Diabetic Eye Screening

What is Diabetic Eye Screening?

Diabetic eye screening screens patients to look for a condition called Diabetic Retinopathy which damages the retina.

Due to diabetes the increased level of glucose in the blood can cause the blood vessels on the retina to become damaged.

This can lead to sight loss and blindness.

The aim of the Diabetic Eye Screening Service is to reduce the risk of sight loss among people with diabetes by the early detection and treatment of retinopathy. It is a key part of diabetes care.

The Beginning of Diabetic Eye Screening

- In 2003 it was announced in the delivery strategy of the National Service Framework for Diabetes that Diabetic Eye Screening had to be established for all Diabetic Patients.
- The UK was the first nation in the world to introduce a systematic national screening programme for Diabetic Retinopathy.
- By 2008 Retinal Screening Programmes covered the country.

Barnsley Programme

- Diabetic eye screening was first introduced in Barnsley in the mid 1990's
- Barnsley service was one of only a handful of programmes in the UK which had been set up with the aim of preventing sight loss amongst people with Diabetes.
- Dr Bryant, who was an Ophthalmologist, established the service for Barnsley. Within her team she had 1 trained nurse and 2 health care assistants.
- At this time we used fundus photography but the images had to be sent away and slides produced.

Barnsley and Rotherham Programme

- When national Diabetic Eye Screening Services were set up Barnsley was already well established and in 2007 they also took on the Rotherham area to create Barnsley and Rotherham Diabetic Eye Screening service we have today.
- At the end of 2007 the service had 19,843 patients.
- The service invested in more staff and more equipment. Taking it up to 8 screening staff, Dr Bryant, and 6 cameras.

Barnsley and Rotherham Diabetic Eye Screening Programme Today

- Diabetic Eye Screening Programme in Barnsley and Rotherham provides annual screening for anyone with diabetes who is registered with a local GP.
- We screen all patients with Type 1 and 2 diabetes from the age of 12 once a year.
- We see pregnant ladies every three months.
- We have 33012 patients.
- We have 6 clinics running daily and cover 4 sites.
- We see over 900 patients per week.
- We have a team of 16 (screening staff and admin). We are the biggest Diabetic Eye Screening Service in South Yorkshire and Bassetlaw. We are receiving on average 250 referrals a month.

The Screening process

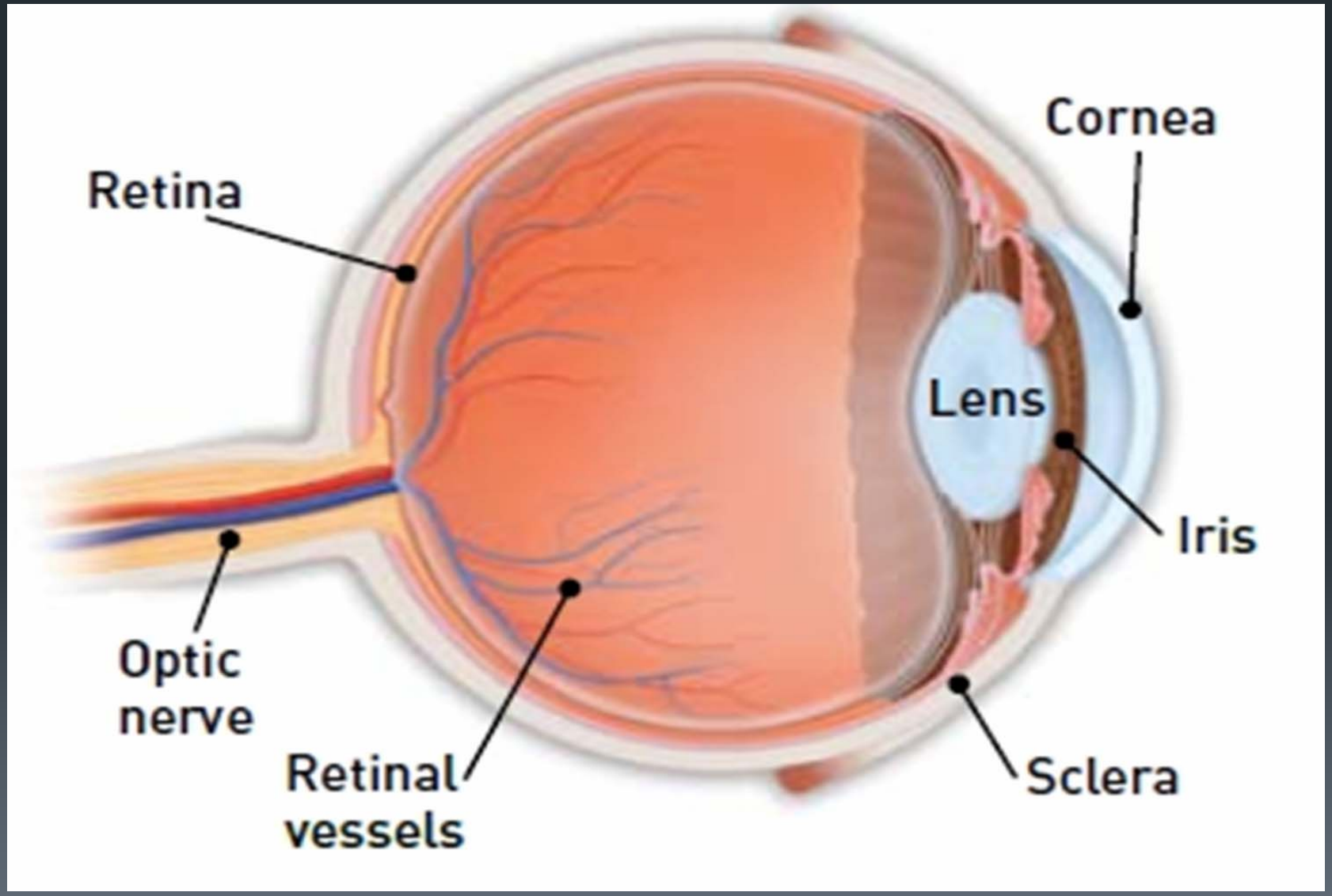
How is Diabetic eye screening carried out

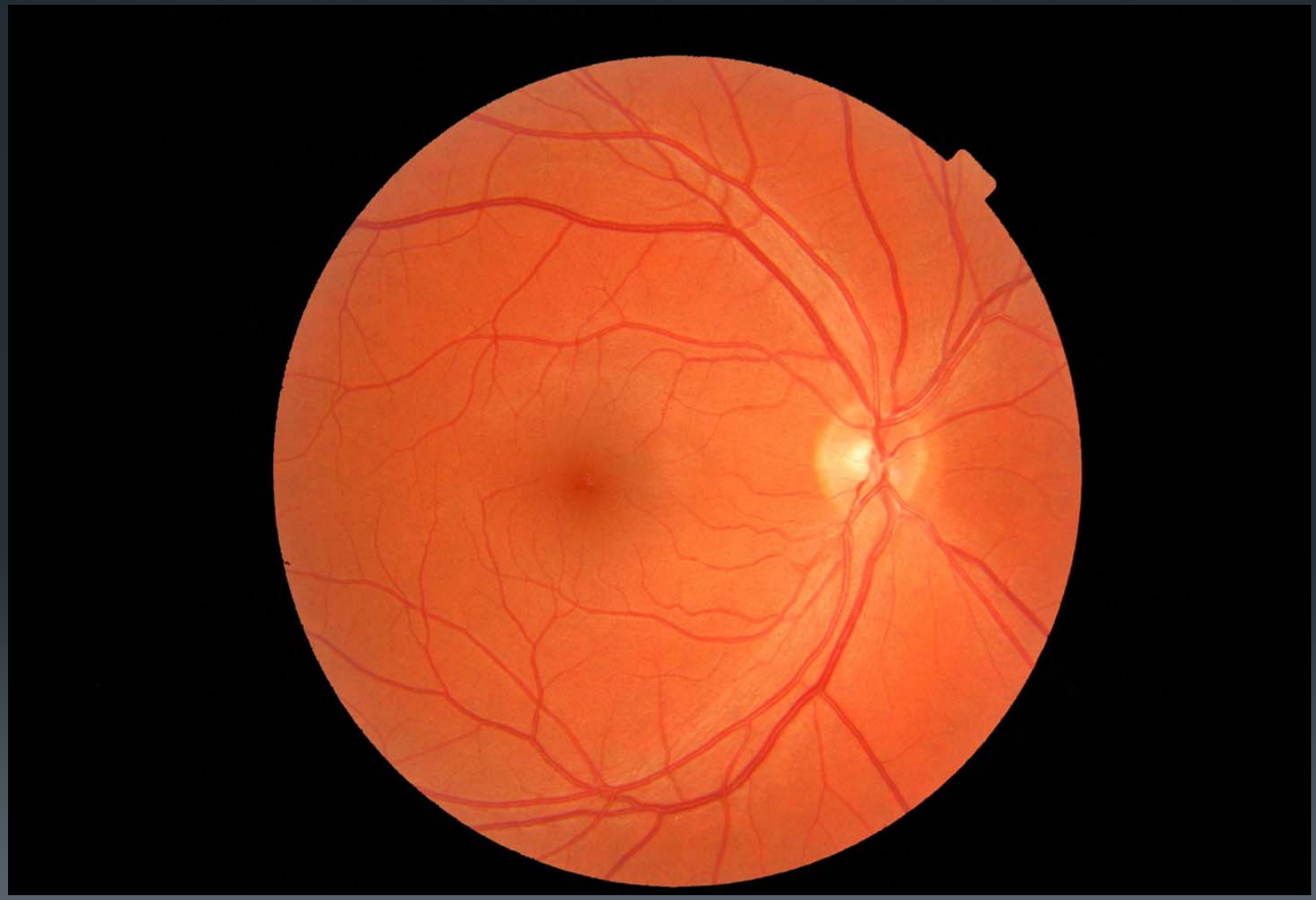
- Routine annual check for all diabetic patients to look for any diabetic changes to the retina.
- All diabetic patients are invited from the age of 12.
- This is done by using digital fundus photography.
- All images are reviewed and then given a grade and an outcome depending on the disease present.
- The grade decides what further action is required.

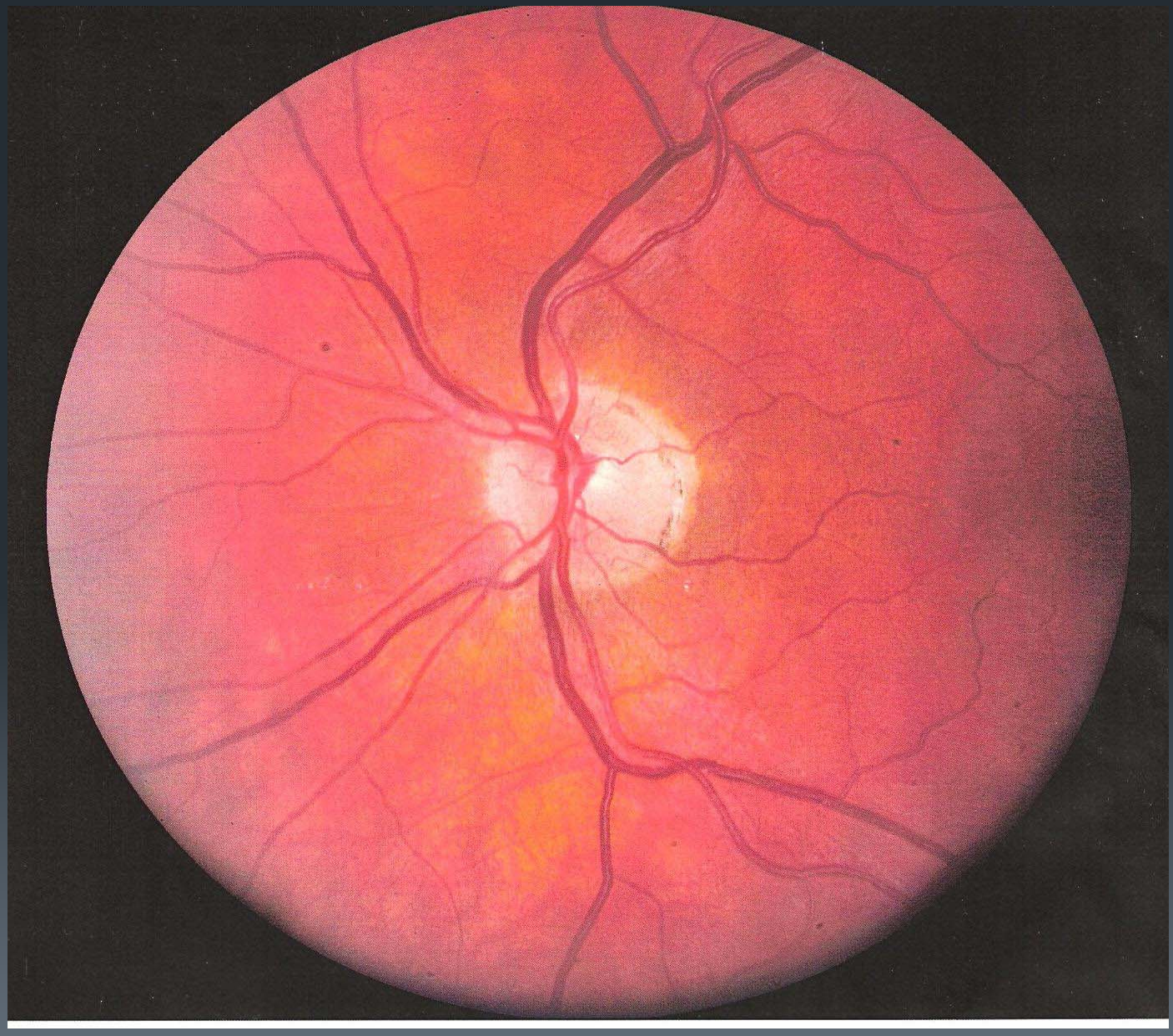
Screening appointment

- When a patient attends for their screening appointment we take their visual acuity and eye drops are instilled to dilate the pupils. We dilate the pupils to ensure we have clear images so we can see all of the retina. These drops can last for up to 6 hours so we advise the patient not to drive.
- The eye drops take 10-15 minutes to work and then we take 2 digital fundus photographs of each eye. (Macular view and nasal view)
- When this is complete and the images are saved the patient's appointment is complete.
- The appointment will take roughly 30 minutes.


TOPCON
TRC-NW6S
NHS


Retina
Cornea
Lens
Iris
Optic nerve
Retinal vessels
Sclera

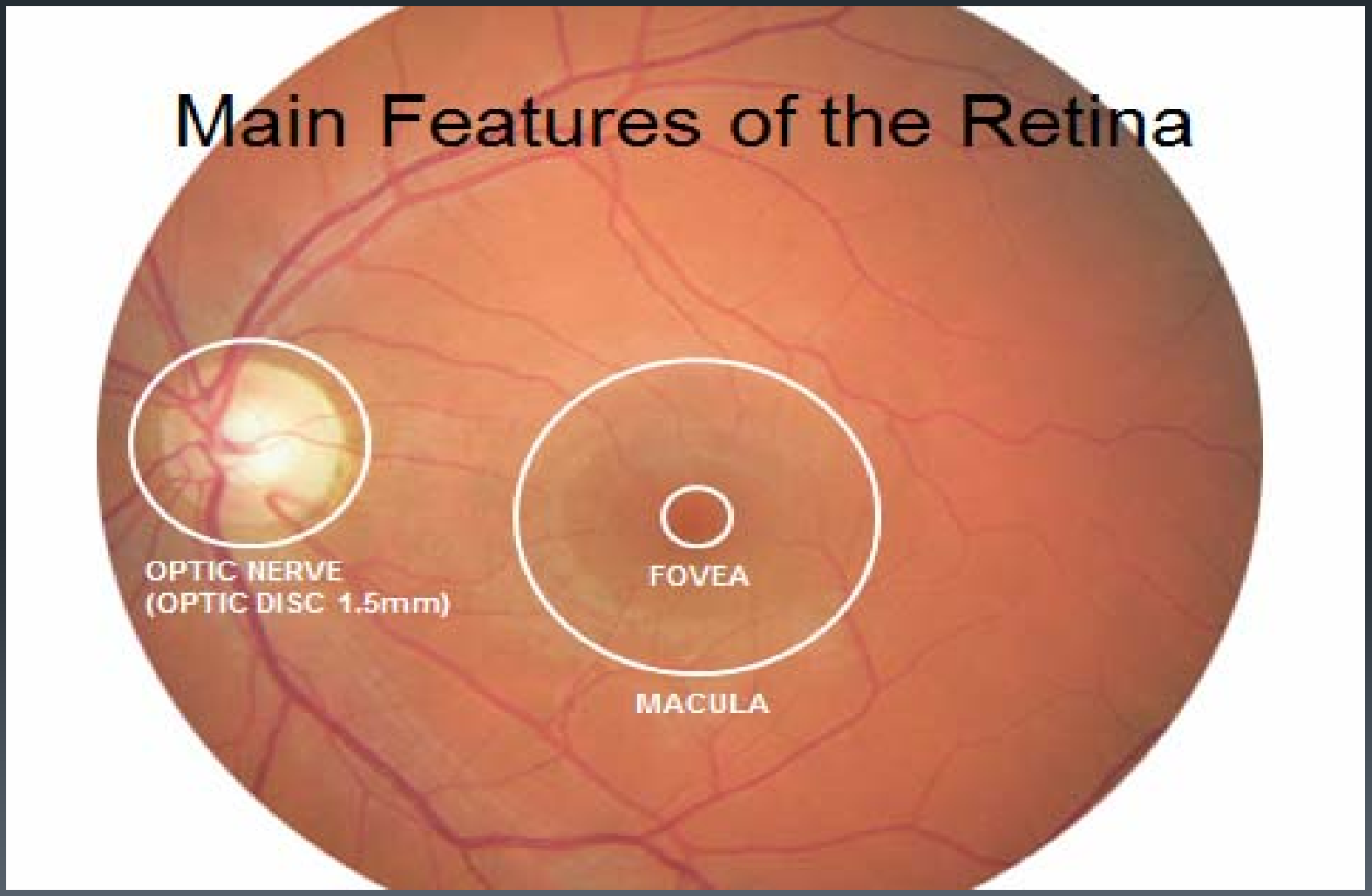




- When the images are taken these are then sent to the grading queue for a qualified grader to review the image to look for any diabetic retinopathy and to give the image a retinopathy grade.
- The patient will receive a letter with their results via post and their GP is also sent a letter. This will be within 4 weeks of the appointment.

Grading Images

- When we are grading images we are looking for any signs of damage to the retina.
- A delicate network of blood vessels supplies the retina with blood. When those blood vessels become blocked, leaky or grow haphazardly, the retina becomes damaged and is unable to work properly.
- There are 3 levels of retinopathy - background, pre-proliferative and proliferative retinopathy.
- If any retinopathy is at the macular, this is maculopathy.
- Each image has a retinopathy and macular grade.


Main Features of the Retina
OPTIC NERVE
(OPTIC DISC 1.5mm)
FOVEA
MACULA

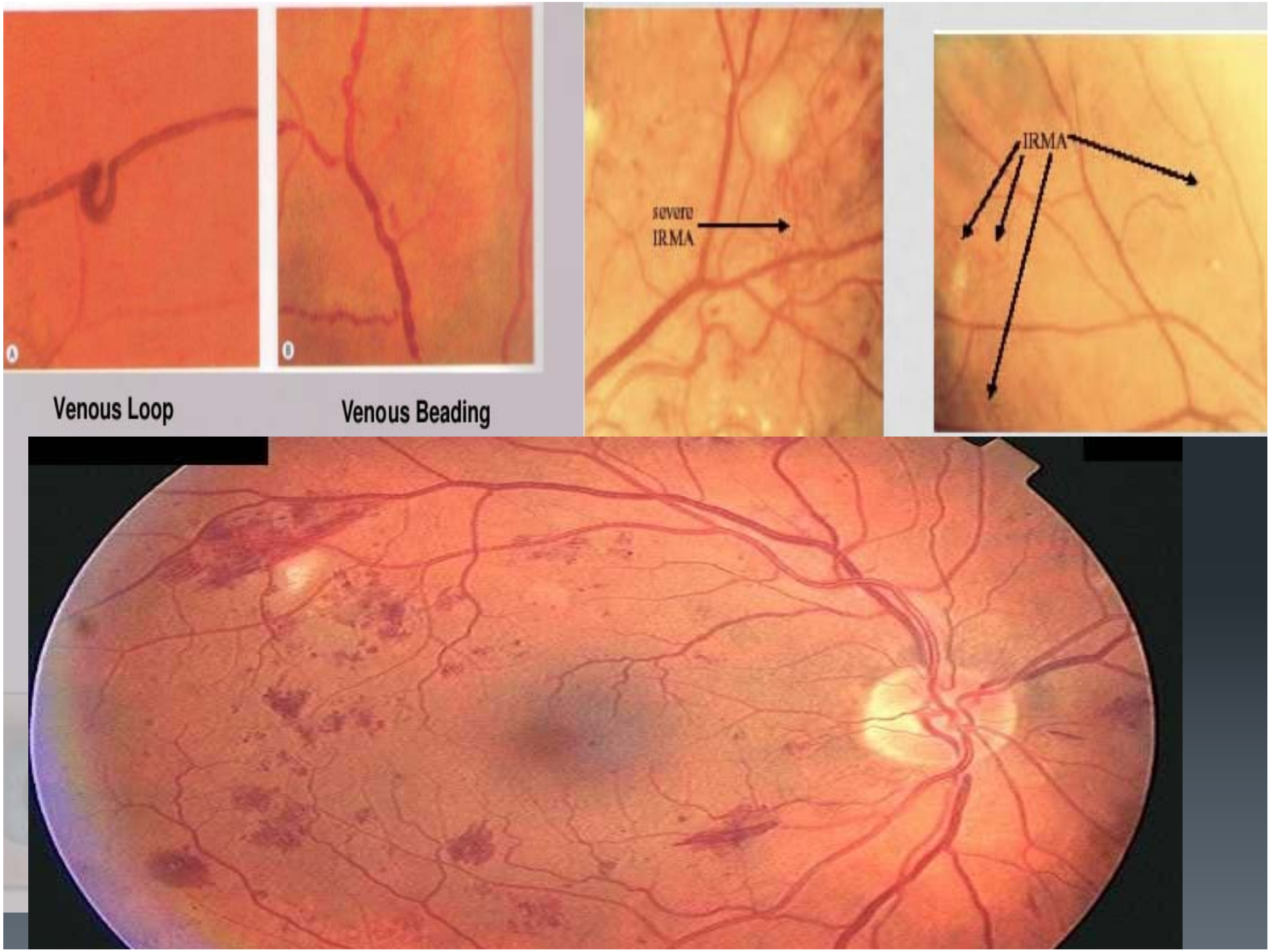
- When grading we have national pathways to follow.
- We carry out feature based grading. Different features are identified with different levels of retinopathy.
- Each grader has a diploma in Diabetic Eye Screening and has to undertake a monthly grading test and achieve a set level to continue grading.

Background Retinopathy

- The earliest visible change to the retina is known as background retinopathy. This will not affect the eyesight, but it needs to be carefully monitored. The small blood vessels in the retina become blocked, they may bulge slightly and may leak blood (haemorrhages) or fluid. This does not require treatment.

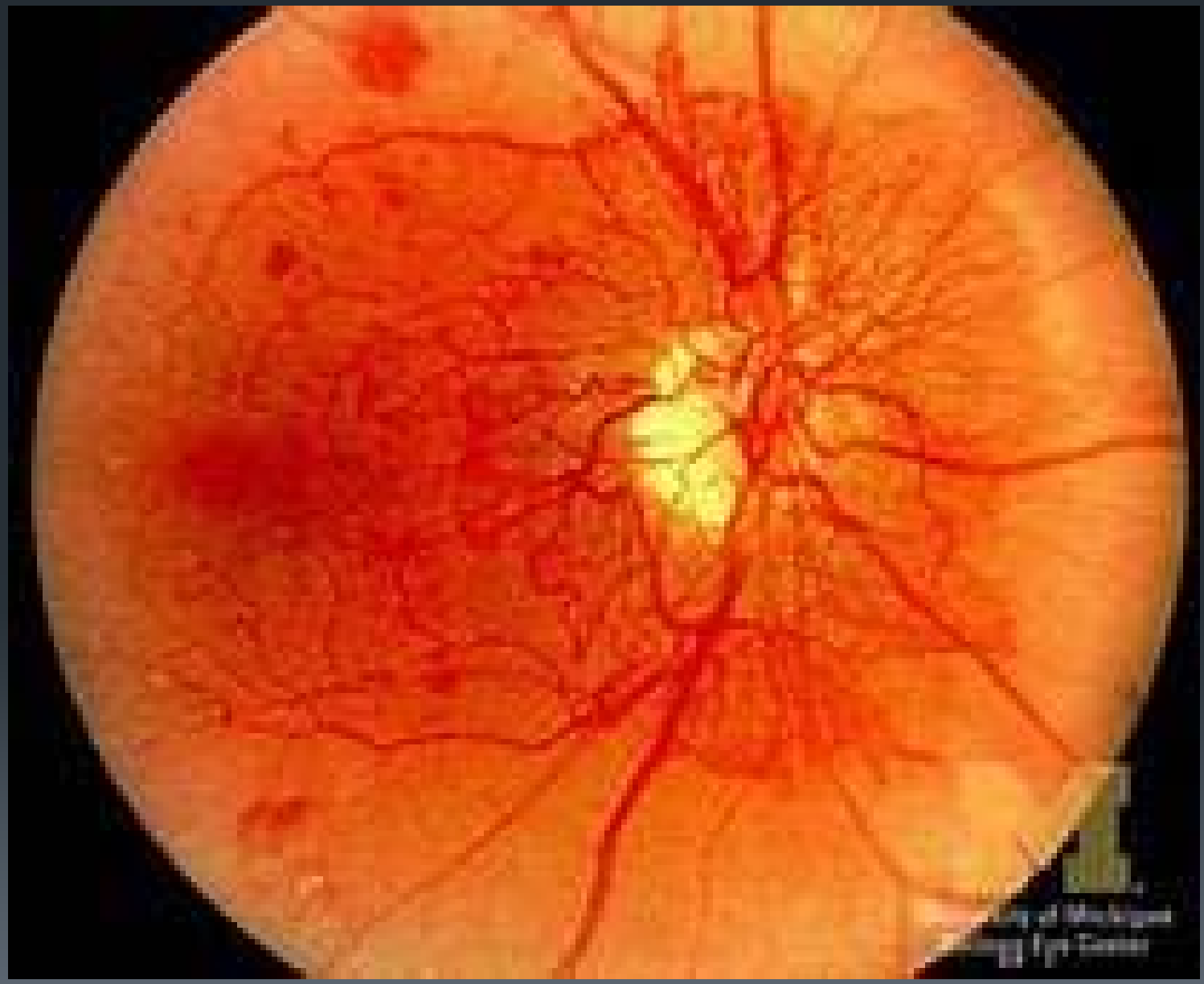
Pre-proliferative Retinopathy

- Pre-proliferative retinopathy is the term given for further changes in the retina as it becomes starved of oxygen and nutrition due to the blood vessels constricting.
- These features are multiple blot haemorrahages, venous loops, venous beading and Intraretinal Microvascular Abnormality (IRMA)
- These patients may be referred into the Eye Department or kept within Diabetic Eye Screening within the surveillance pathway and will be seen at more regular intervals. This is the decision of the clinical lead and/or lead nurse.


A
Venous Loop
Venous Beading
IRMA
IRMA

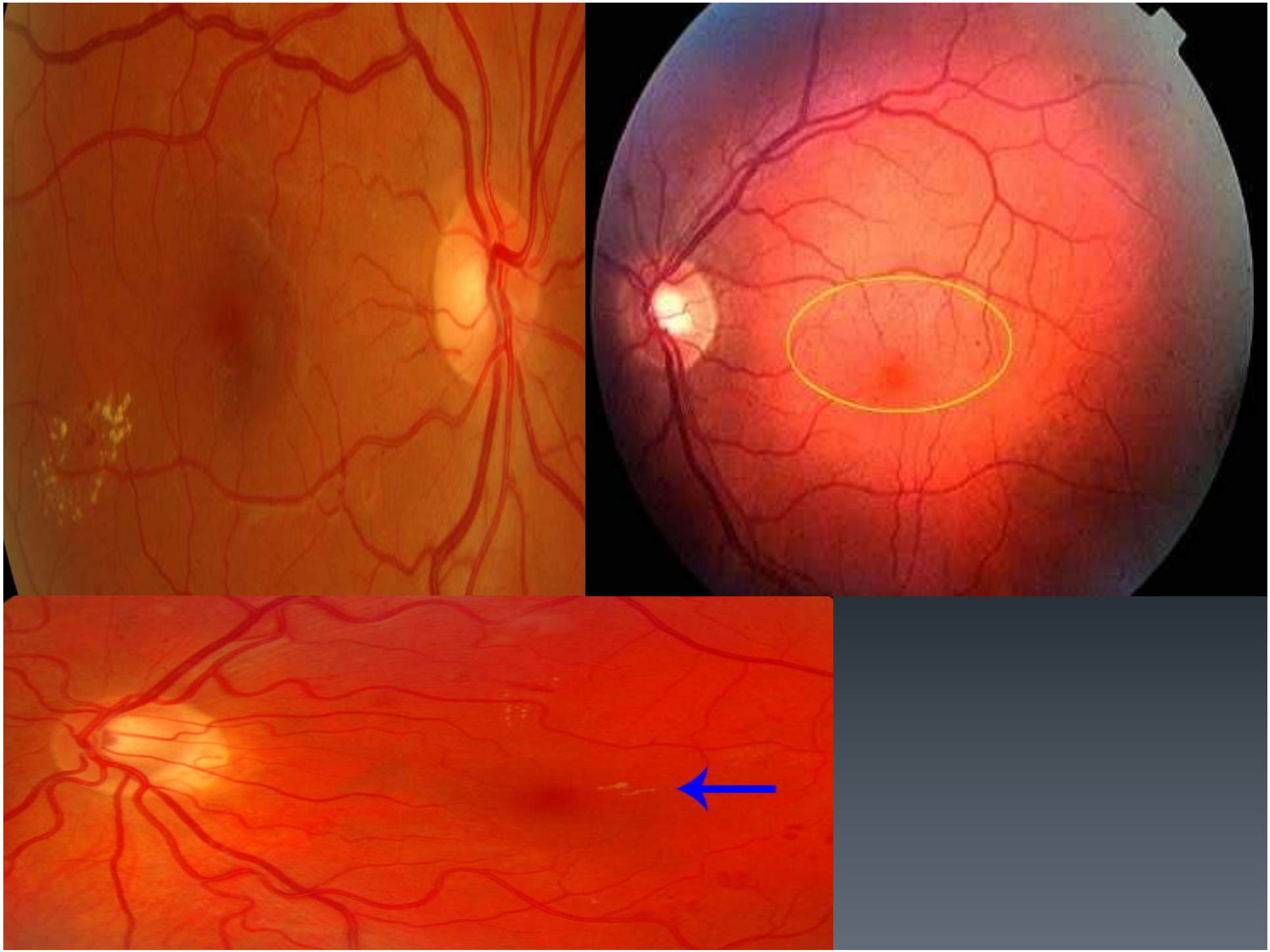
Proliferative Retinopathy

- Proliferative retinopathy develops when large areas of the retina are deprived of a proper blood supply because of blocked and damaged blood vessels. This stimulates the growth of new blood vessels to replace the blocked ones. These growing blood vessels are very delicate and bleed easily. The bleeding causes scar tissue that starts to shrink and pull on the retina, leading to it becoming detached and possibly causing vision loss or blindness.
- These features are new vessels, fibrosis, pre retinal haemorrhage and vitreous haemorrhage.



Maculopathy

- Maculopathy is when the background retinopathy is at or around the macula. The macula is the most used area of the retina. It provides our central vision and is essential for clear, detailed vision. If fluid leaks from the enlarged blood vessels it can build up and cause swelling. This can lead to some loss of vision, particularly for reading and seeing fine details.
- Features of Maculopathy exudate within 1 disc diameter of the centre of the fovea, group of exudates bigger than half a disc diameter and a micro aneurysm 1 disc diameter of the centre of the fovea with a vision of 6/12 or worse.

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Treatment

- When a patient is referred to the Eye department for a further review and opinion if treatment is required, there are 2 different types of treatments available:-

  Laser and Intravitreal injections.
- Laser treatment - There are 2 types of laser treatment:-
- Pan-Retinal Photocoagulation - This is used to treat proliferative retinopathy.
- Focal laser treatment, often in combination with grid laser treatment, this is for treatment of maculopathy.
- Intravitreal injections – This is used in the treatment of maculopathy.

Failsafe

National Diabetic Eye Screening Programmes (DESPs) have developed failsafe processes as a back up mechanism to ensure that if something goes wrong in the screening pathway we can identify:-

- What is going wrong
- What action follows to ensure a safe outcome

Errors can often occur through system failures or individual error.

Failsafe within DESP

- Screening should be offered to the eligible population in a timely manner and those screened should receive their results, also in a timely manner, with sufficient information to understand them and be acted upon appropriately. Whether this be an annual recall or referral to Ophthalmology for example.

Ophthalmology Patients

- Any patients who DESP refer to ophthalmology have to be tracked by the Failsafe Co-ordinator.
- This is ensure continuity of care by Ophthalmology services to ensure appointments and any treatments needed are given in a timely manner depending on the severity of the condition.
- At present, Barnsley and Rotherham DESP have approximately 2400 patients under ophthalmology services.

Single Collated List (SCL)

- Every three months all 33,000 patients have to be validated which means we have to make sure that every one of those patients are in the correct pathway on the system.
- DESP have to request a list from the GP surgeries every three months to cross match with our patients to make sure we have every diabetic in Barnsley and Rotherham over the age of 12 and make sure they are coded correctly at the GP surgeries.
- DESP is responsible for updating the SCL through actions such as adding new patients, removing deceased and those moved out of the area.

- Once DESP have compared the lists we send the GP a spread sheet back with any discrepancies highlighted. For example, any referrals DESP have not received or patients who are incorrectly coded on the GP list.
- Any patients who have not been referred by GP practices for 5 months or more after diagnosis have to be tracked to ensure no harm has occurred and these have to be reported to Public Health England.
- We also have to validate those patients that are inactive on the system for example patients that have moved out of the area, opted out and screened in another area.

- Even though GP practices have the responsibility to refer in diabetic patients at diagnosis, the failsafe is there to ensure all patients are captured and validated.
- My role is to continually check the service to ensure everything is where it should be and the team, including screeners and admin staff, work together to ensure all patients are seen and have a safe outcome.

IMAGE QUIZ

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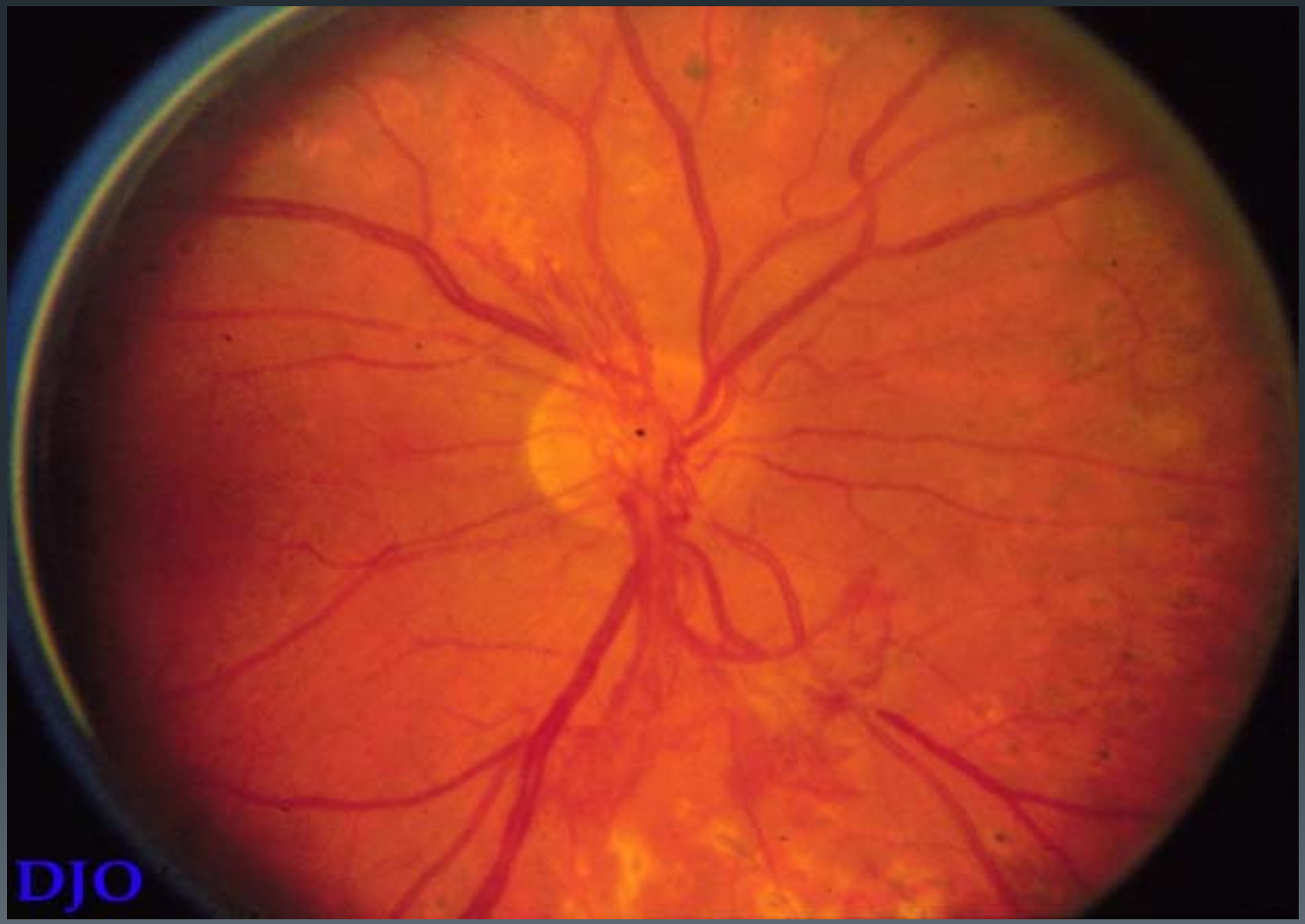

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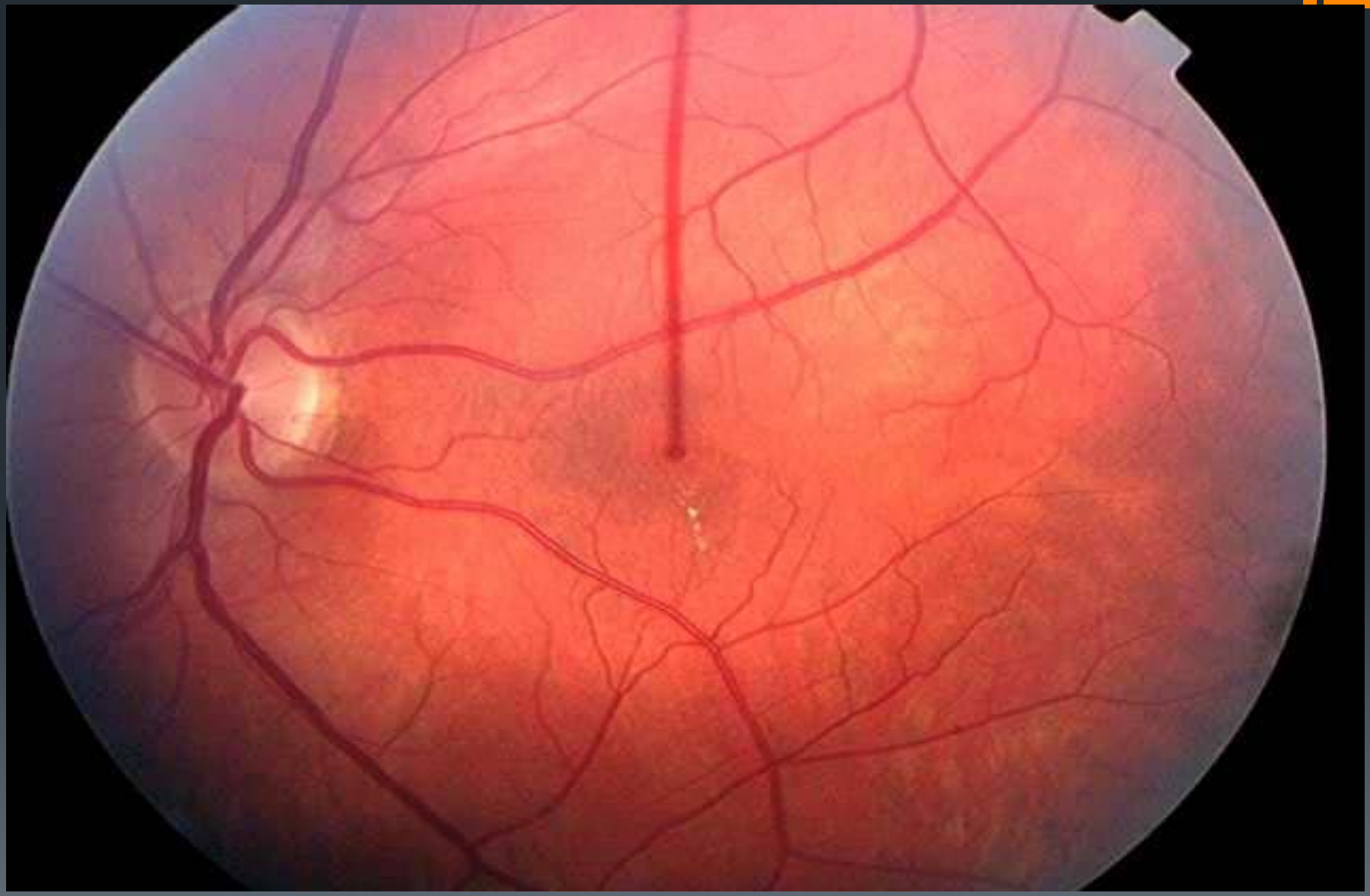

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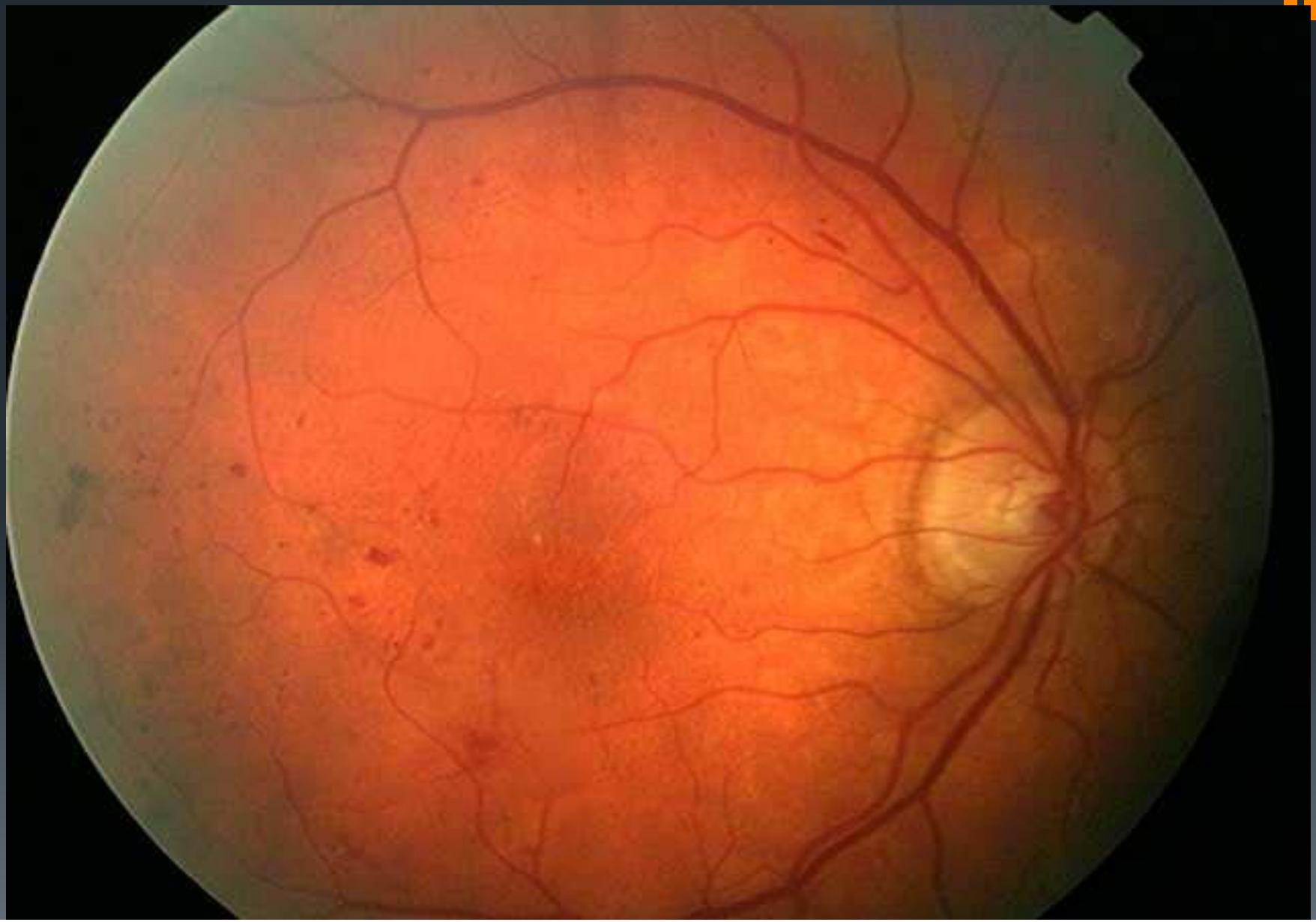

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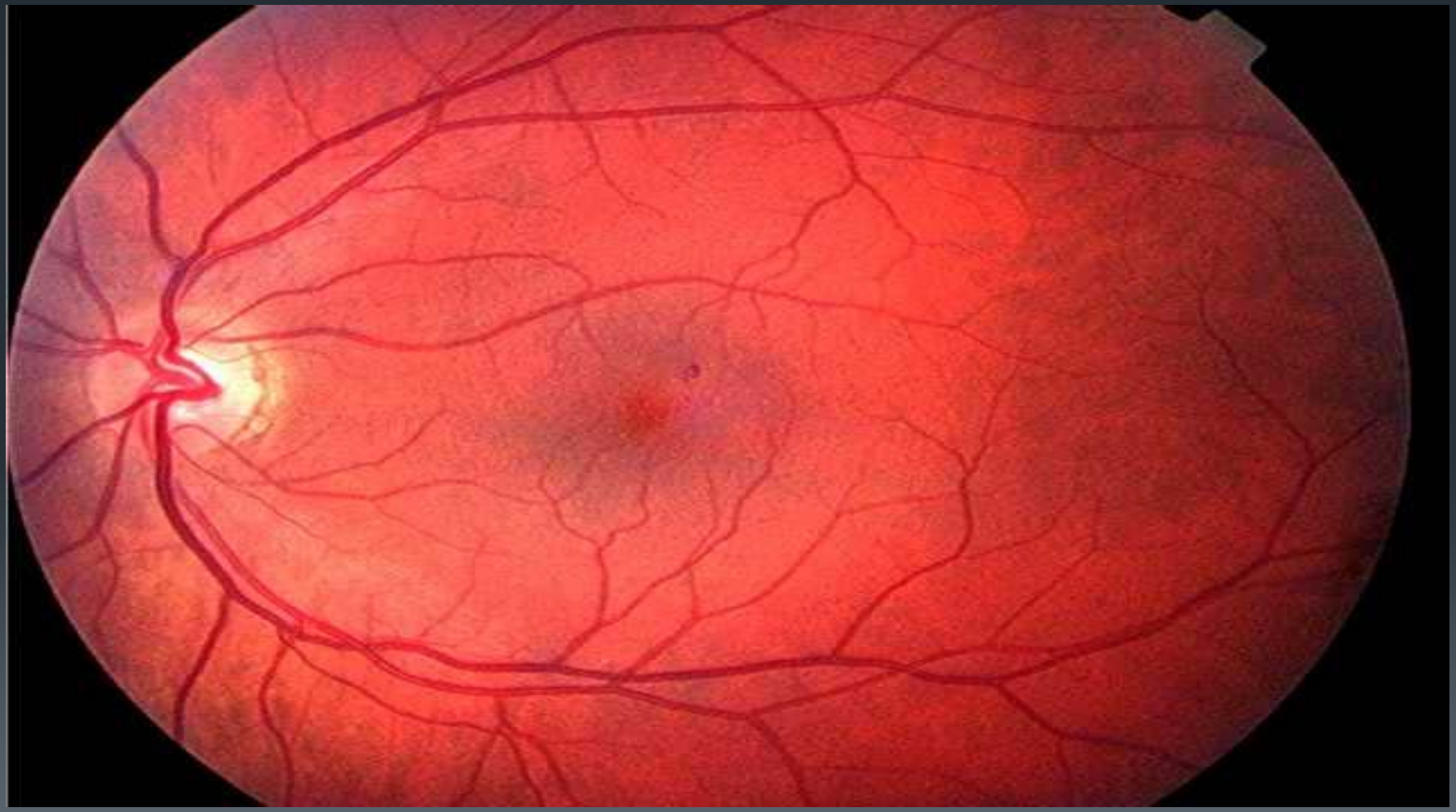

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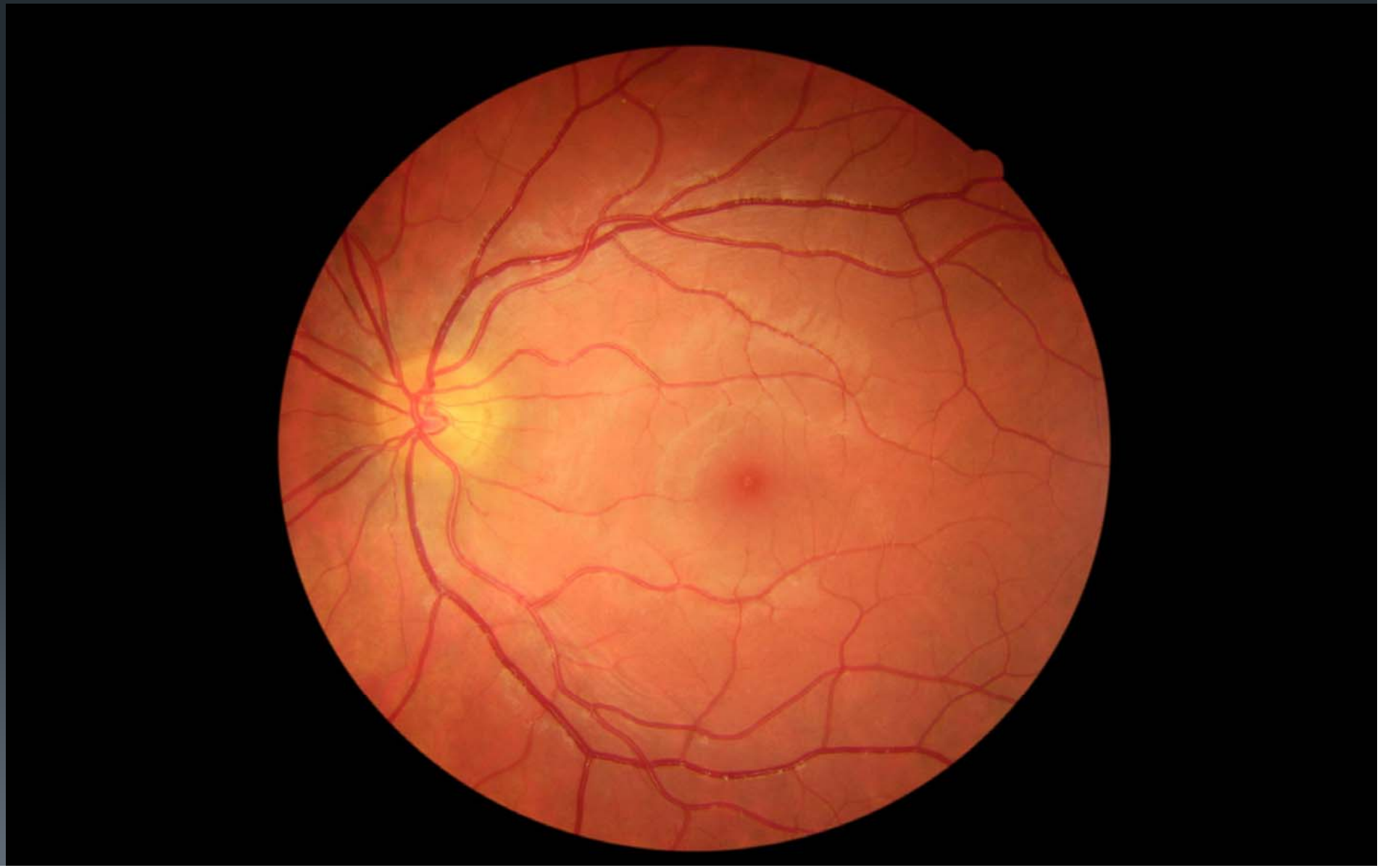

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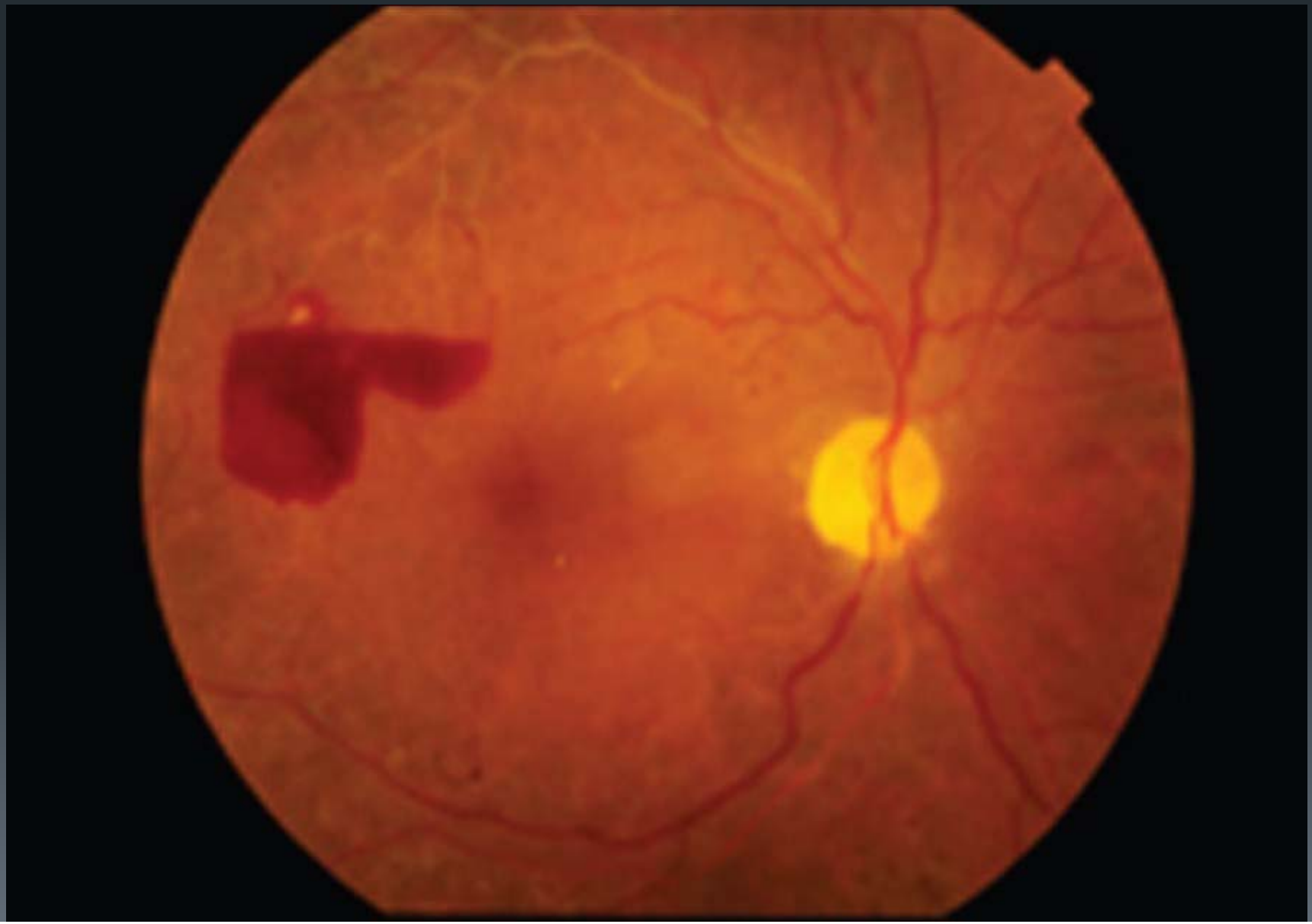

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Thank You

Any Questions?