

Insight ophthalmology

NVE V/S IRMA

DIABETIC RETINOPATHY SERIES

00:00:24



WHAT ARE THE TWO ENTITIES ?



✓ INTRARETINAL MICROVASCULAR ABNORMALITY (IRMA)

- Intraretinal microvascular abnormalities (or IRMAs) are **shunt vessels**
- appear as abnormal branching or **dilation of existing blood vessels (capillaries)** within the retina

NEOVASCULARISATION (NVE)

- **New Blood vessels**
- Complex process in response to the local tissue ischemia or hypoxia.
- Release of angiogenic factors : VEGF & HIF 1

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PURPOSE

IRMA

- Supply areas of non-perfusion in diabetic retinopathy
- Often adjacent to cotton wool spot
- Can disappear when extreme/severe capillary occlusion occurs

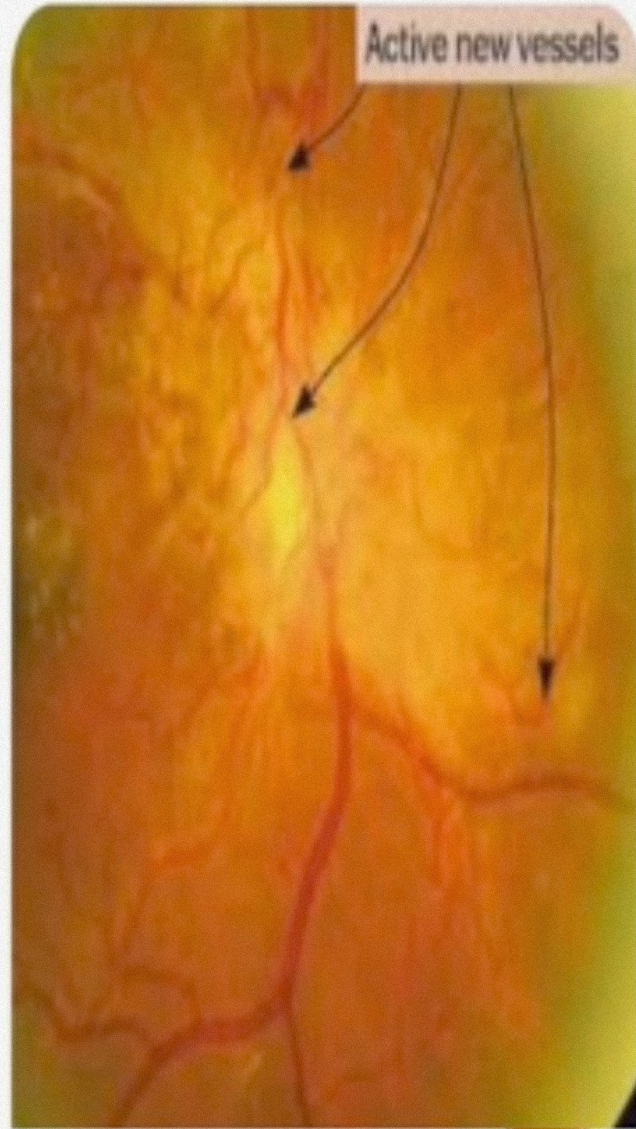
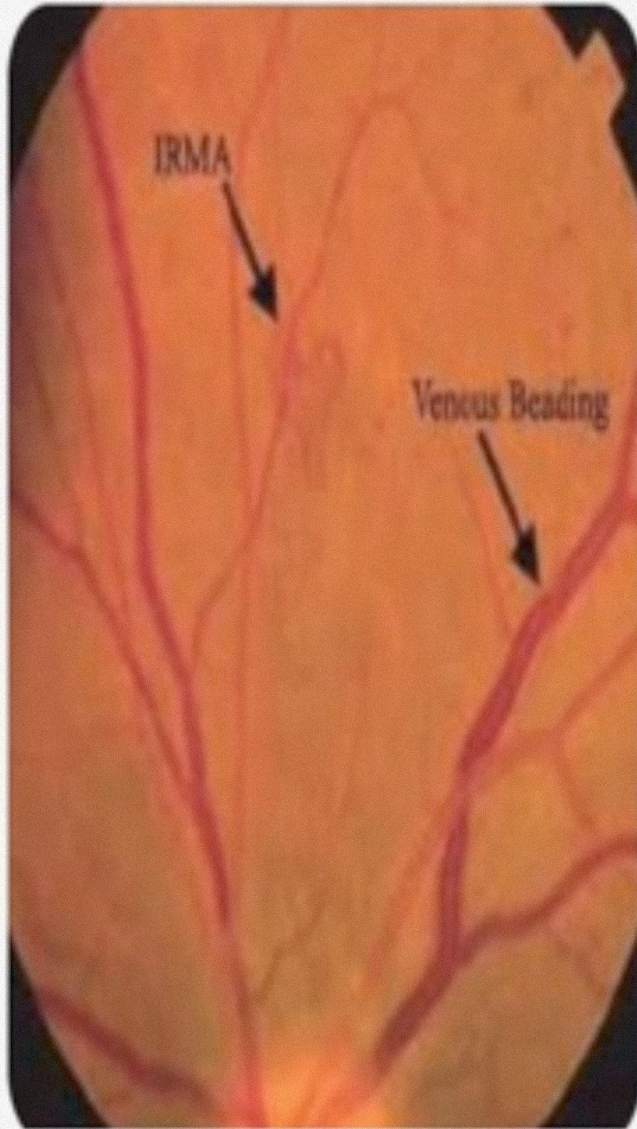
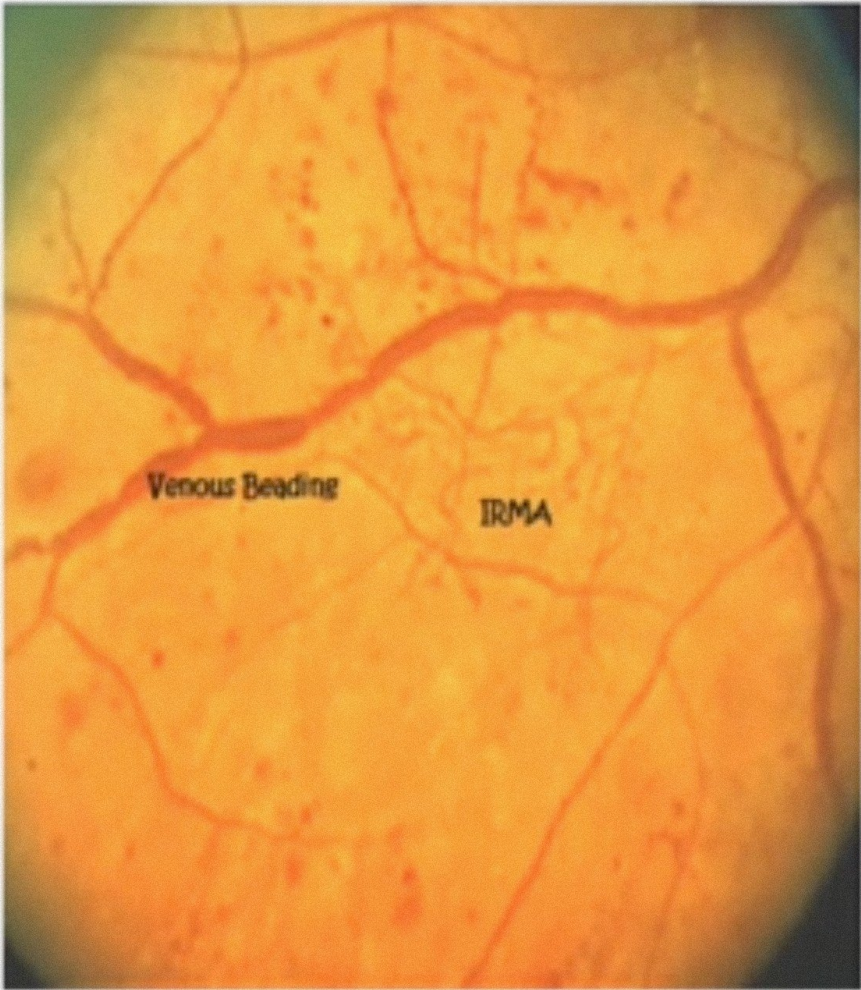
NVE

NVE / NVD occurs in response to ischemia and because of

- VEGF
- PLATELET DERIVED GROWTH FACTOR
- HEPATOCYTE GROWTH FACTORS

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SIZE

IRMA

- Slightly larger in caliber with a more broad arrangement and are always contained to the intraretinal layers

NVE / NVD

- Much finer and delicate in caliber

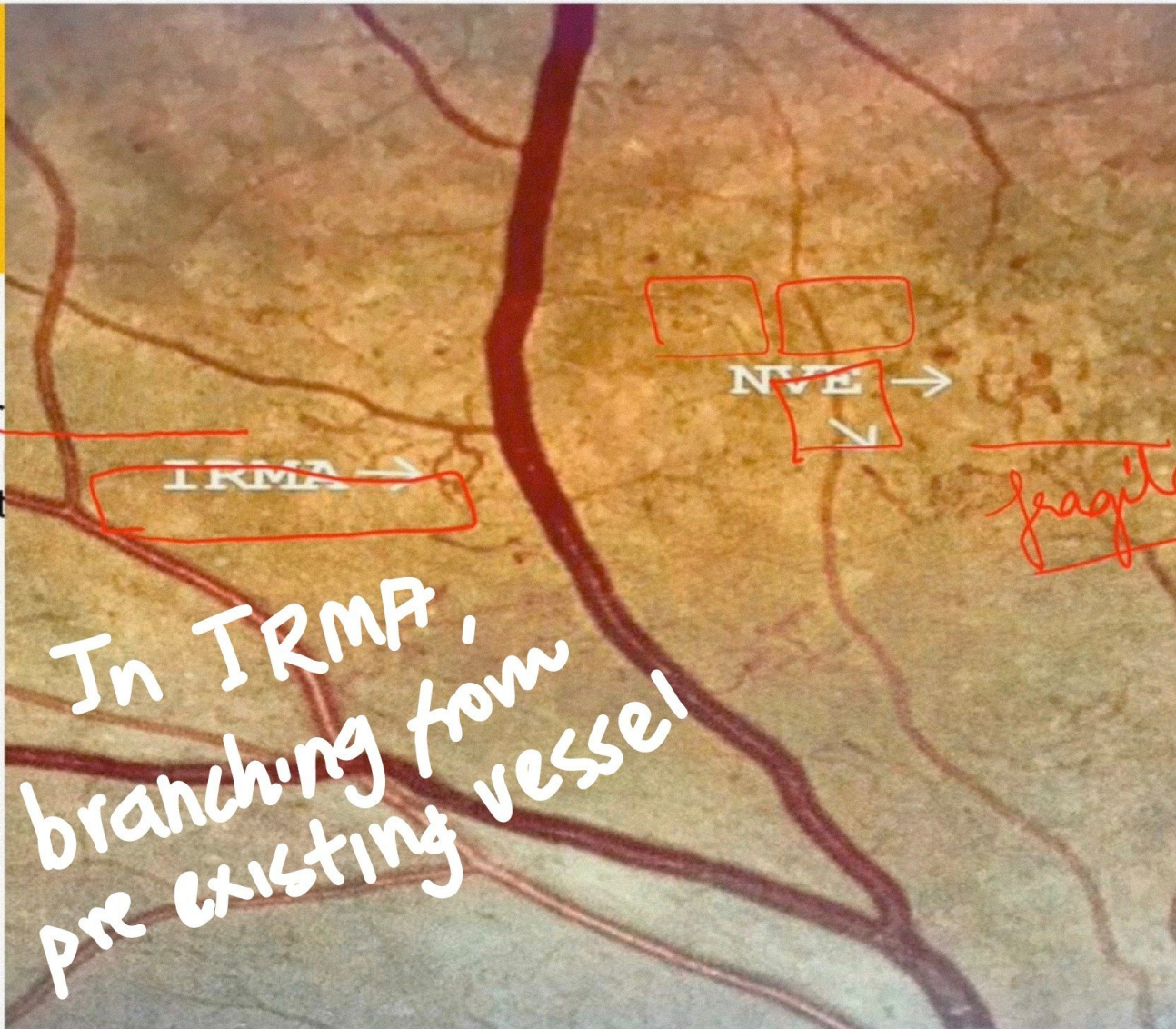
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SIZE

IRMA

- Slightly larger than normal caliber
broad arrangement
contained t



caliber

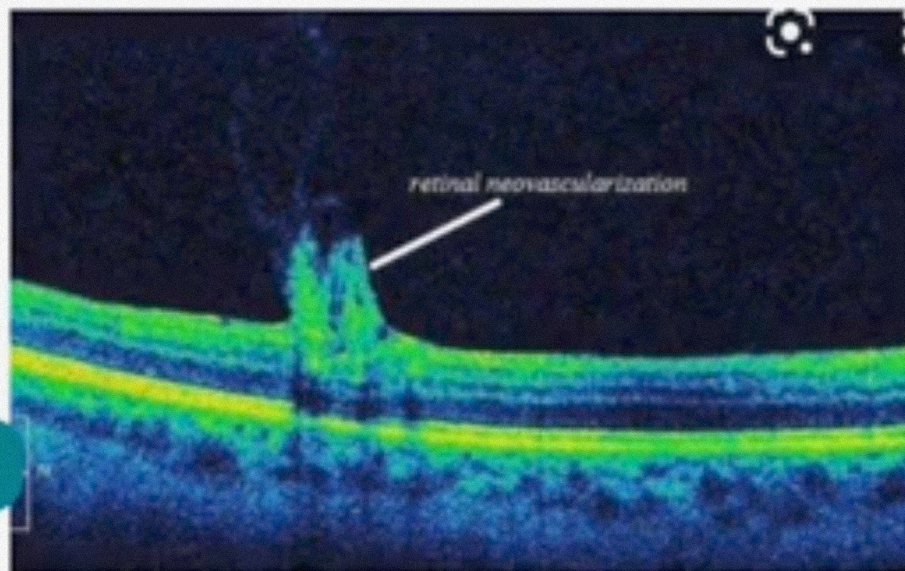
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LOCATION

IRMA

- Intraretinal



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NVE

- Focal in location depending on its severity.
- In severe cases, NV tends to grow along the posterior hyaloid interface especially around the optic nerve (i.e. NVD) and periphery (i.e. NVE)



SOME IMPORTANT POINTS

- As per DRS and ETDRS , a **NVD** is defined as new vessel or fibrous proliferation on or within one disc area of the ONH
- **NVE** is defined as new vessel on retina in location greater than one disc area from the ONH

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Cotton Wool Spot

Neovascularization Everywhere

Vitreous Hemorrhages

Neovascularization Disk

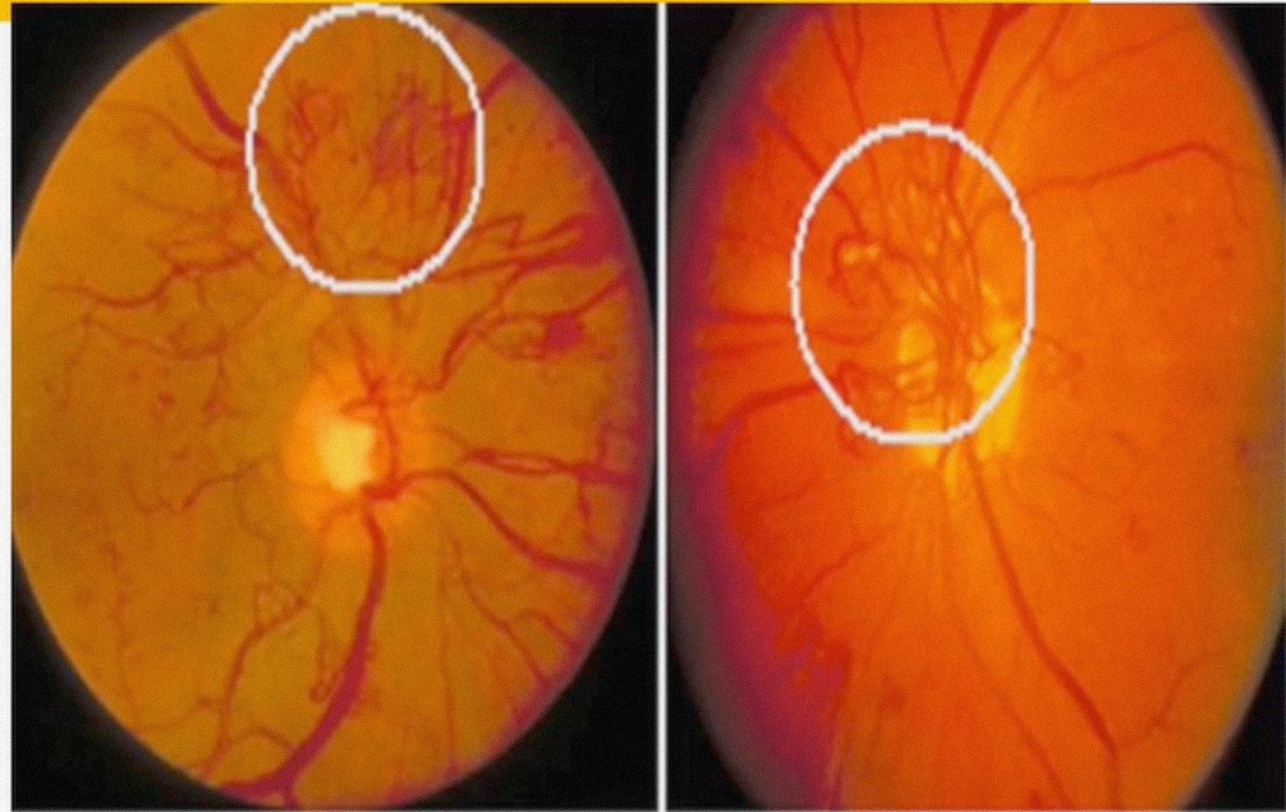
Hard Exudate

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NEOVASCULARISATION

- Vascular endothelial growth factor (VEGF),
- Platelet-derived growth factor
- Hepatocyte growth factor.



(a) New vessels elsewhere (NVE) (b) New vessels on disc (NVD)

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CONFIGURATION

IRMA

- Flatter
- Darker
- Blurred margins

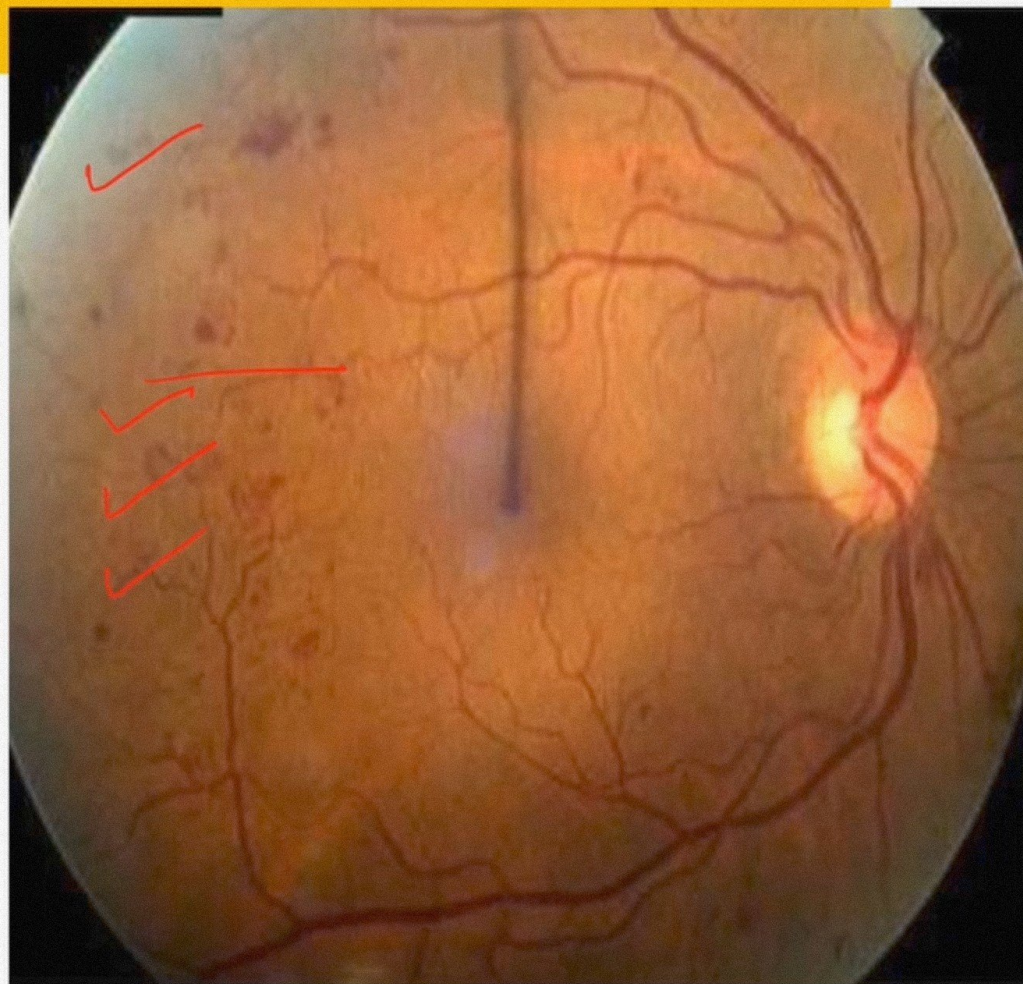
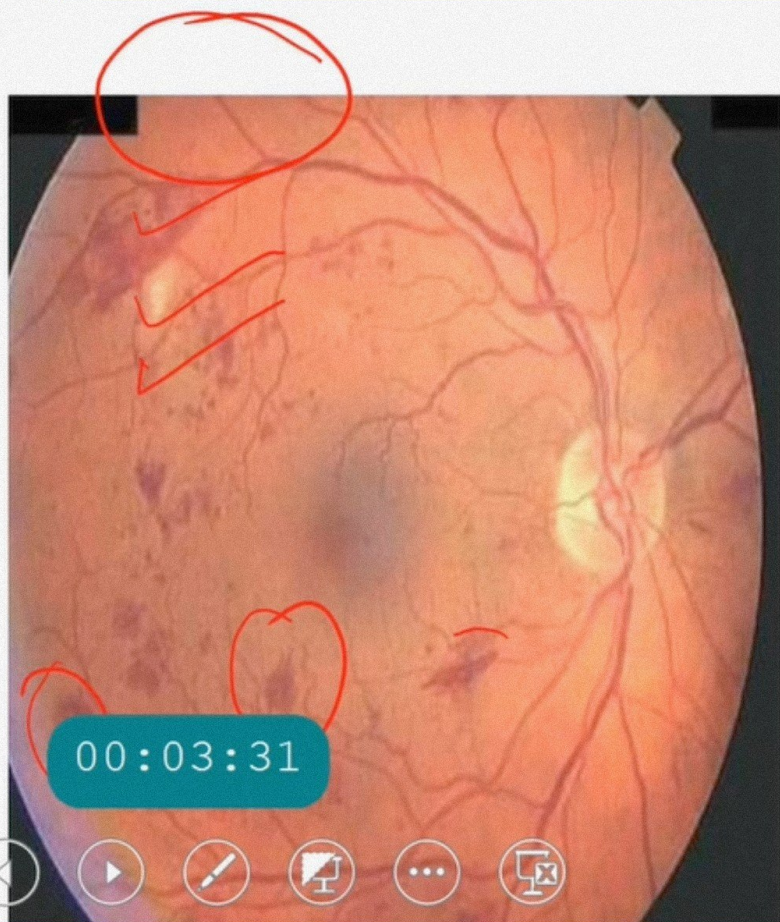
NVE/ NVD

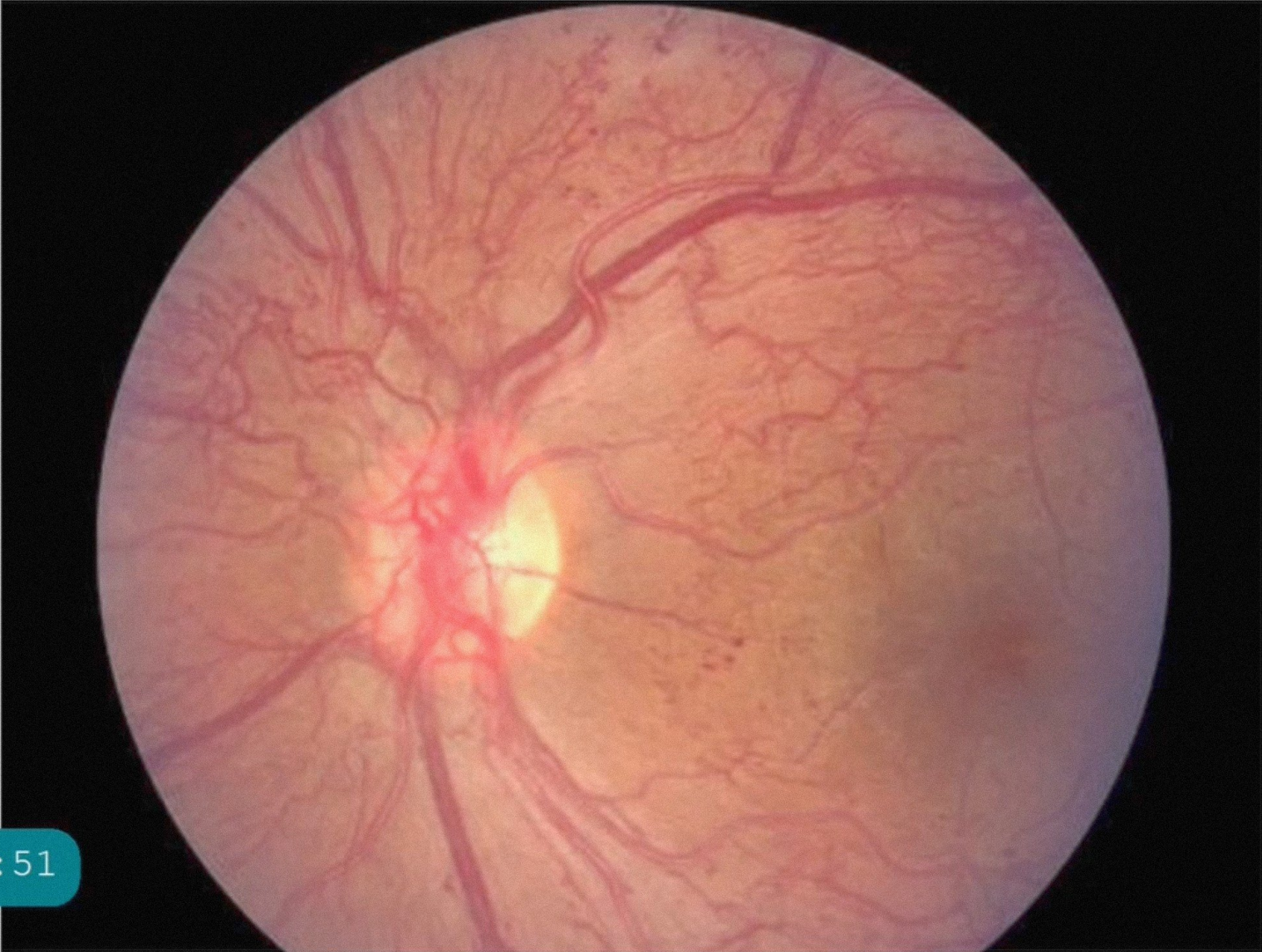
- Frond like, irregular network, carriage
- Elevated
- Brighter red
- Well defined margins

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CONFIGURATION





00:03:51



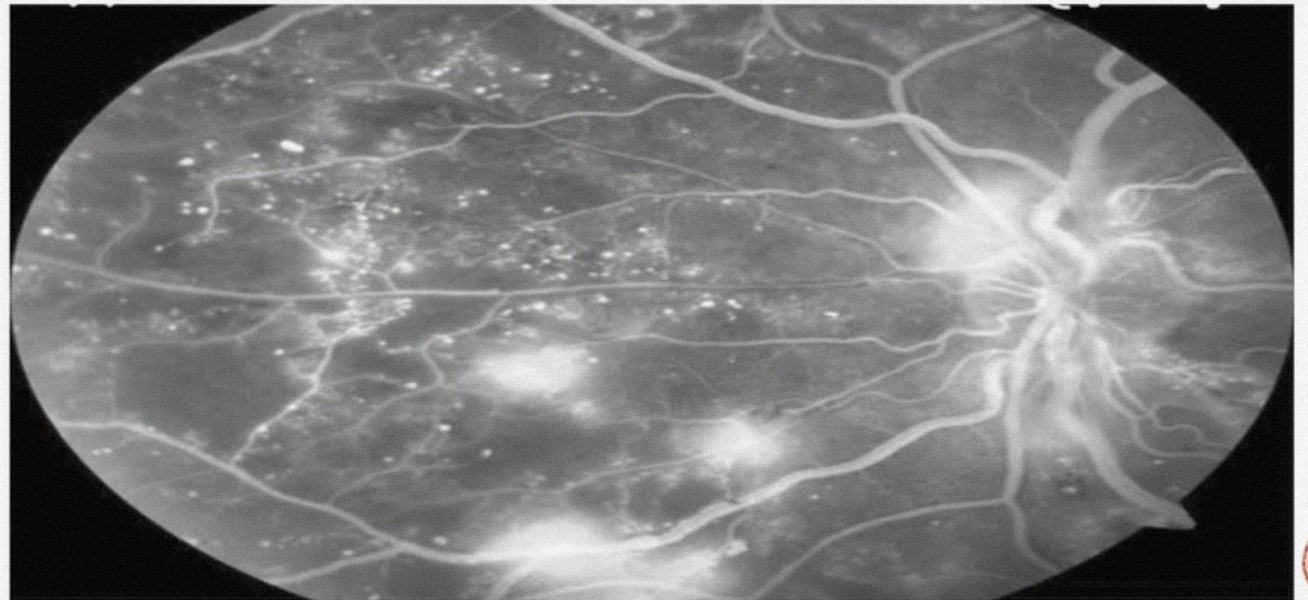
FLOURESCEIN ANGIOGRAPHY

IRMA

- IRMAs do not leak

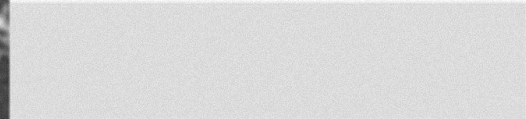
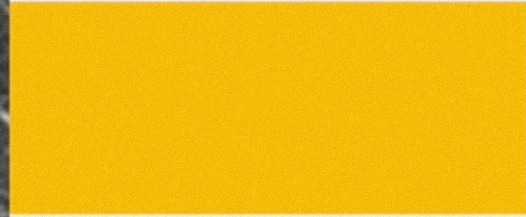
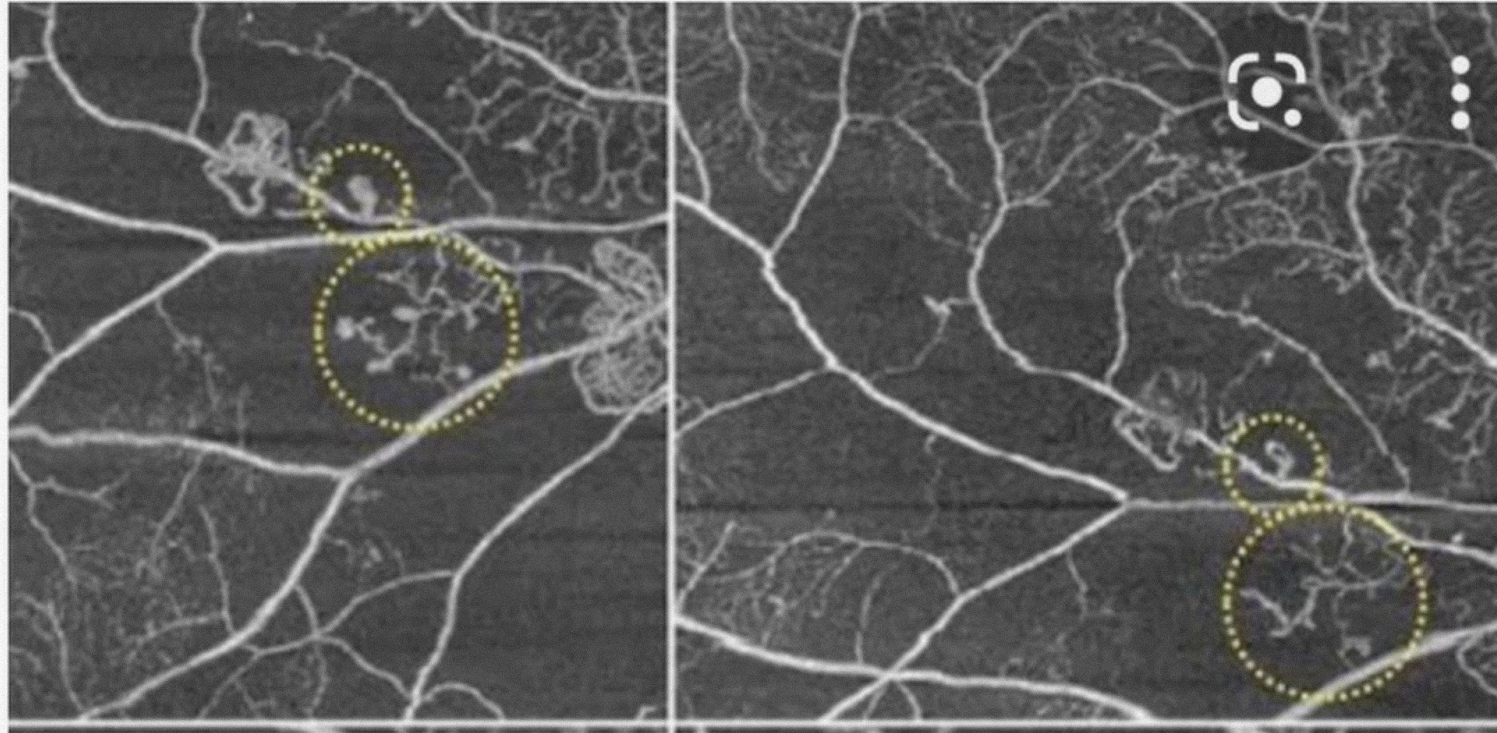
NVE/NVD

- NV will often show late leakage



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show late leakage



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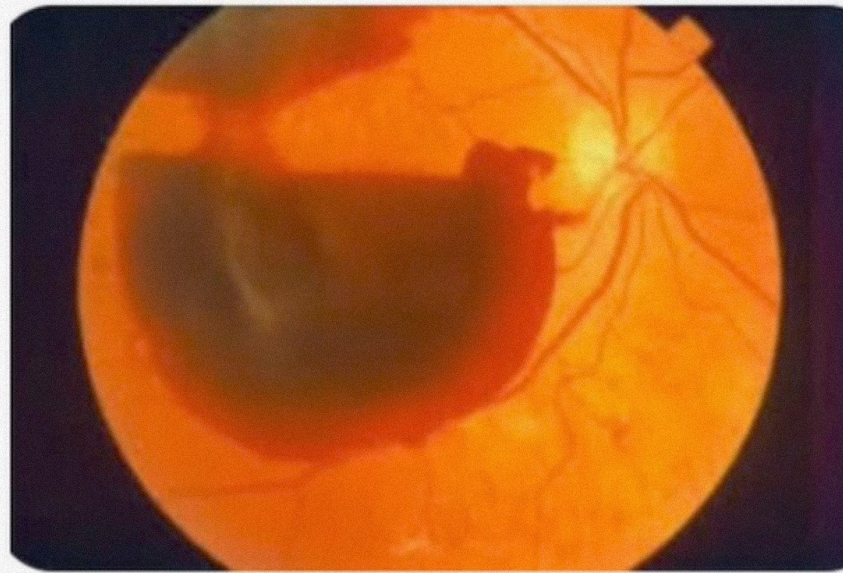
BLEEDING

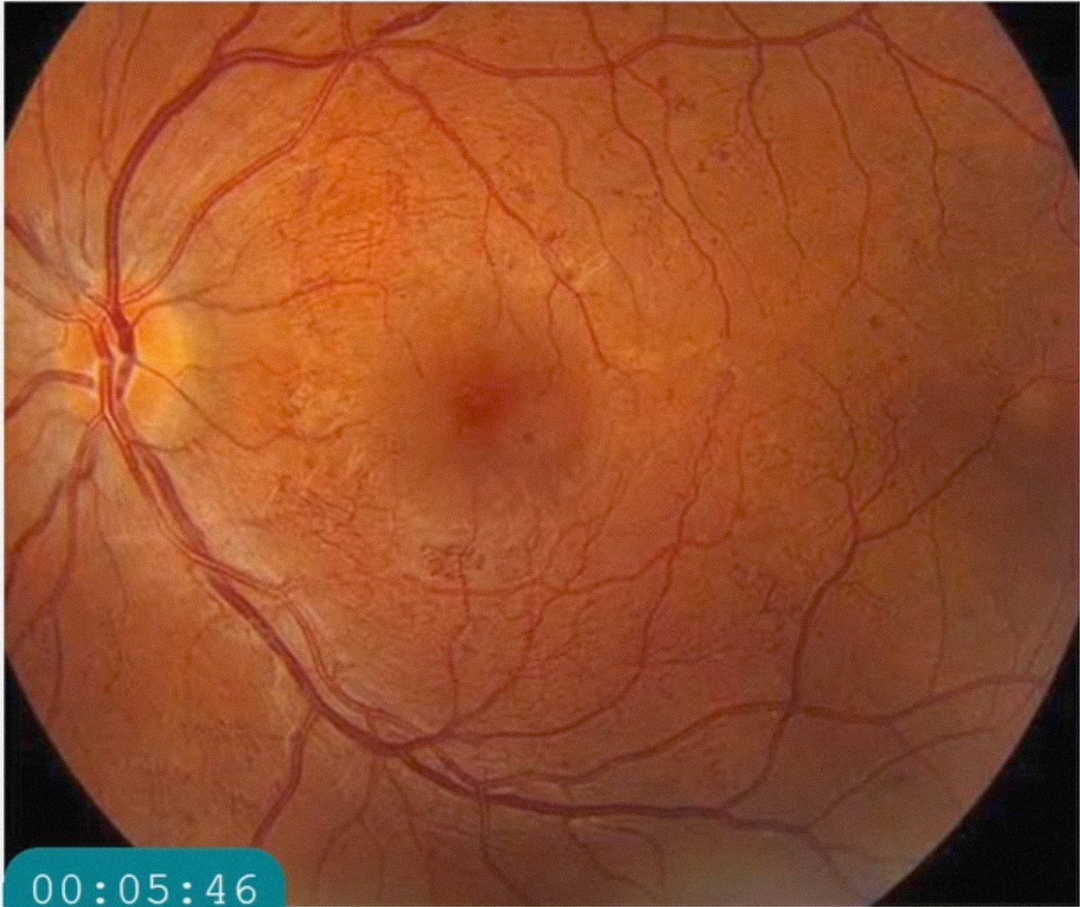
IRMA

- Do not bleed

NVE/ NVD

- Bleed into Vitreous





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Pre proliferative
diabetic retinopathy





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Proliferative diabetic
retinopathy

Indication for PRP

