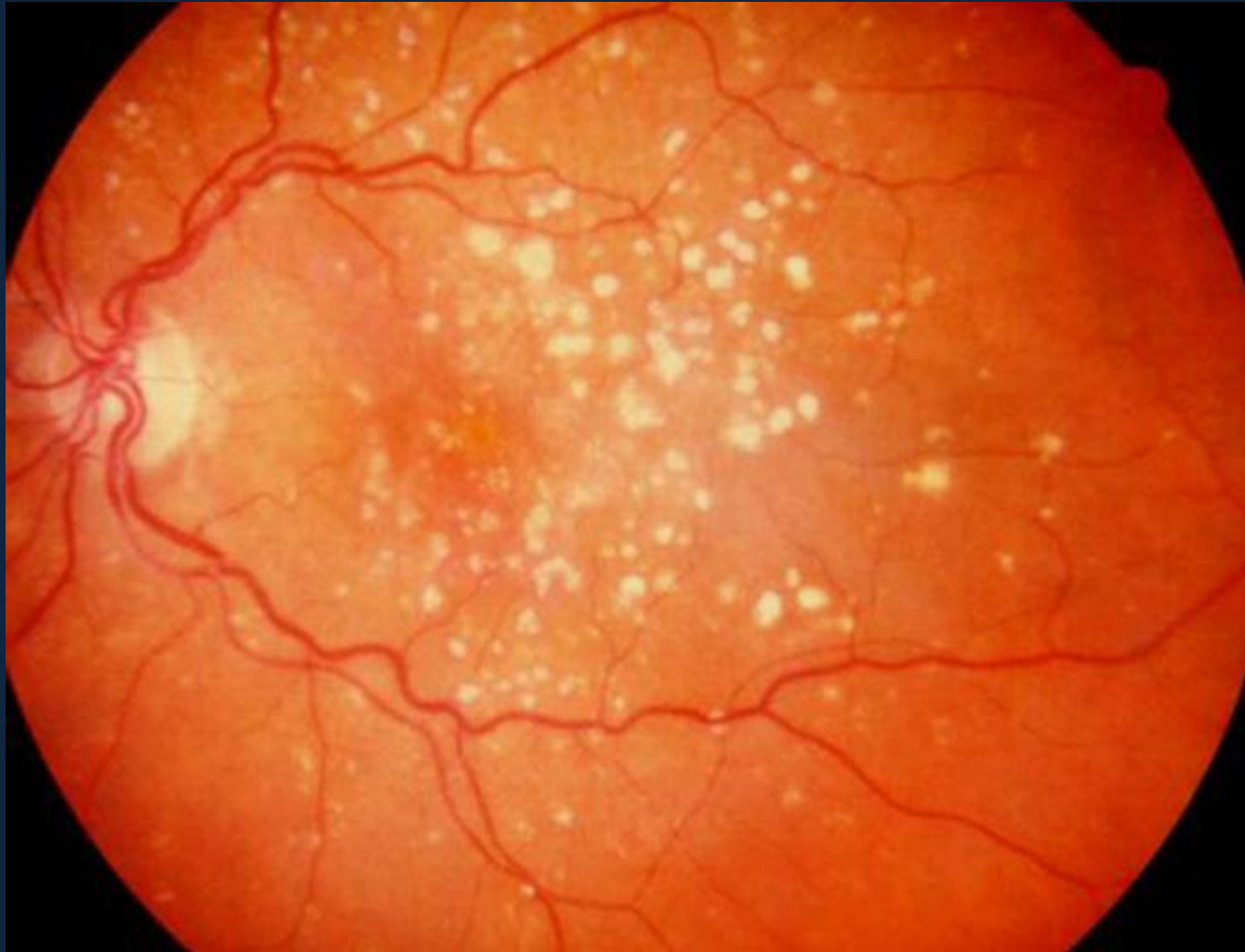
- Loss of quality of central retina (becomes grey and thinned); slow process over years



Dry AMD



Dry AMD



Wet AMD

- Abnormal blood vessels grow into macula, leak, bleed and cause retinal scarring with rapid vision loss in few months



Risk Factors

- Genetic: Family history of AMD
- Smoking
- Hypertension (high BP)
- Excessive exposure to sun



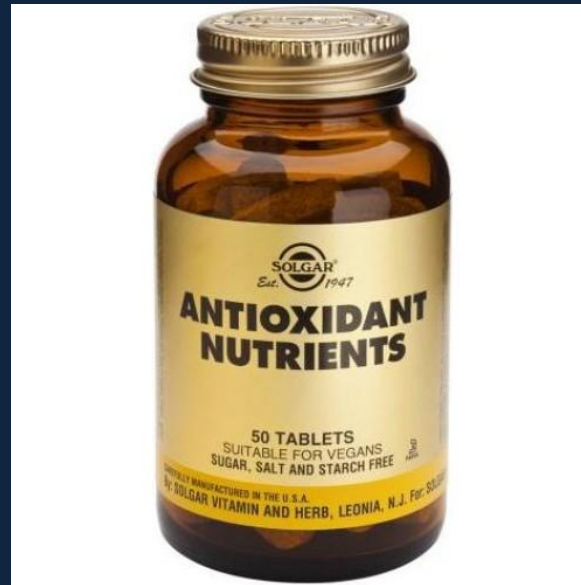
Prevention

- Stop Smoking
- Vitamin rich diet (Fruits & vegetables plenty)
- Physical exercise
- Sunglasses outdoors (UV protection)
- Vitamin supplements if family h/o AMD
- Eye checks every 2 years after age 45 years



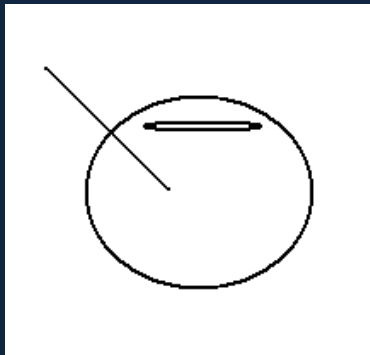
Treatment of Dry AMD

- High dose oral antioxidants (Vitamins + Macular pigments)



Treatment of Wet AMD

- Injections into the eyeball (vitreous cavity) every 4-6 weeks till blood vessels disappear
- May need several injections for many years
- Injections include: Avastin/ Lucentis/ Eylea



Diabetes and the Retina

- Diabetes affects mainly the retina and causes diabetic retinopathy and macular edema

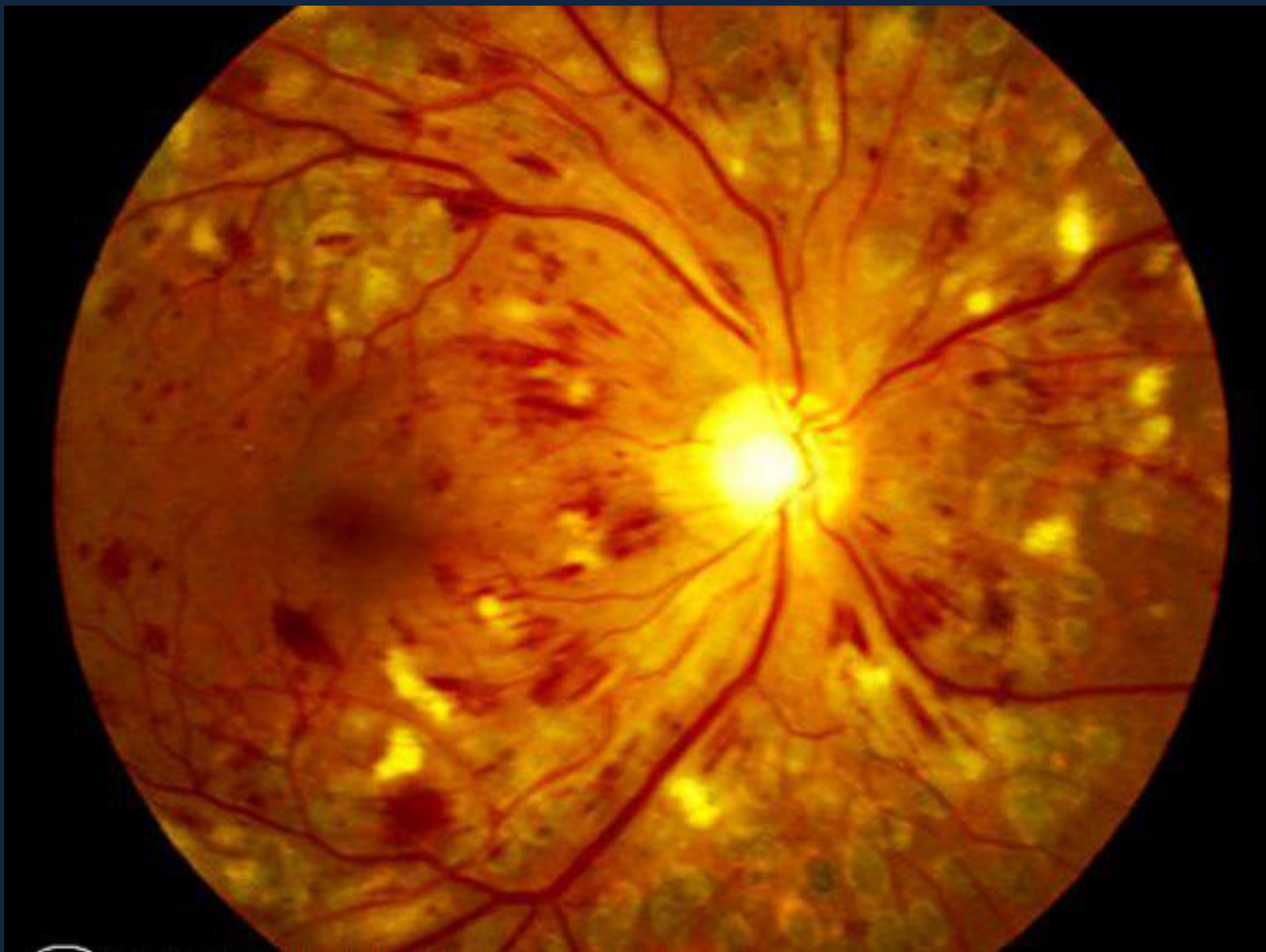
Risk factors

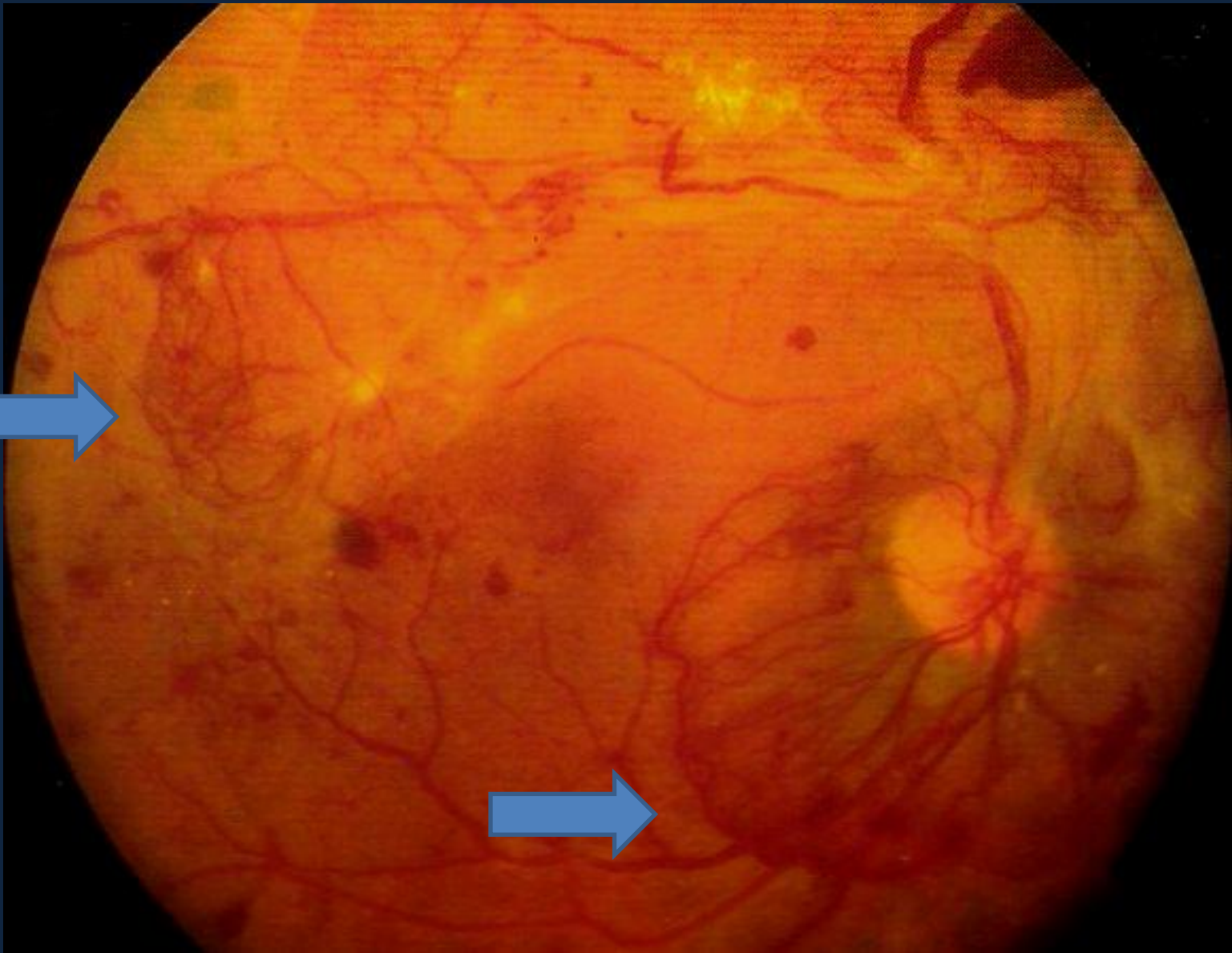
- Duration of diabetes
- Uncontrolled Diabetes
- Associated uncontrolled BP, lipids
- Smoking
- Alcohol
- Genetics: Family history of diabetic retinopathy

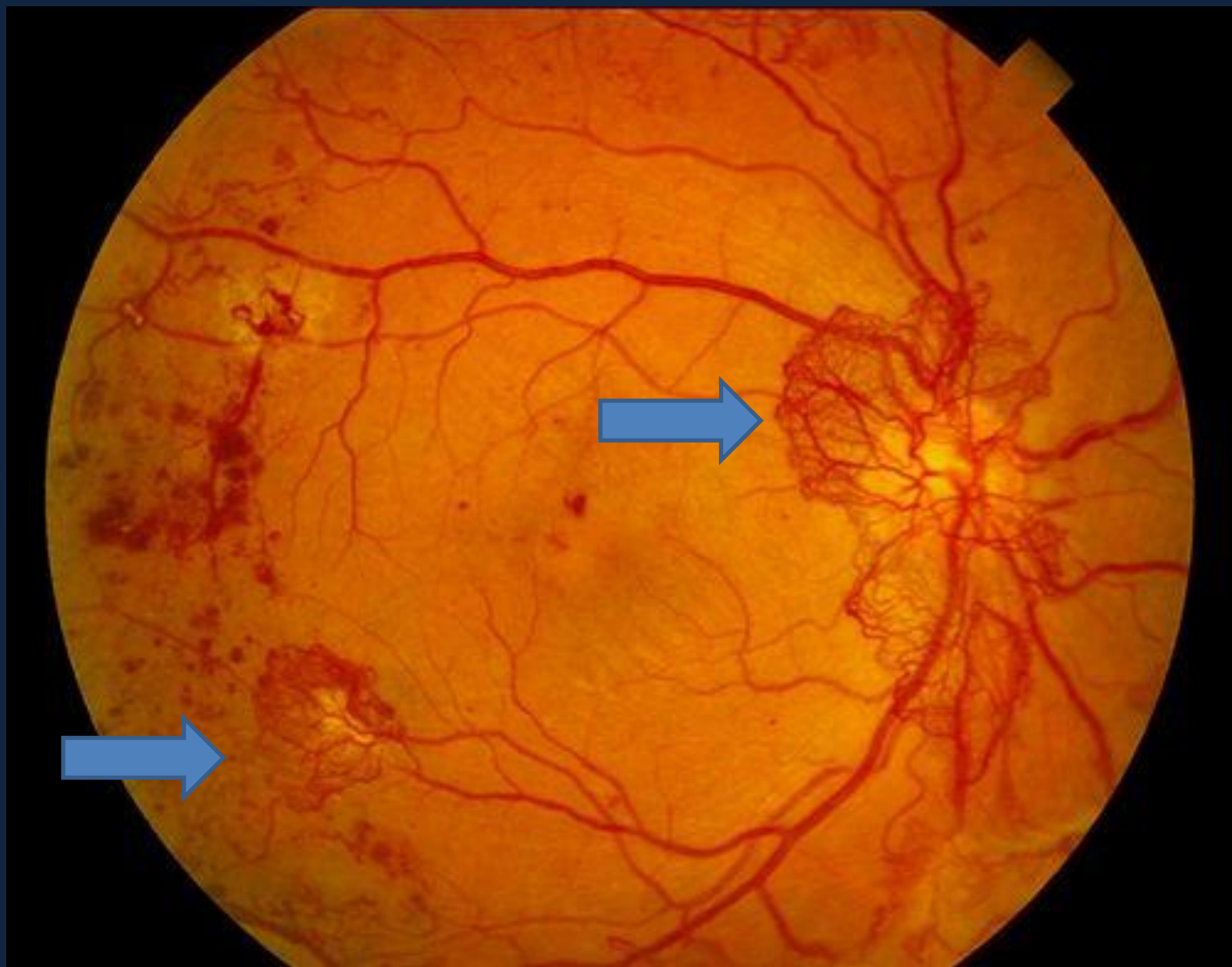
Diabetic retinopathy

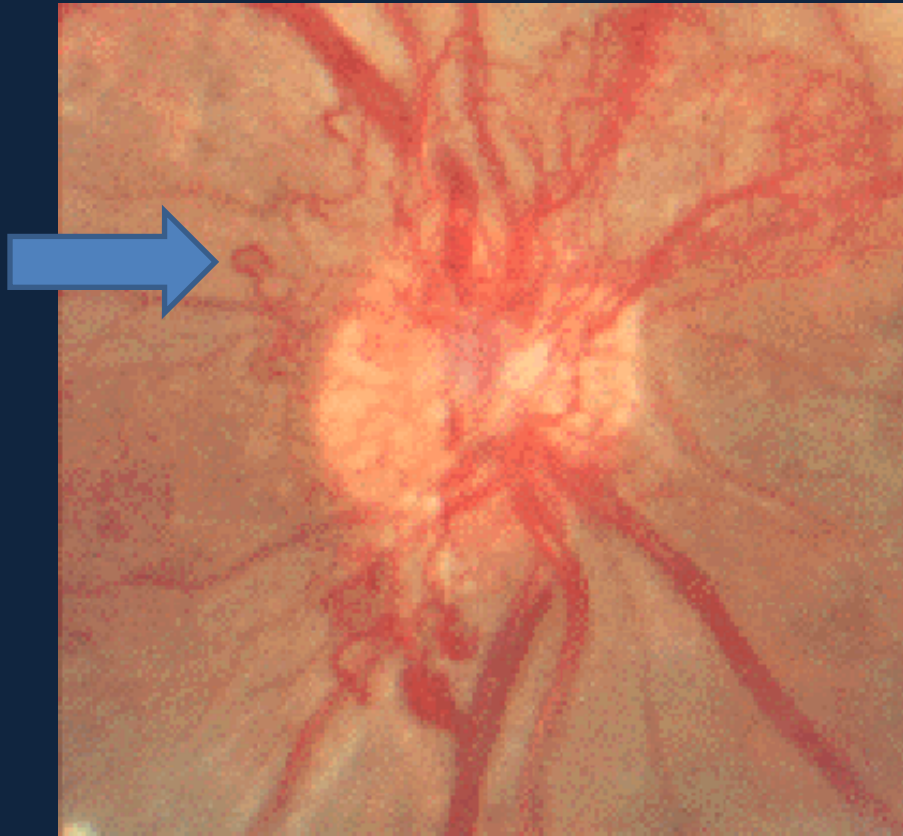
- Diabetes causes blockage of blood vessels in retina
- This stimulates abnormal blood vessel growth
- These vessels bleed causing vitreous haemorrhage, and pulling the retina off (retinal detachment)
- Patient may not have any vision problems till late stage of disease as centre may not get









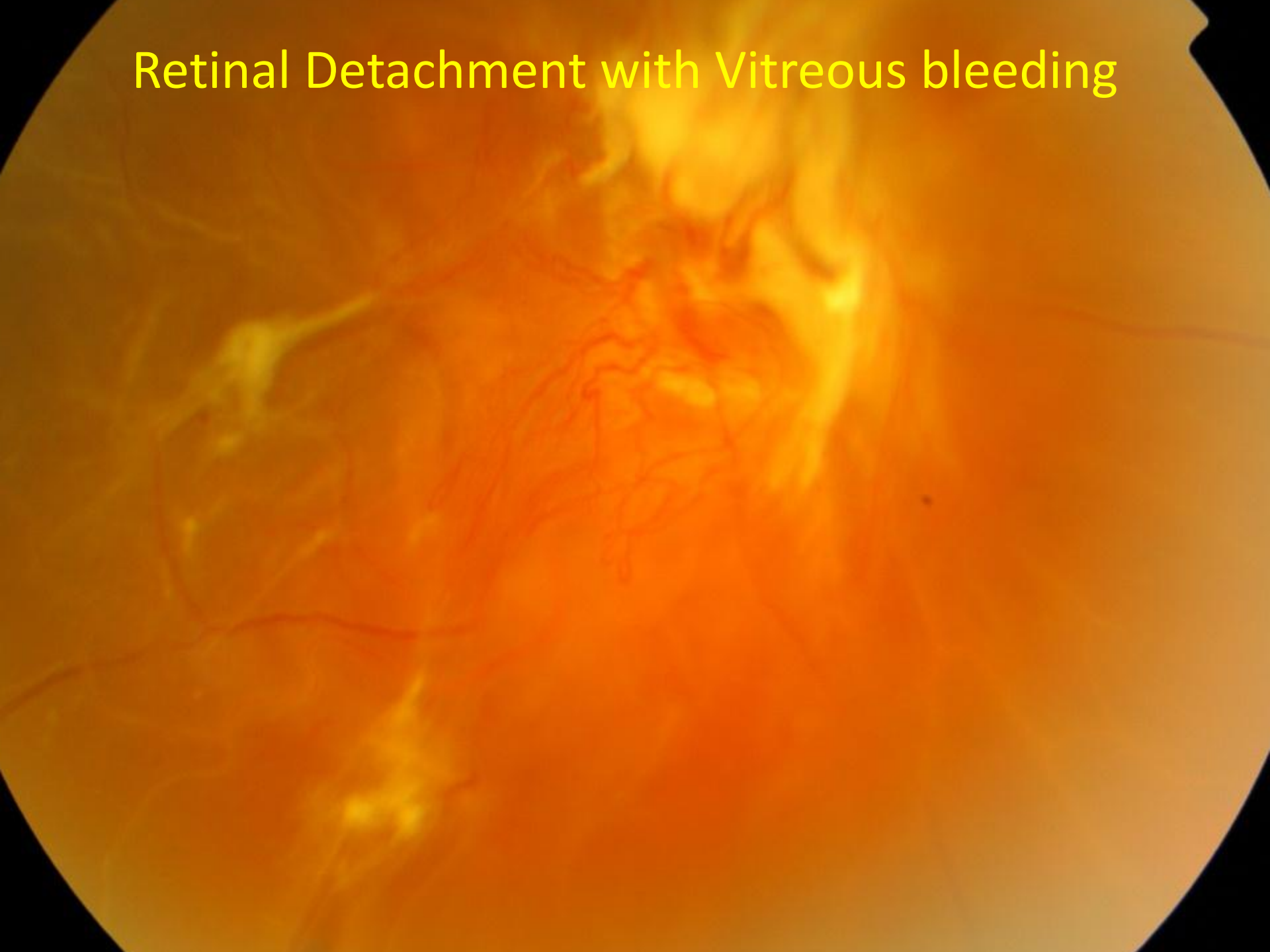


Vitreous bleeding



Vitreous bleeding

Retinal Detachment with Vitreous bleeding



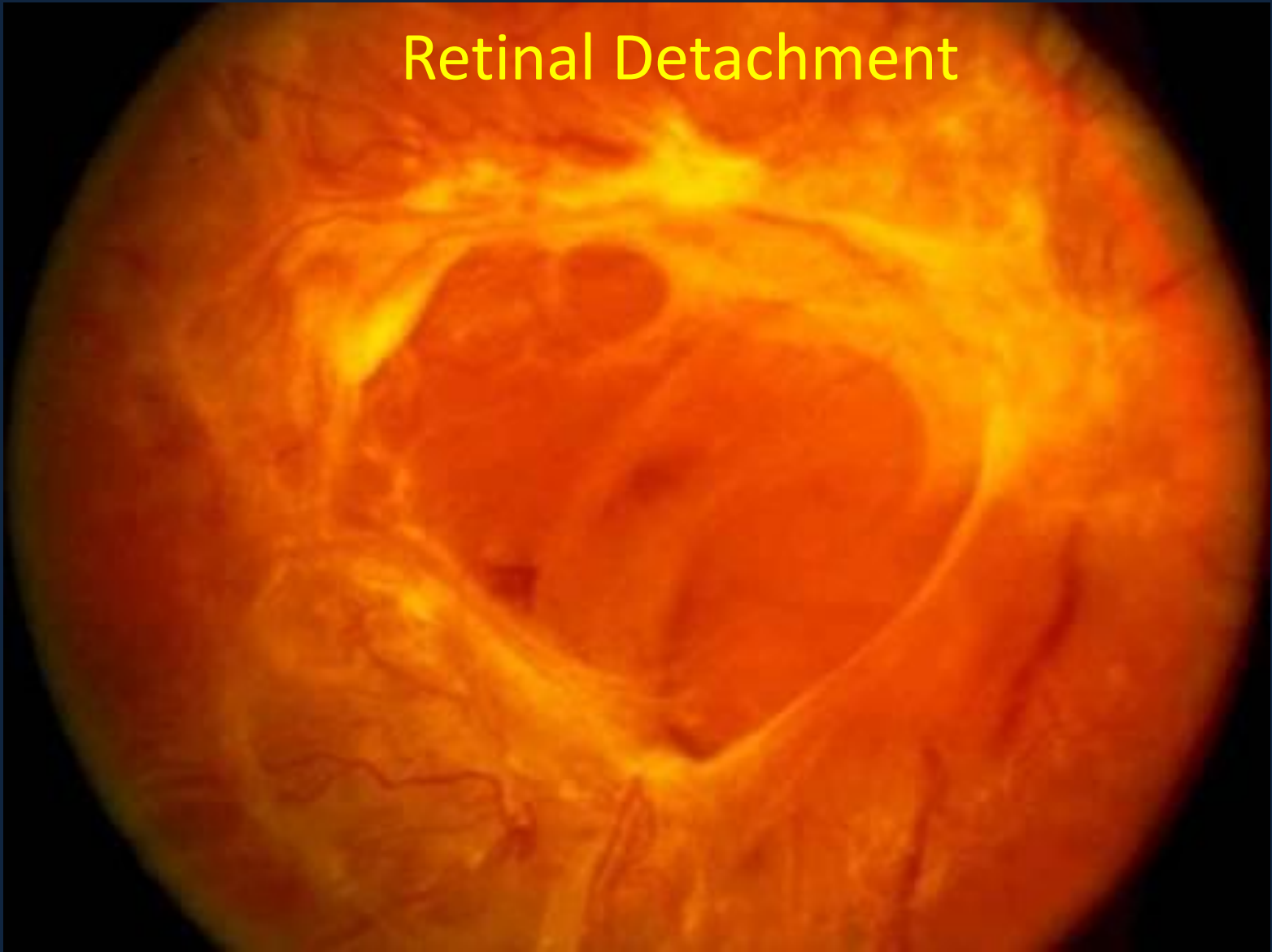
Retinal Detachment



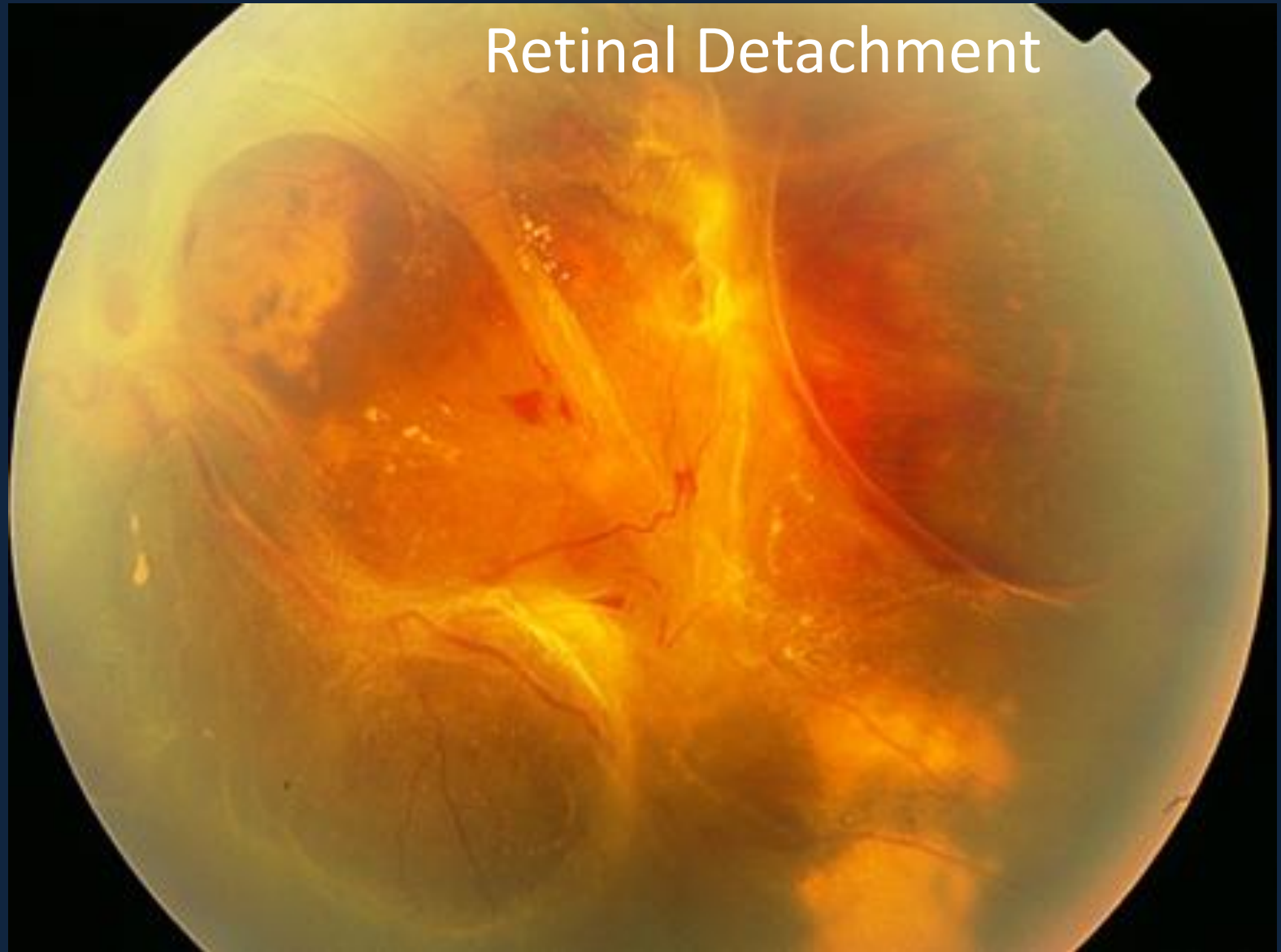
Retinal Detachment



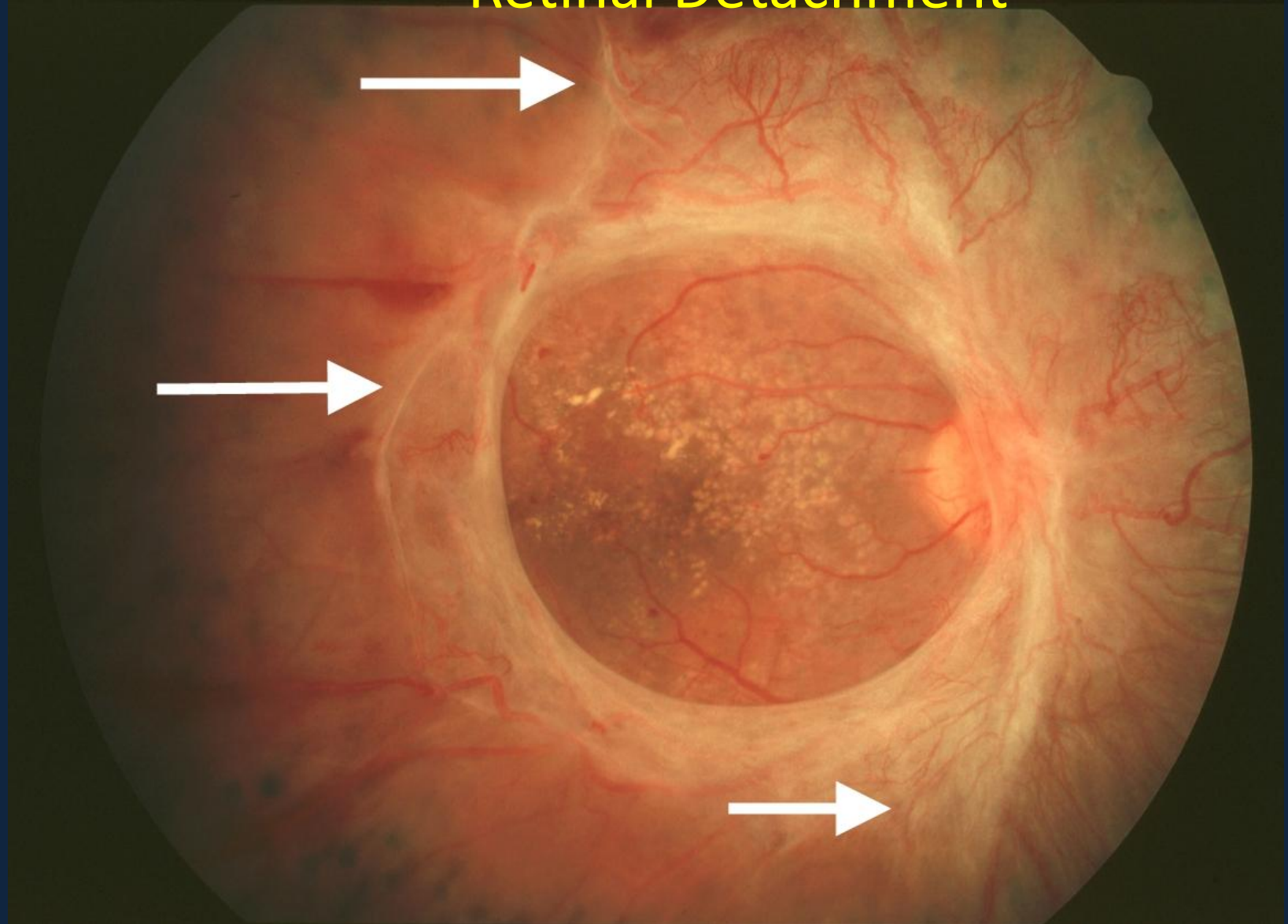
Retinal Detachment



Retinal Detachment



Retinal Detachment

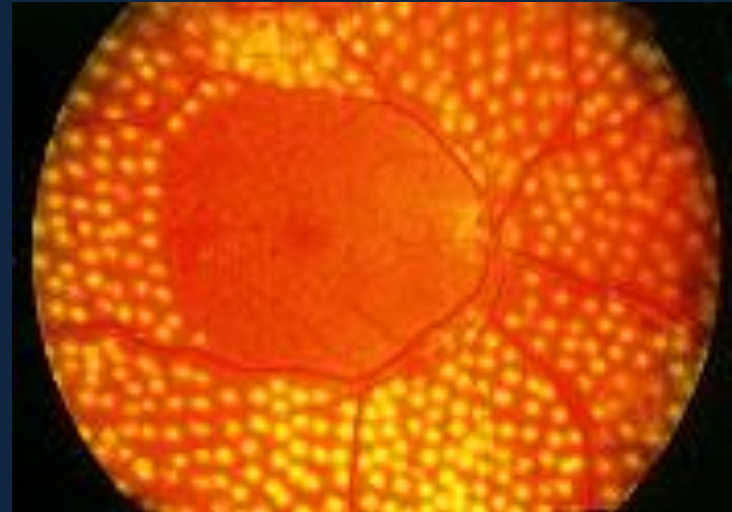


Diabetic retinopathy

- Treatment may be difficult or impossible in late stages.
- Sometimes blockage of blood supply causes death of retinal and optic nerve cells so that treatment does not benefit

Prevention

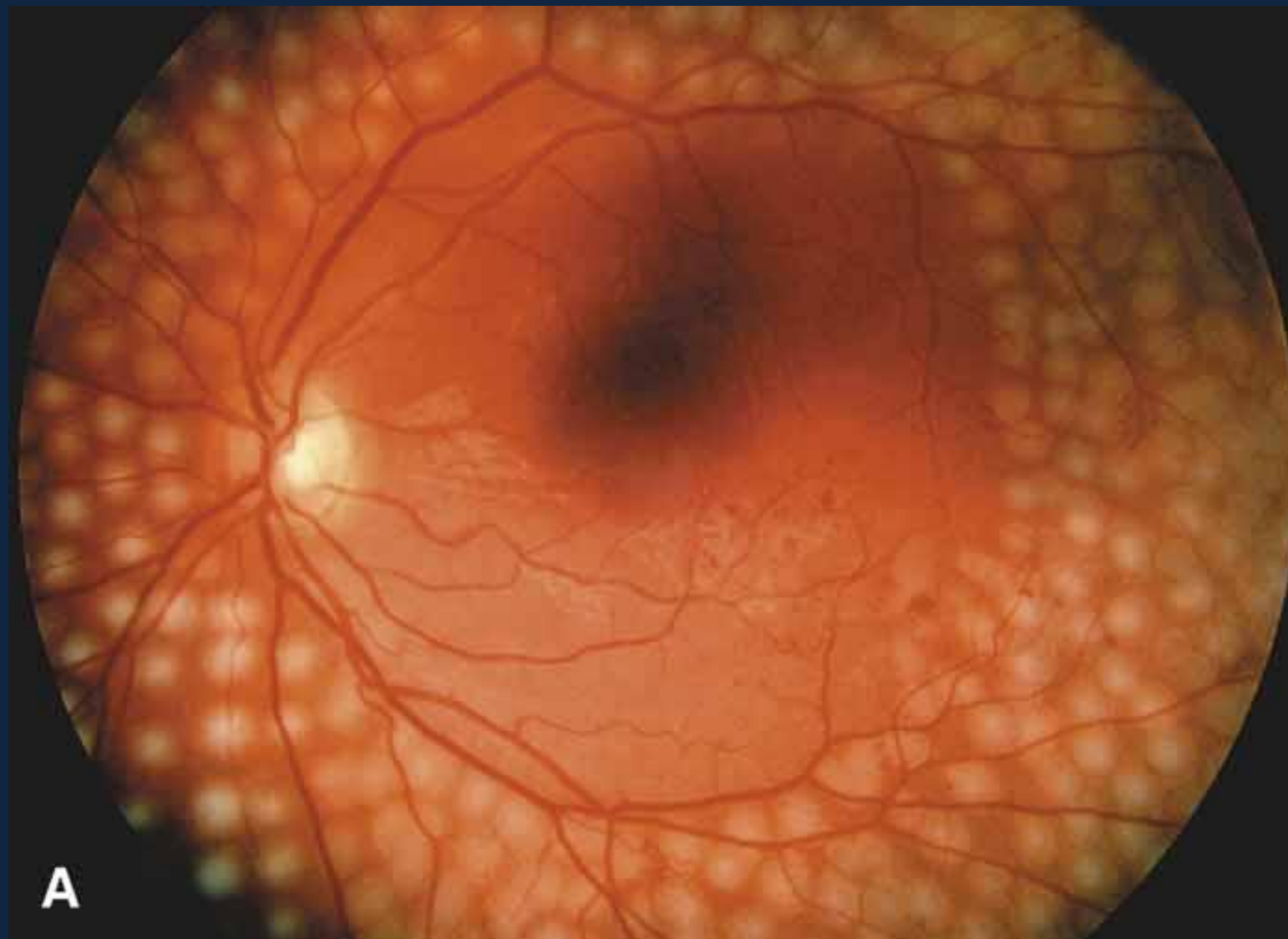
- Retina exam every year with dilated pupils
- When abnormal vessels are observed, the retina surgeon treats with retinal laser in 3-4 sittings to arrest the disease



Panretinal Laser



Panretinal Laser



Fluorescein Angiography

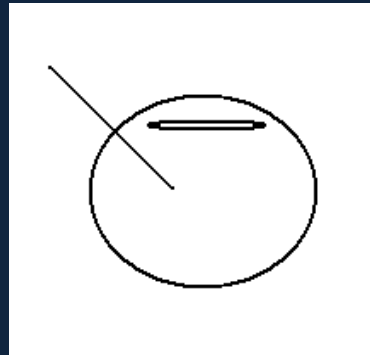


Fluorescein Angiography



Treatment in late stages

- Injections to prevent repeated vitreous bleed
- Complex vitreo-retinal surgery for severe vitreous bleeding or retinal detachment



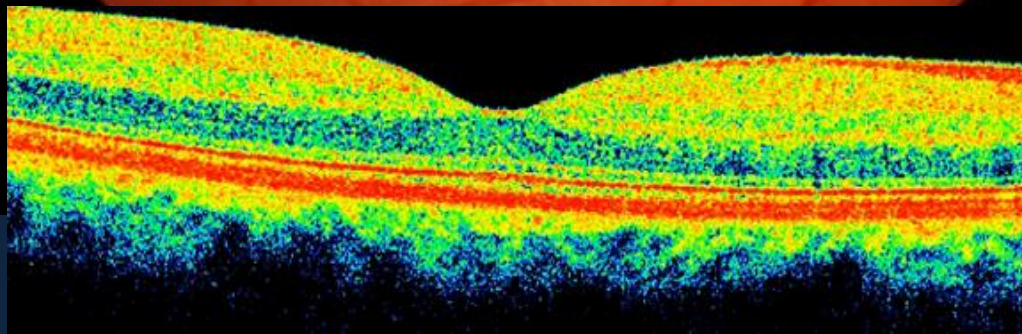
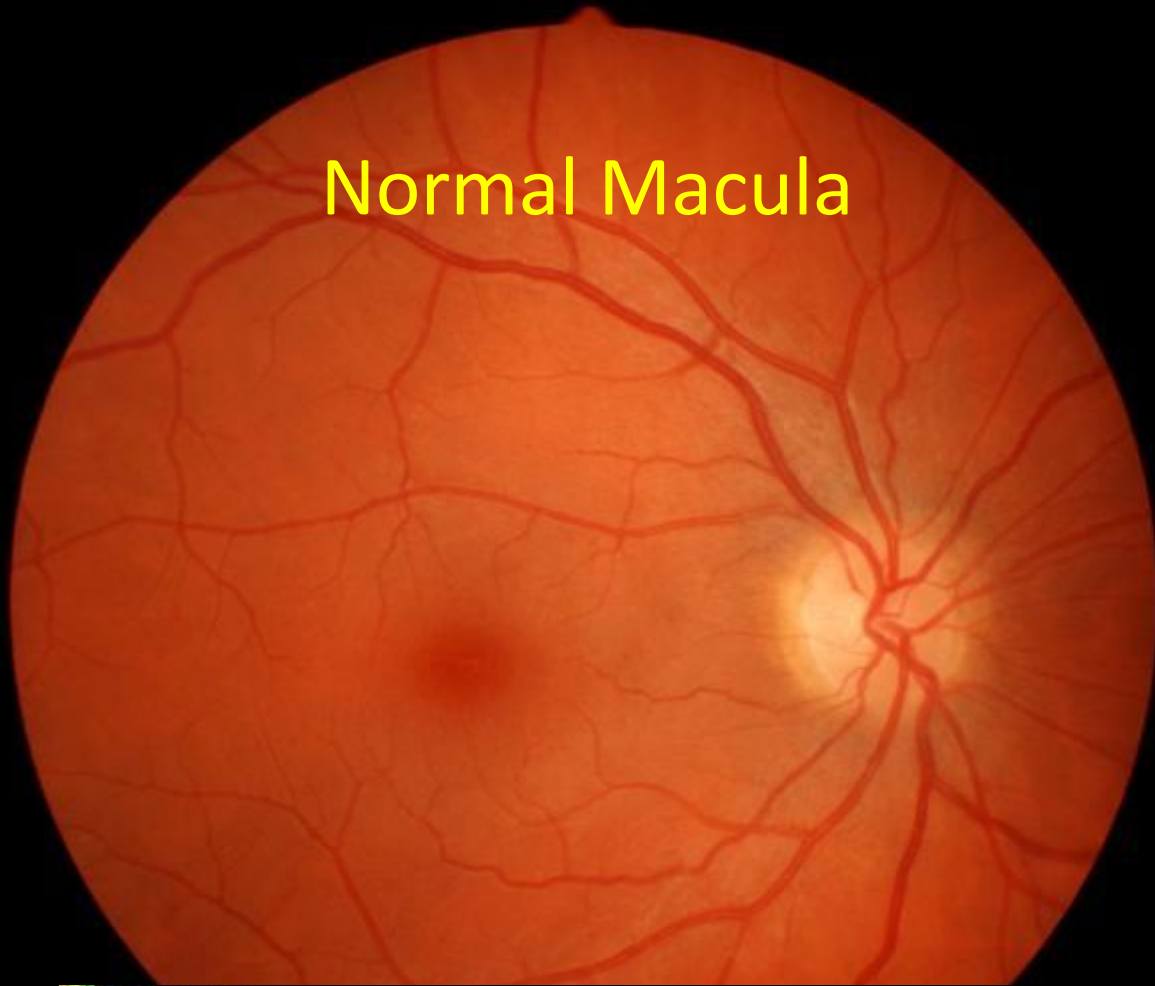
Retina & kidney damage

- Diabetic retinopathy is often co-existing with kidney damage
- Control of diabetes and associated conditions like high blood pressure, high lipids (cholesterol), kidney problems, smoking, anaemia and heart problems

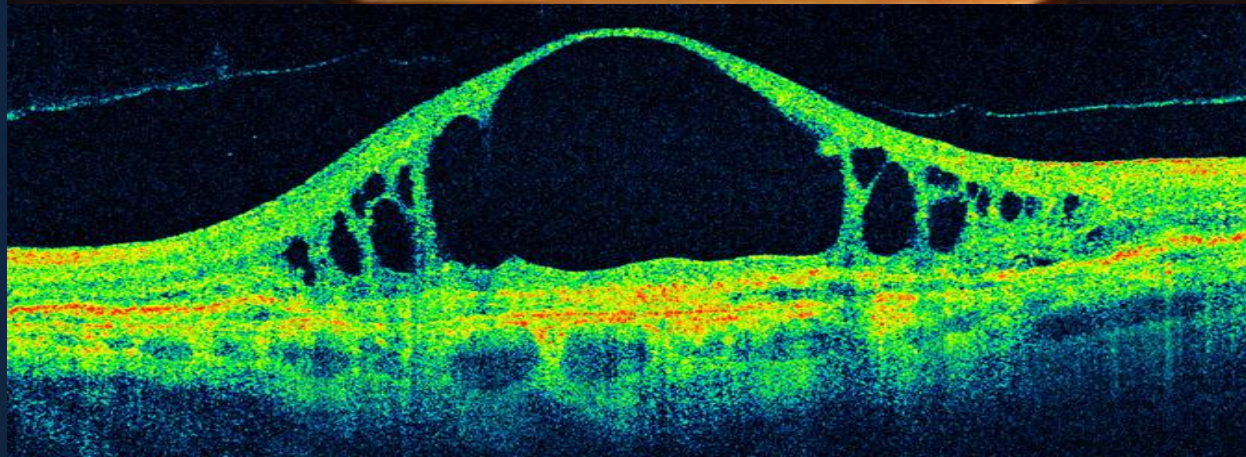
Diabetic Macular Edema

- Swelling of the central retina due to leakage from damaged retinal blood vessels
- This causes loss of sharpness of vision affecting reading/ working/ recognition of faces etc

Normal Macula



Diabetic Macular Edema



Treatment

- Intravitreal injections of avastin/ lucentis/ steroids (tricort or ozurdex implant)
- Mild laser
- Good control of diabetes, BP, lipids, kidney problem, anaemia



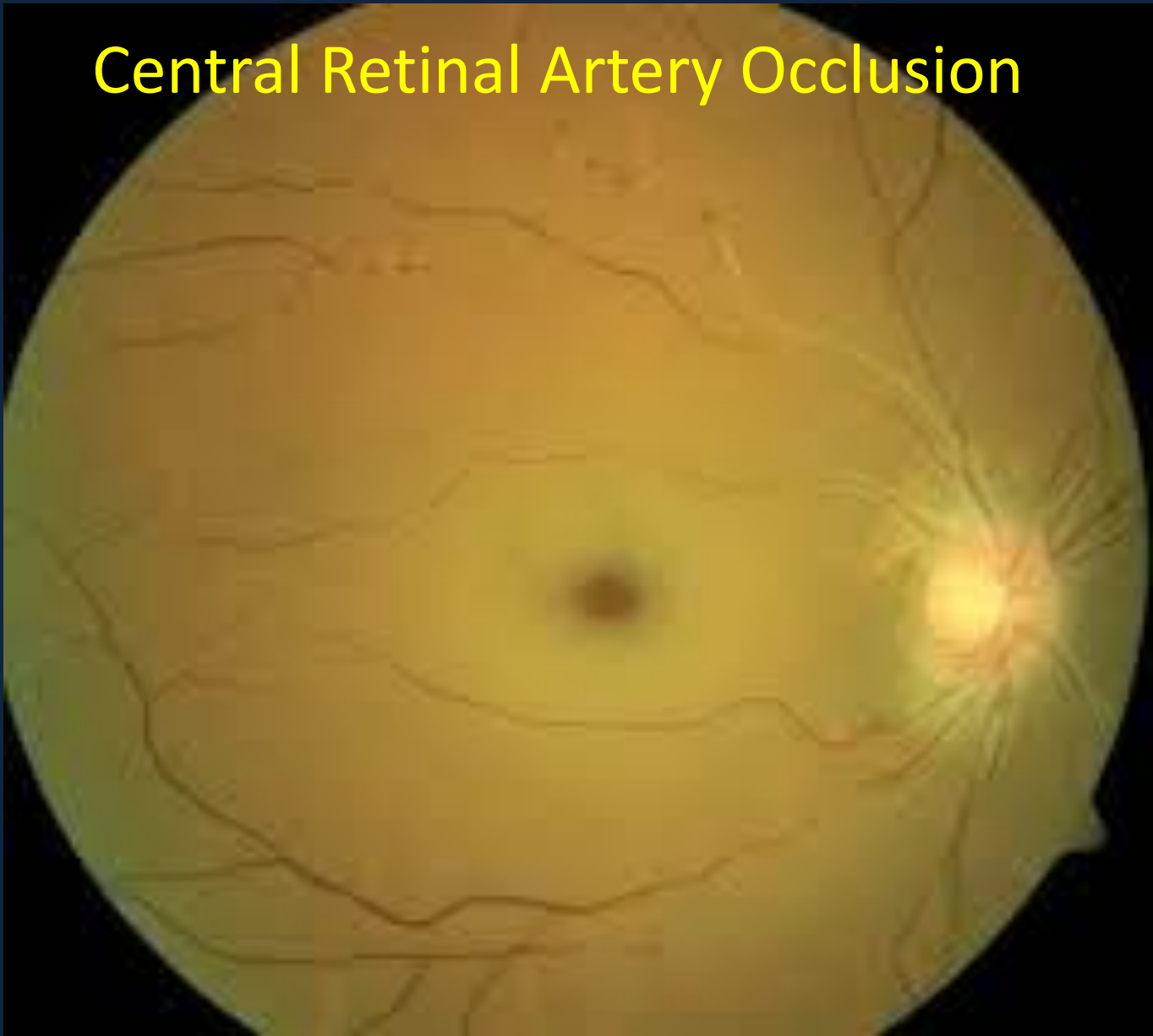
Hypertension and Retina

- High blood pressure causes damage to the inner lining of blood vessels → closure of blood vessels
- In retina it can cause closure of central retinal artery → sudden death of the retina

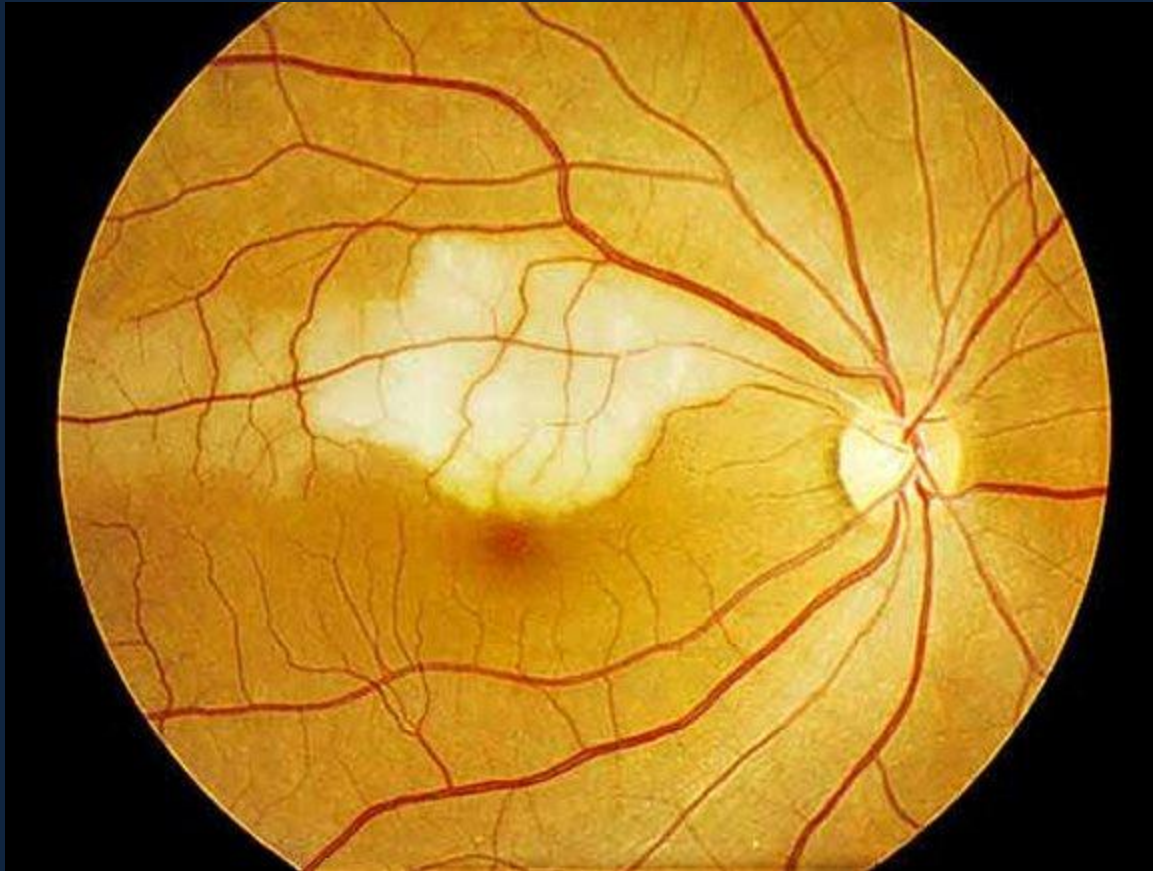
Central Retinal Artery Occlusion



Central Retinal Artery Occlusion



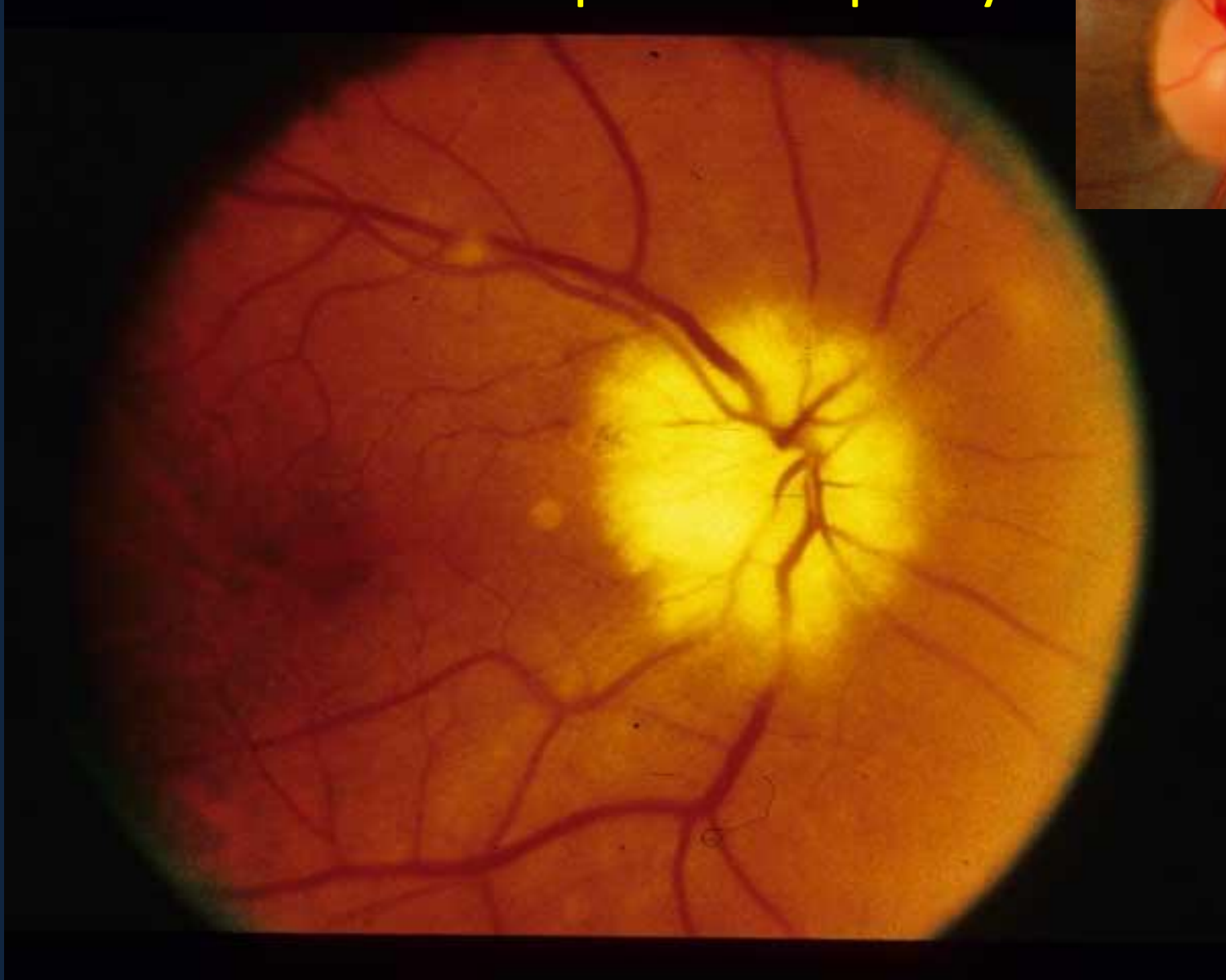
Branch Retinal Artery Occlusion



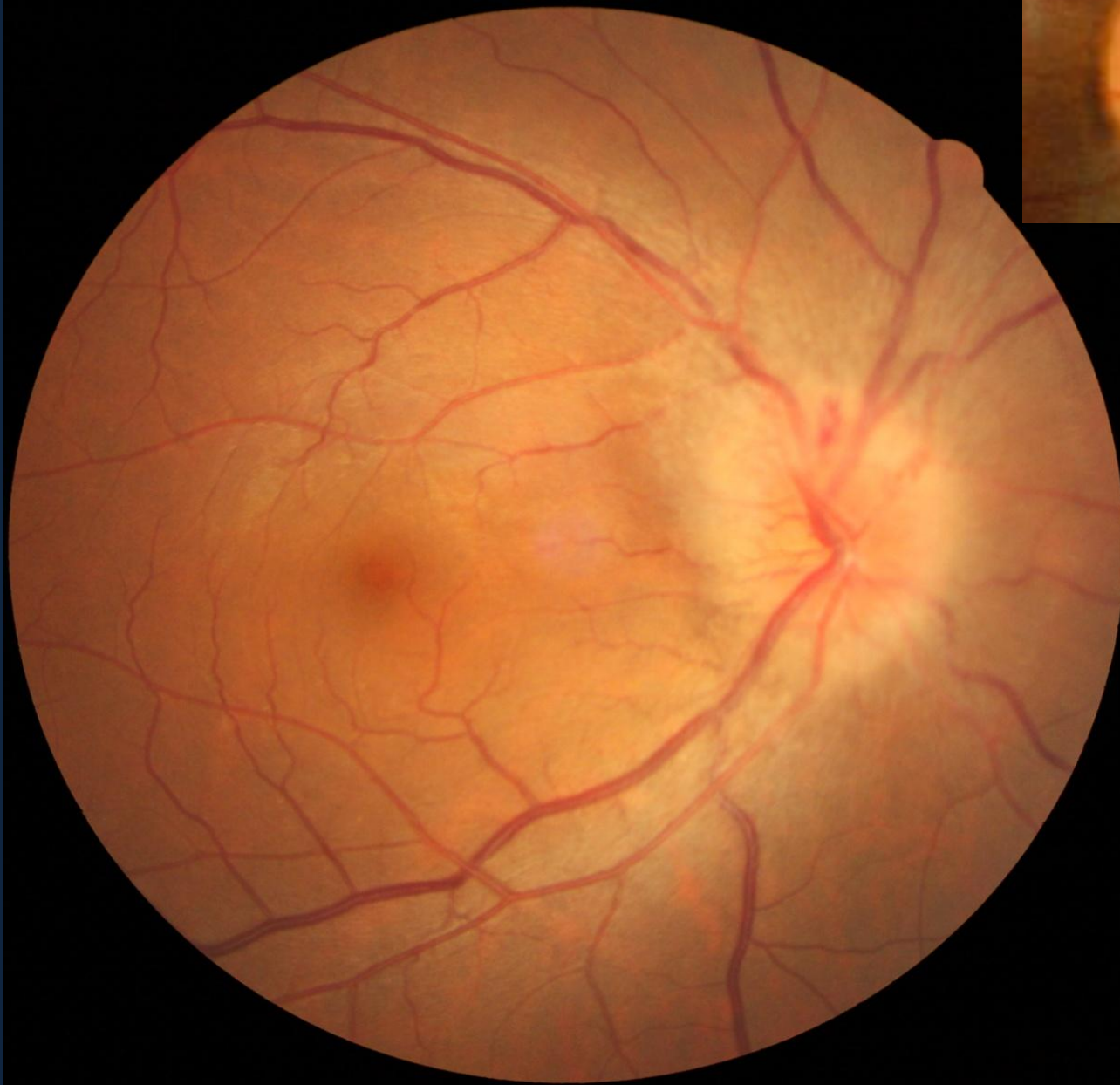
Hypertension and Retina

- Blockage of blood supply to optic nerve causes part of the nerve to die: Ischaemic Optic Neuropathy
- This leads to sudden permanent vision loss.
- As retina and optic nerve cannot be replaced death of these tissues causes permanent vision loss.

Ischaemic Optic Neuropathy



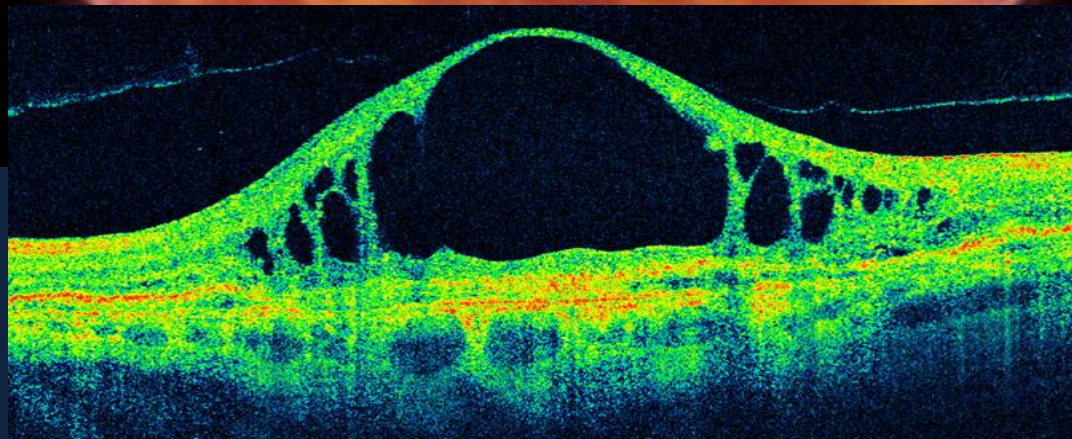
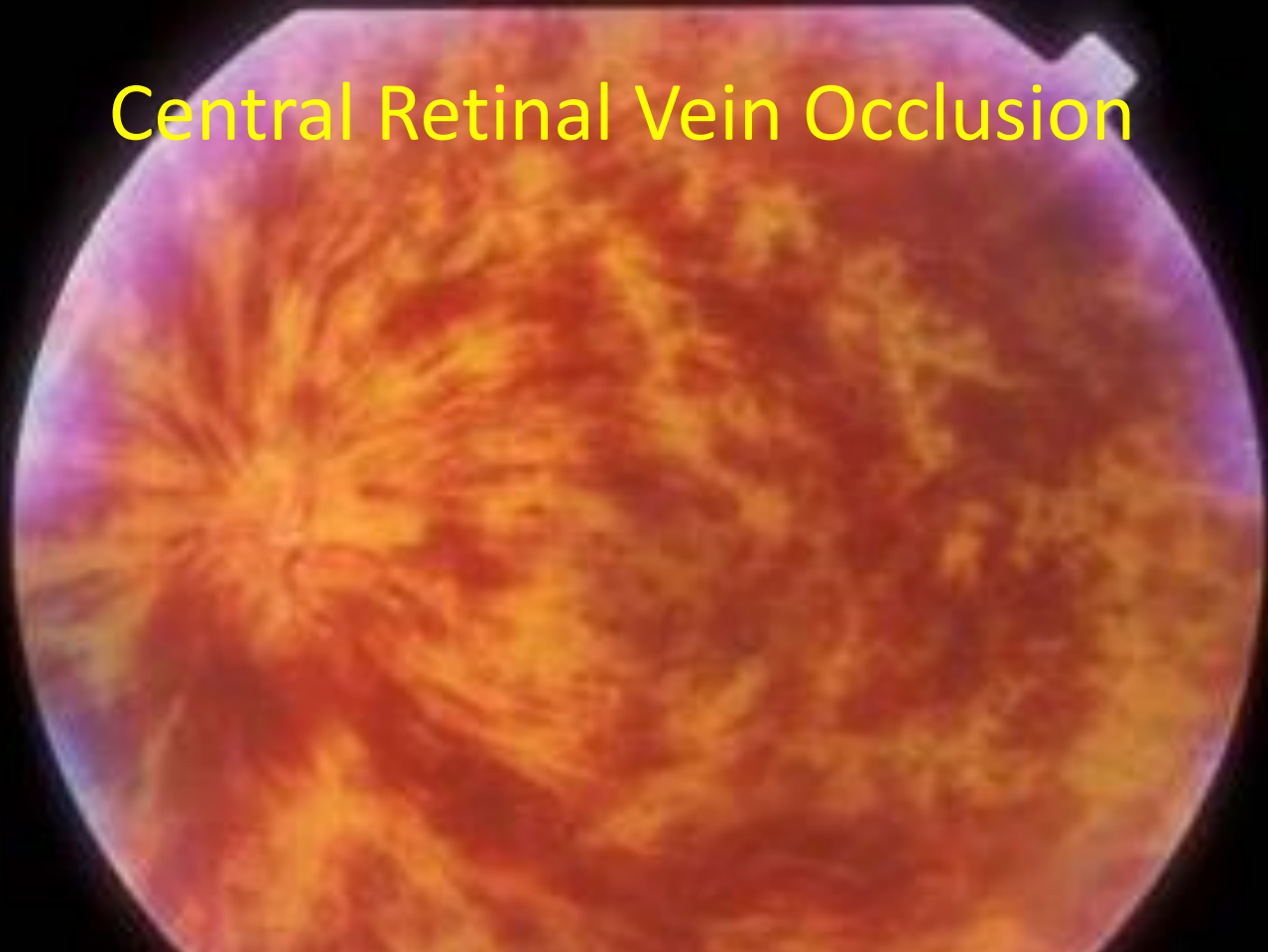
Ischaemic Optic Neuropathy



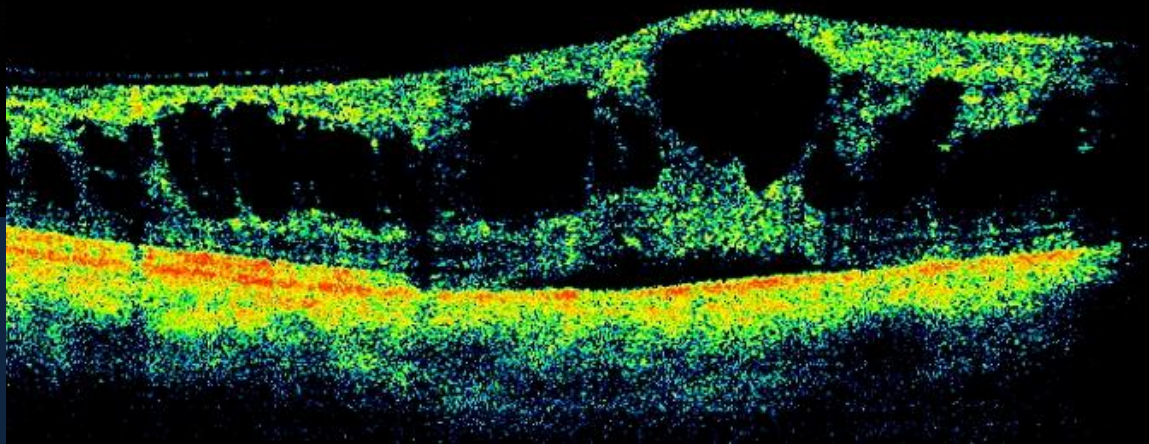
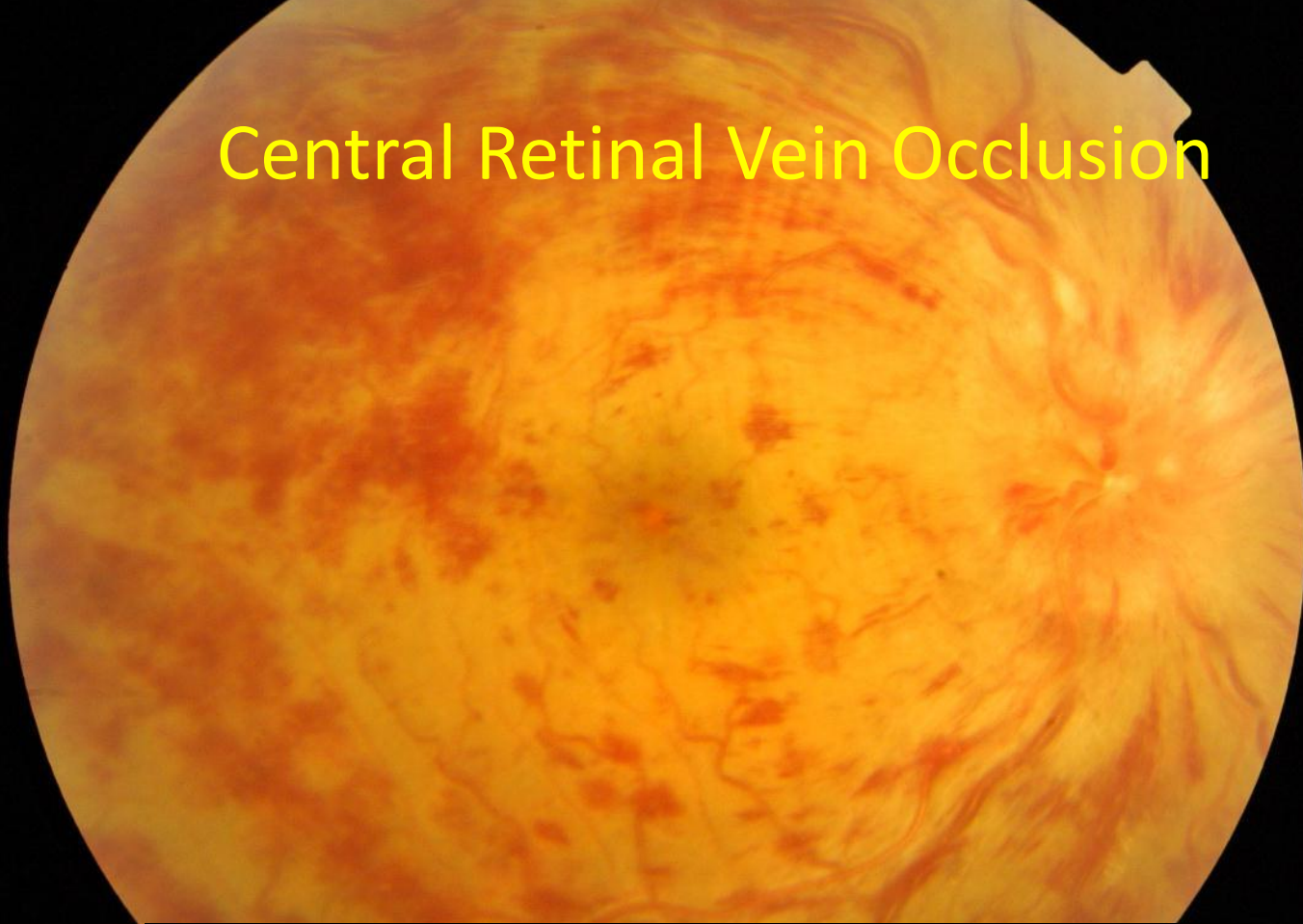
Hypertension and Retina

- Closure of veins, the outflow channels, namely central retinal vein or branch retinal vein occlusion, causes increased back pressure leading to leakage, bleeding and swelling of retina (macular edema)
- Management of these requires retinal lasers to arrest vision loss, bleeding and retinal detachment.
- Swelling of the retina is treated with intravitreal injections of avastin or lucentis or steroids (tricort or ozurdex implant) every 4-12 weeks.

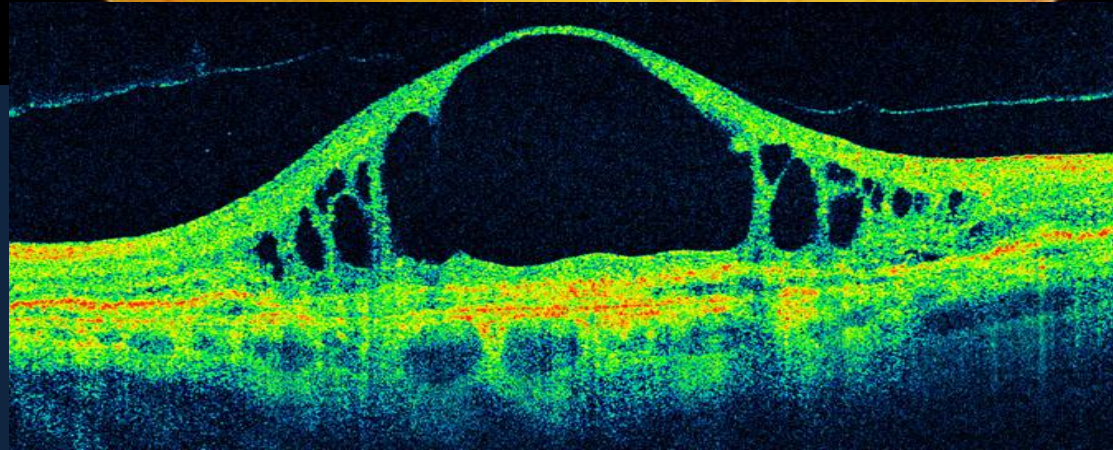
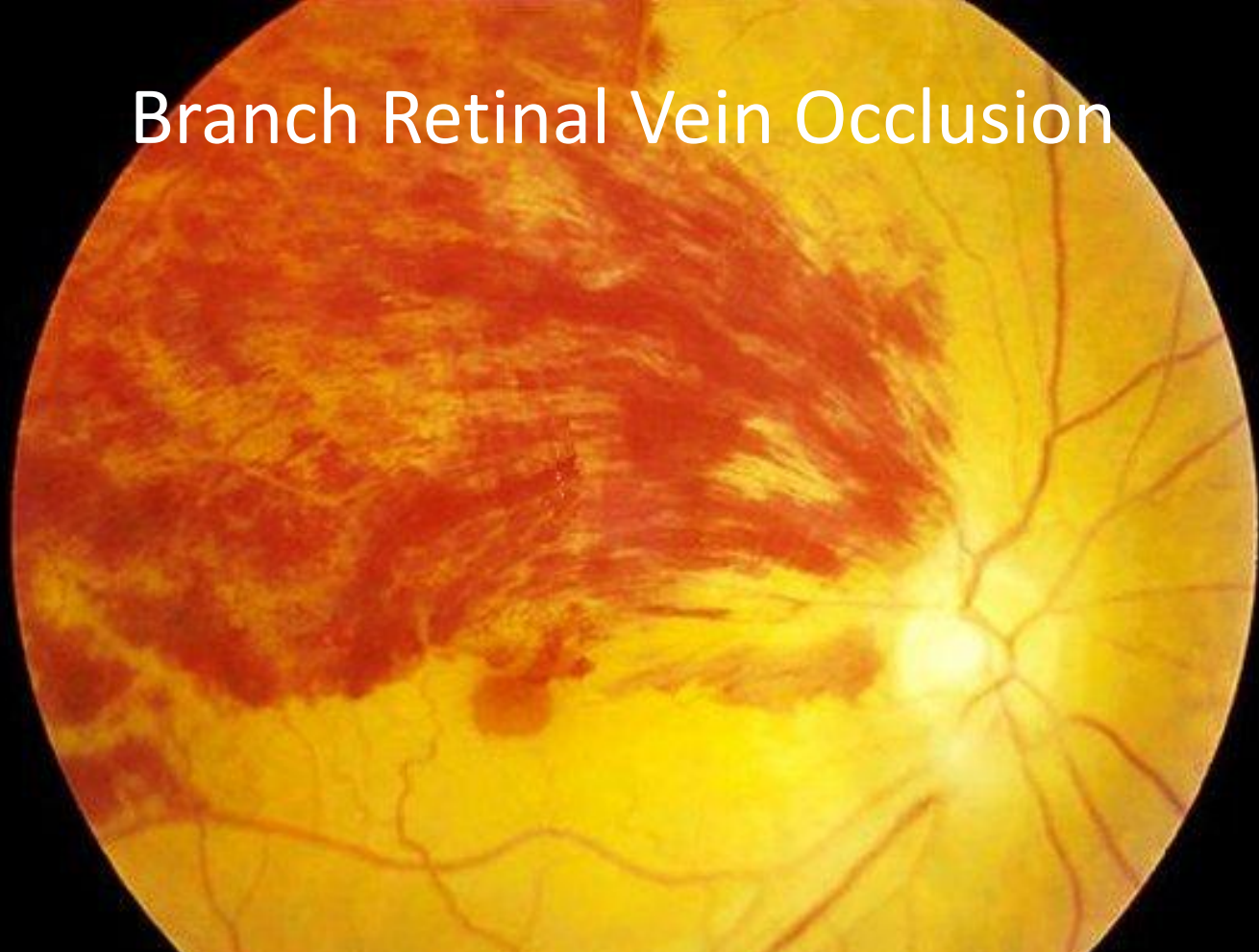
Central Retinal Vein Occlusion



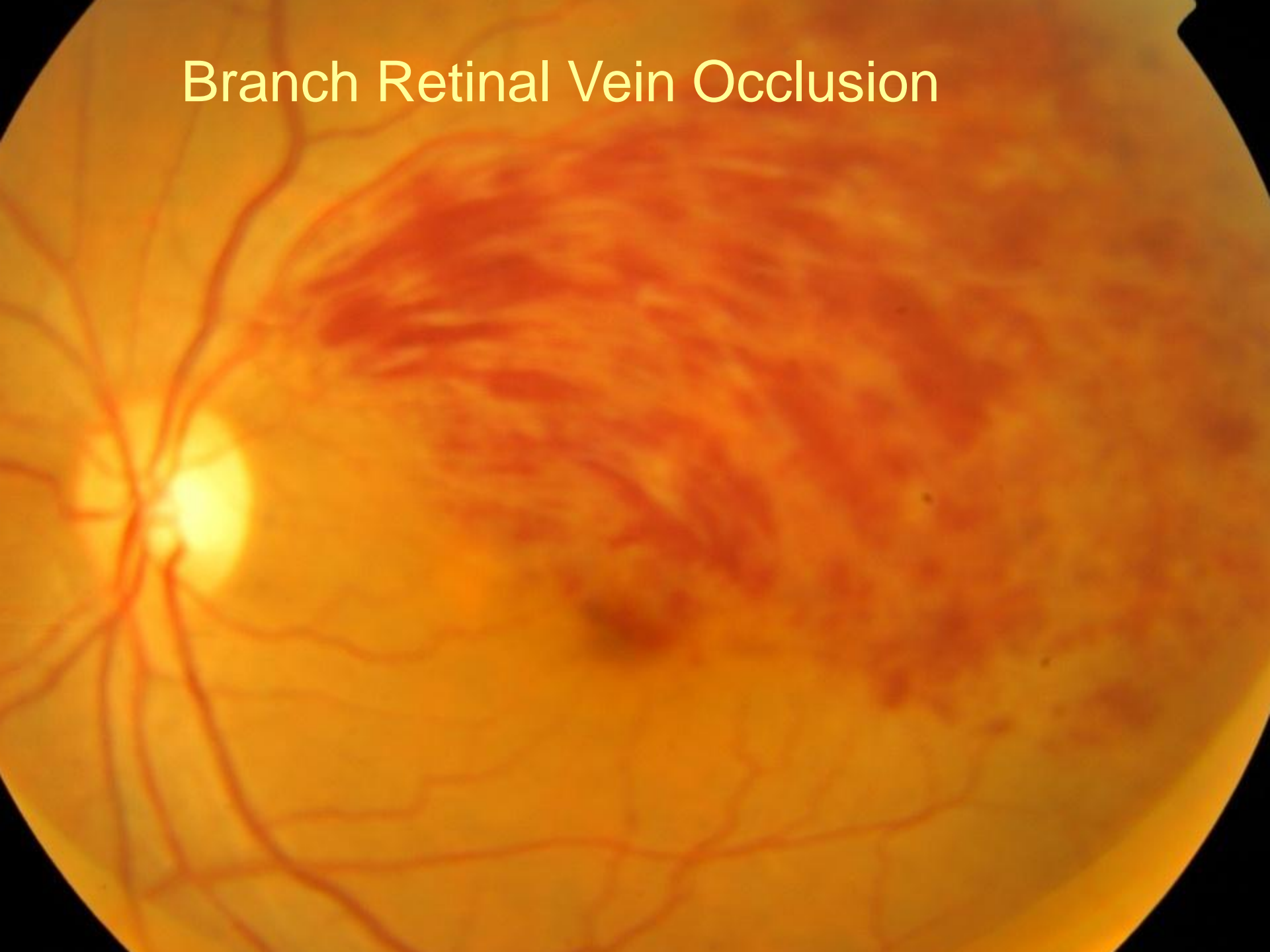
Central Retinal Vein Occlusion



Branch Retinal Vein Occlusion



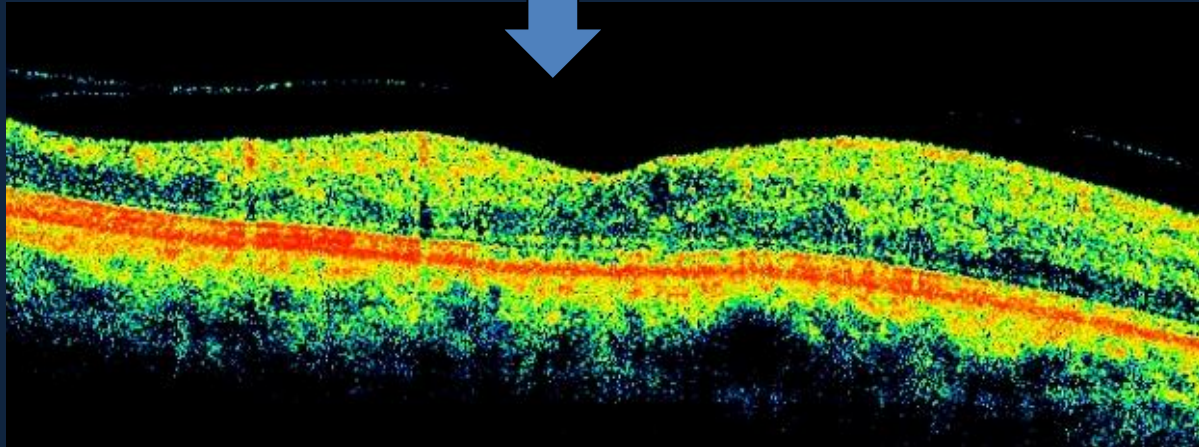
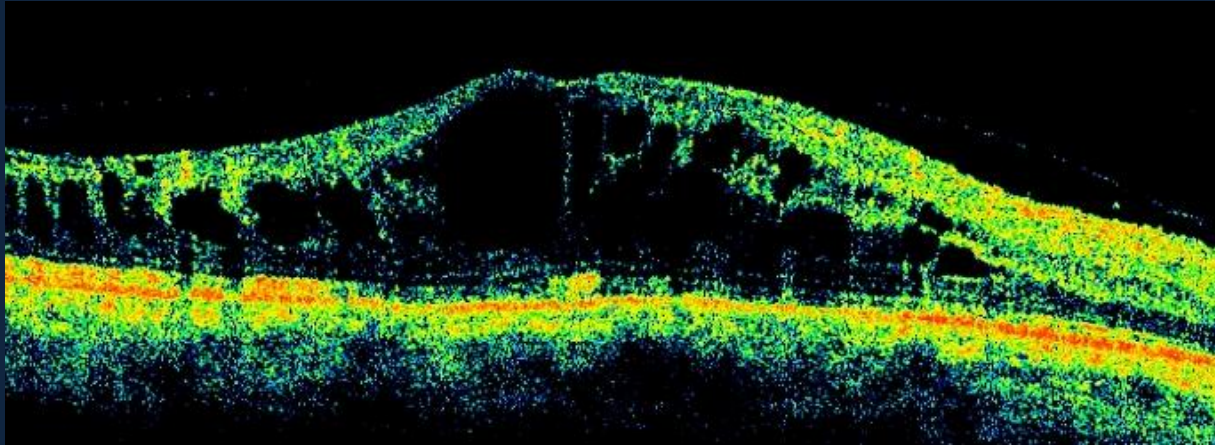
Branch Retinal Vein Occlusion



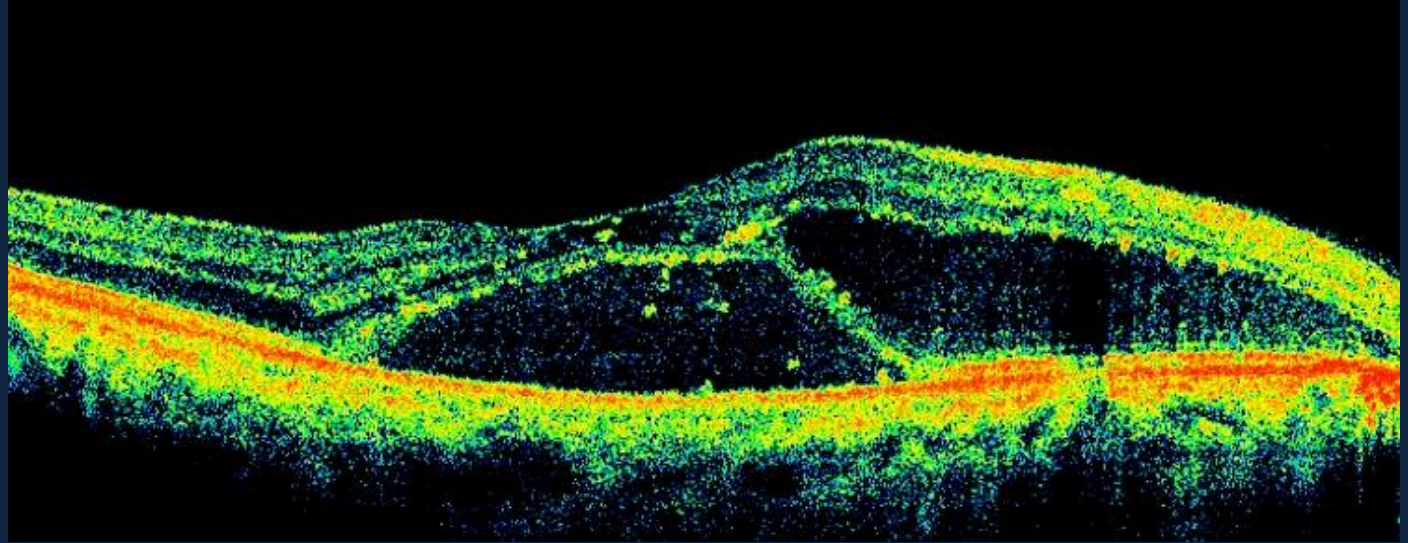
Hemi-Retinal Vein Occlusion



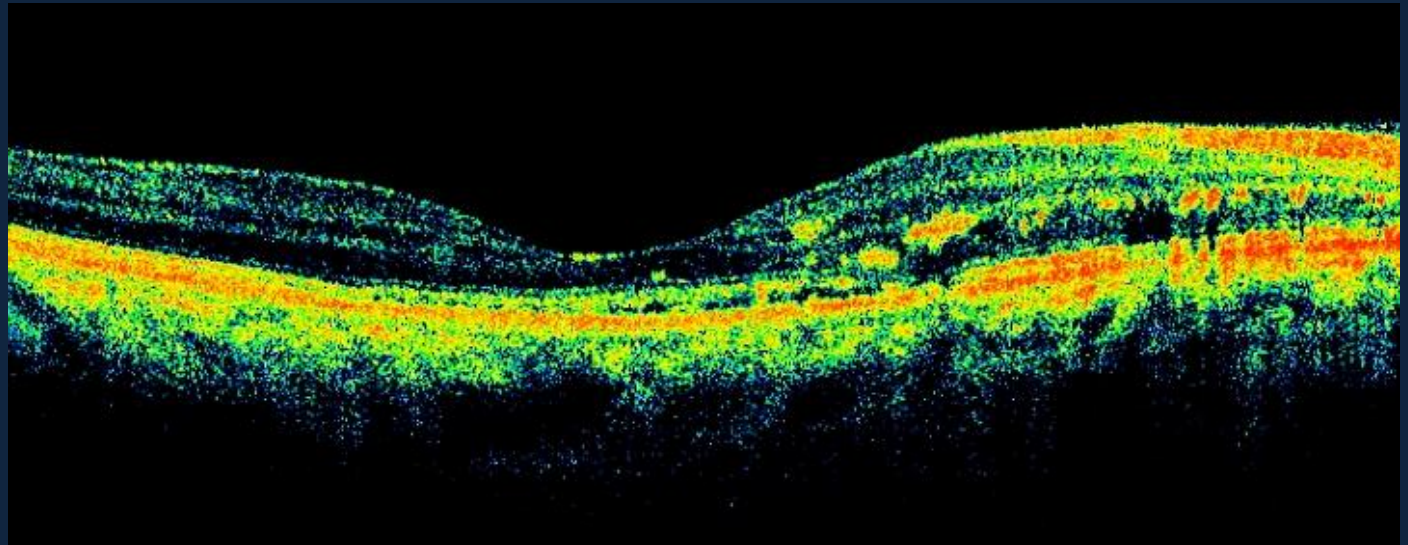
Injections

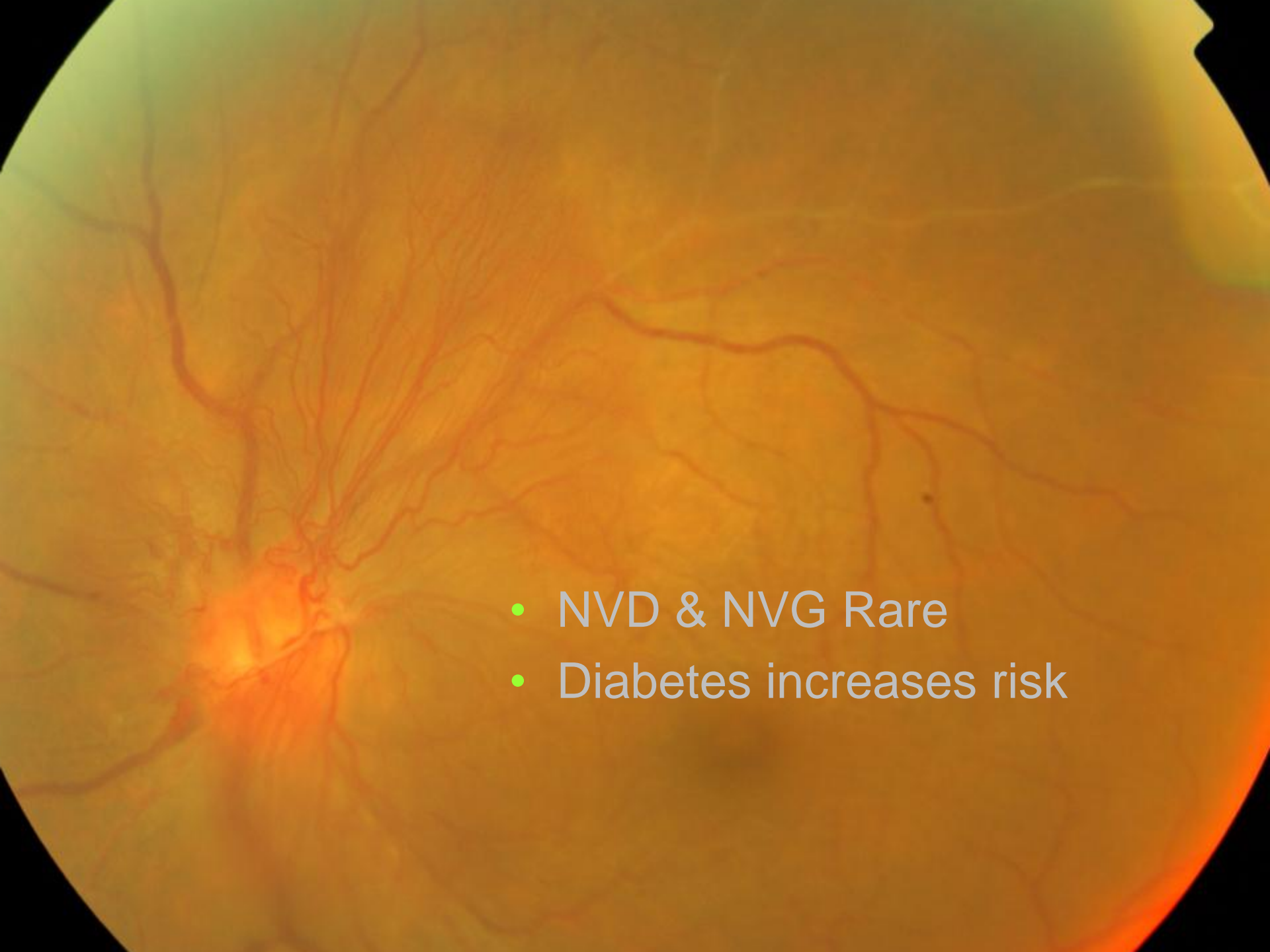


BRVO

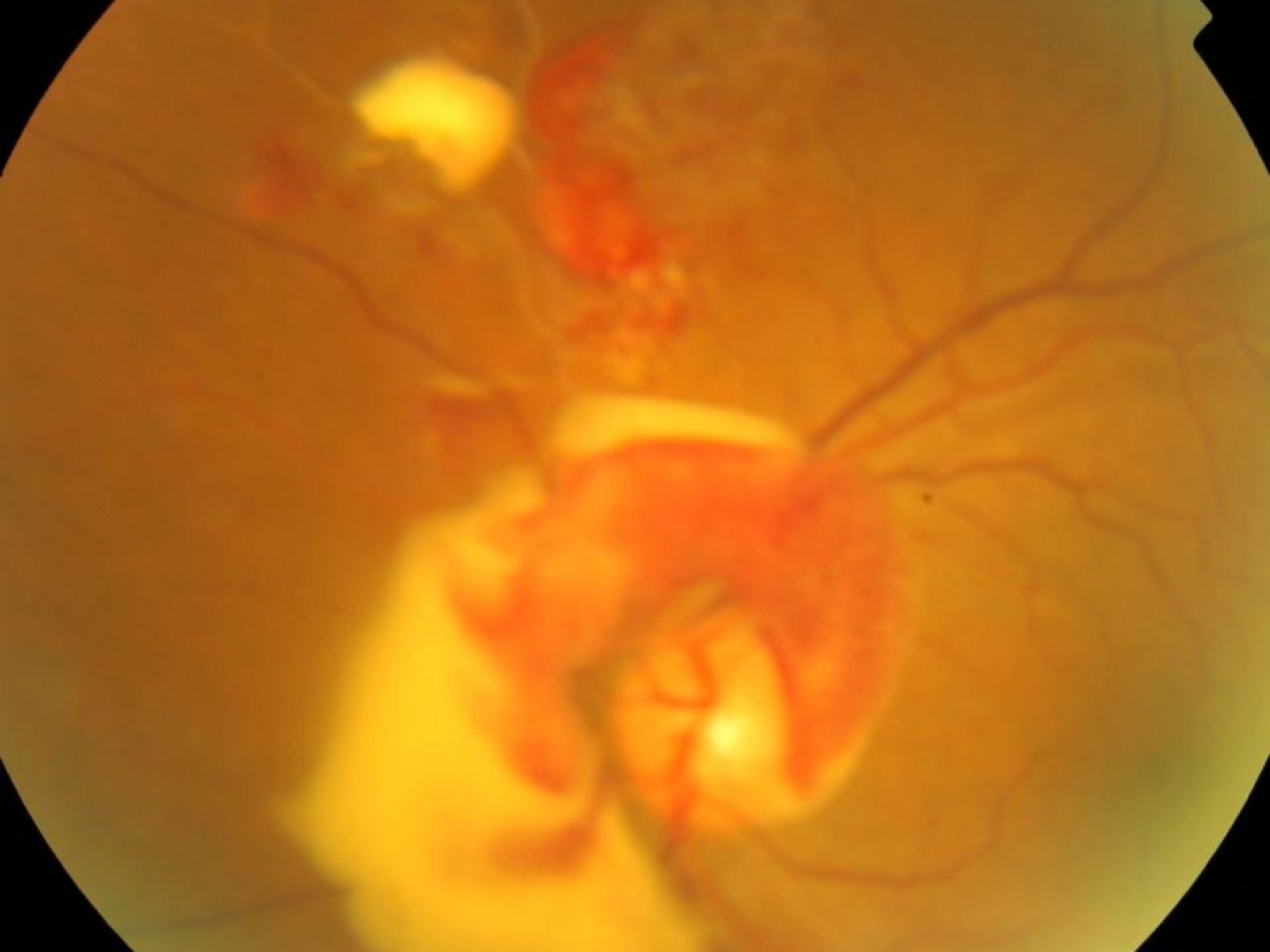


Avastin

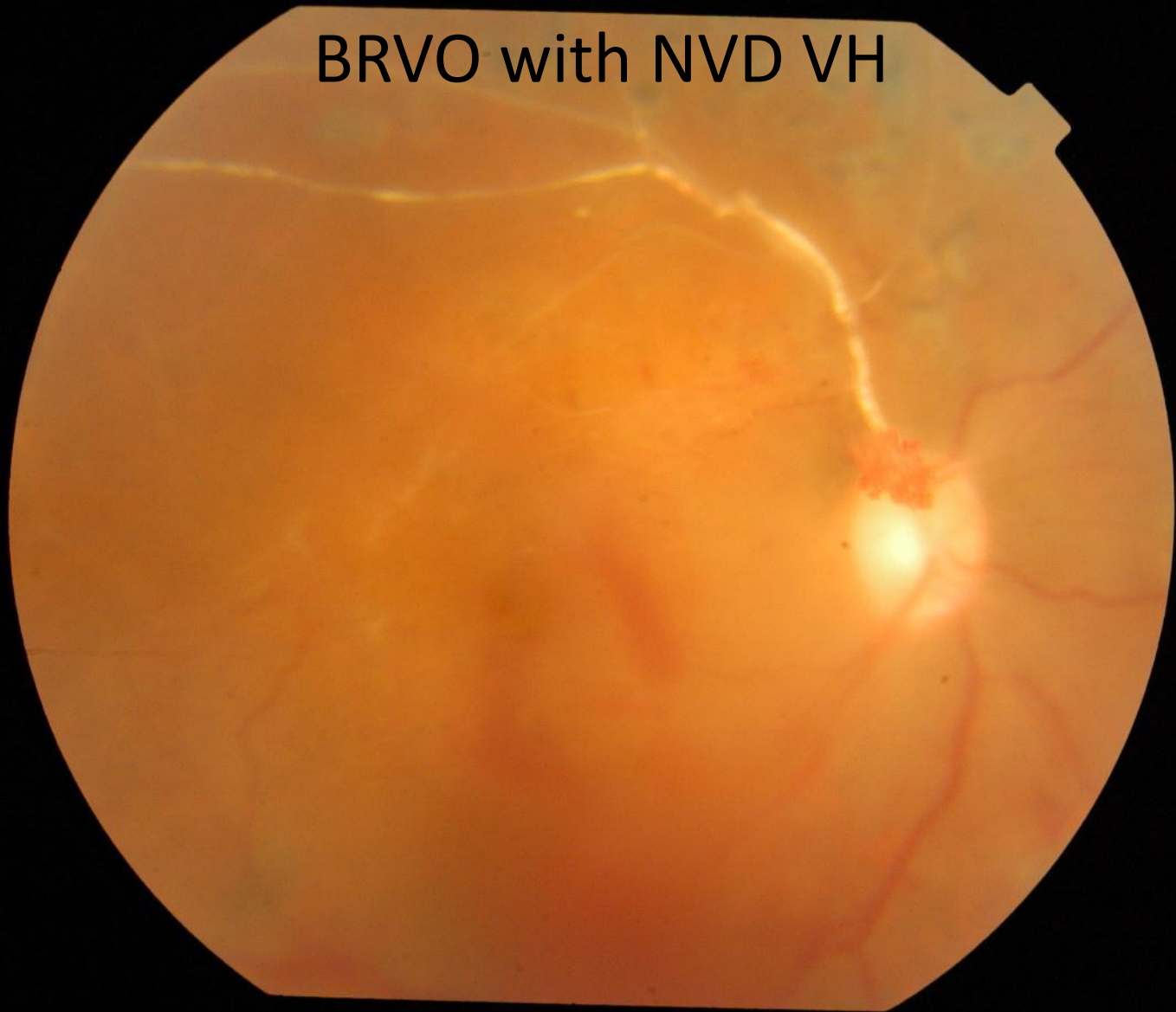




- NVD & NVG Rare
- Diabetes increases risk

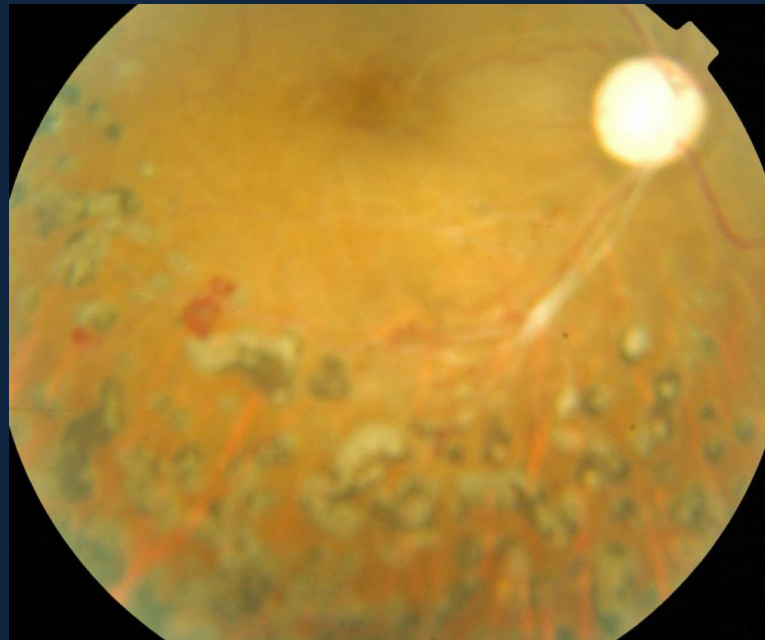


BRVO with NVD VH



Preventing vision loss

- Yearly retina check
- Retinal laser abnormal blood vessels seen



Sector Laser



Conclusions

- Maintain good general health after age 45 years
- Regular Physical Exercises

Conclusions

- Diet modification: Vegetables, fruits rich, low on carbohydrates, sugars and fats
- Vitamin supplements



Conclusions

- Stop Smoking/ alcohol
- Sunglasses/ Cap



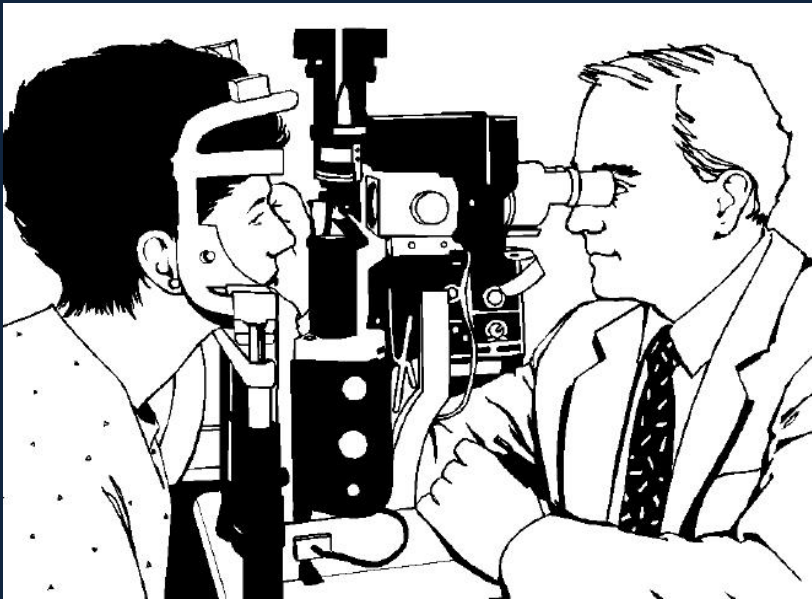
Conclusions

- Annual health checks for early detection of diabetes, hypertension, raised cholesterol etc
- Strict control of these diseases



Conclusions

- Eye check every 2-3 years after age 45 years
- Retina check every year for those with diabetes, family h/o AMD





Eye Department at Apollo Hospitals

7 Sub-specialities

1. Cornea
2. Cataract
3. Glaucoma
4. Lids, Orbit and Plastic surgery
5. Squint
6. Retina
7. Uveitis



Total care under one roof

- Diabetes control
- Hypertension management
- Lipids control
- Nephrology management
- Excellent anaesthesia and ICU support for critically ill patients

Thank you!

