
Treatment Options For Proliferative Diabetic Retinopathy

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- By 2040 ,of the 600 million people worldwide with diabetes mellitus(DM) ,400-500 million will live in low -and middle income countries .Thus ,the impact of DM poses a substantial challenge to the health care systems in many developing countries .
 - Diabetic retinopathy (DR) is a common and specific microvascular complication that develops over time .Severe stages of DR including proliferative diabetic retinopathy (PDR) and diabetic macular edema(DME) result in visual impairment and blindness without treatment.
 - Although ME affected patients maintain, at least, ambulatory vision ,PDR ,on the other Hand, may result in severe vitreous hemorrhage or retinal detachment with hand movements vision or worse .
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- An important pathogenic factor is the effect of chronic hyperglycemia on microvasculature and proinflammatory mediators
 - This will lead to microvascular occlusion with the resultant ischemia and new vessel formation and microvascular leakage with the resultant retinal edema ,hemorrhage and exudates .
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- Approximately 50% of patients with very severe NPDR progress to PDR within 1 year
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 - Proliferative vessels arise from retinal veins and often begin as a collection of multiple fine vessels
 - NVD : when these vessels arise on or within one disc diameter of the optic nerve
 - NVE : when they arise further on disc diameter
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- These new vessels grow more easily on a preformed connective tissue framework. Thus, a shallowly detached vitreous face is a frequent site of growth of new vessels.
 - The new vessels usually progress through a stage of further proliferation, with associated connective tissue formation.
 - As PDR progresses, fibrous proliferation becomes either vascular or avascular.
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1-clinically :

-symptoms

-no symptoms

-symptoms of blurry vision and floaters

-examination by

-slit lamp biomicroscopy

-indirect ophthalmoscopy

2-Diagnostic testing :

-fluorescein angiography

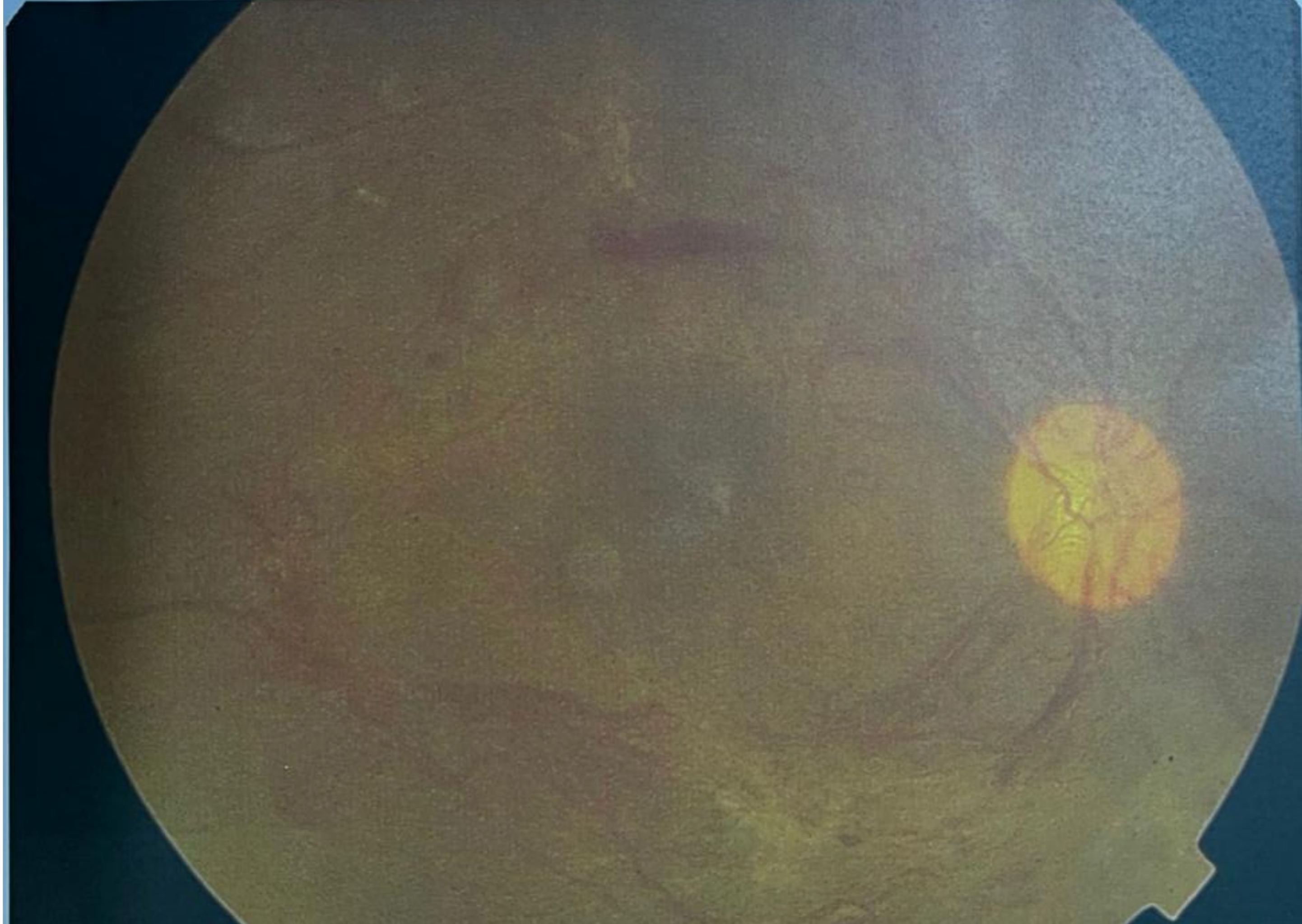
-locating areas of retinal ischemia

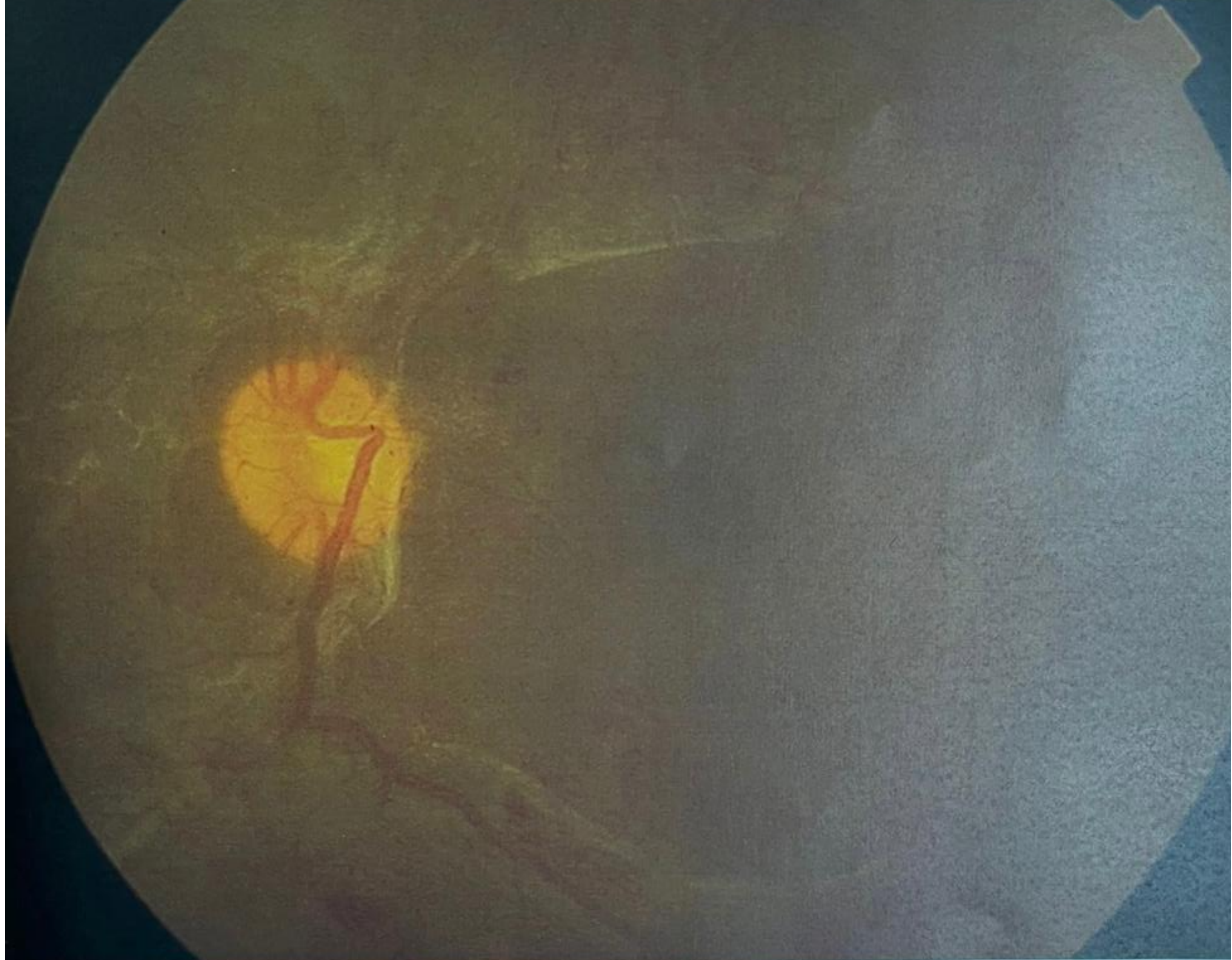
-differentiating IRMA and collaterals from NV

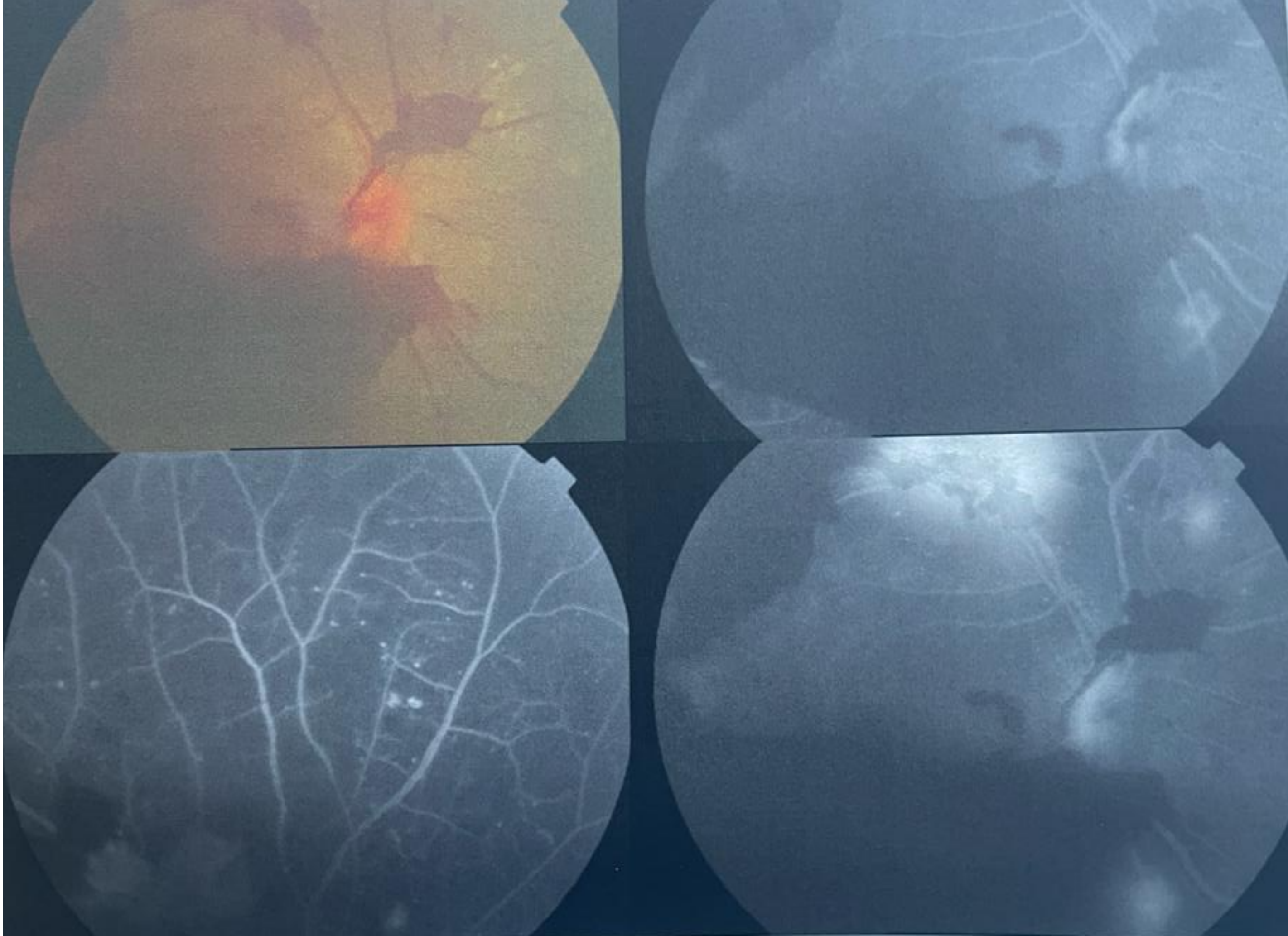
OCT :

To evaluate for DME

-to determine presence and extent of retinal tractions .







Treatment

1-Systemic :control of
a-DM
B-hypertension

2-Ocular :

A- non complicated PDR

1-scatter laser photocoagulation

2-intravitreal injections

B- complicated PDR :pars plana vitrectomy

1-non clearing vitreous hemorrhage

2-traction involving the macula

Retinal laser photocoagulation

Anaesthesia :

- 1-topical
- 2-retrobulbar

Laser delivery :

- 1-slit lamp
- 2-indirect ophthalmoscopy

Sessions :

- 1-one session
- 2- multiple sessions

Wavelength :

- 1-argon 532 n
- 2-diode 810

Lenses :

- 1-wide-field
 - 2- three -mirror lenses
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Laser parameters

- power :200mW
 - duration:0.1 sec.
 - spot size :500 um

 - power is increased until whitening of the retina is achieved
 - if it is not possible to obtain a satisfactory burn with a power setting of 1 watt ,a smaller or longer exposure time may be used.

 - laser burns are spaced one-half to one spot-width apart.

 - the burns are placed one disc diameter from the optic disc and the major temporal arcades.

 - approximately,1200-1800 laser burns are applied to the peripheral retinal tissue ,actually focally destroying the outer photoreceptors and retinal pigment epithelium of the retina

 - large retinal vessels are avoided as are areas of preretinal hemorrhage.
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Intravitreal injections

-the addition of anti-VEGF therapy or intravitreal steroid therapy aids in regressing and reducing preretinal and vitreous hemorrhage

-anti-VEGF therapy alone like:

=DRCR.net protocol S

-intravitreal ranibizumab vs PRP

=CLARITY study

-intravitreal aflibercept vs PRP

-strong data demonstrates that anti-VEGF therapy for PDR is not inferior to PRP in terms of visual outcome at 2 years .

-indeed, it is associated with less visual field loss and less frequent development of DME.

Complicated PDR

Pars plana vitrectomy for : -

- non-clearing vitreous hemorrhage
 - retinal tractions involving the macula
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Thank You
