

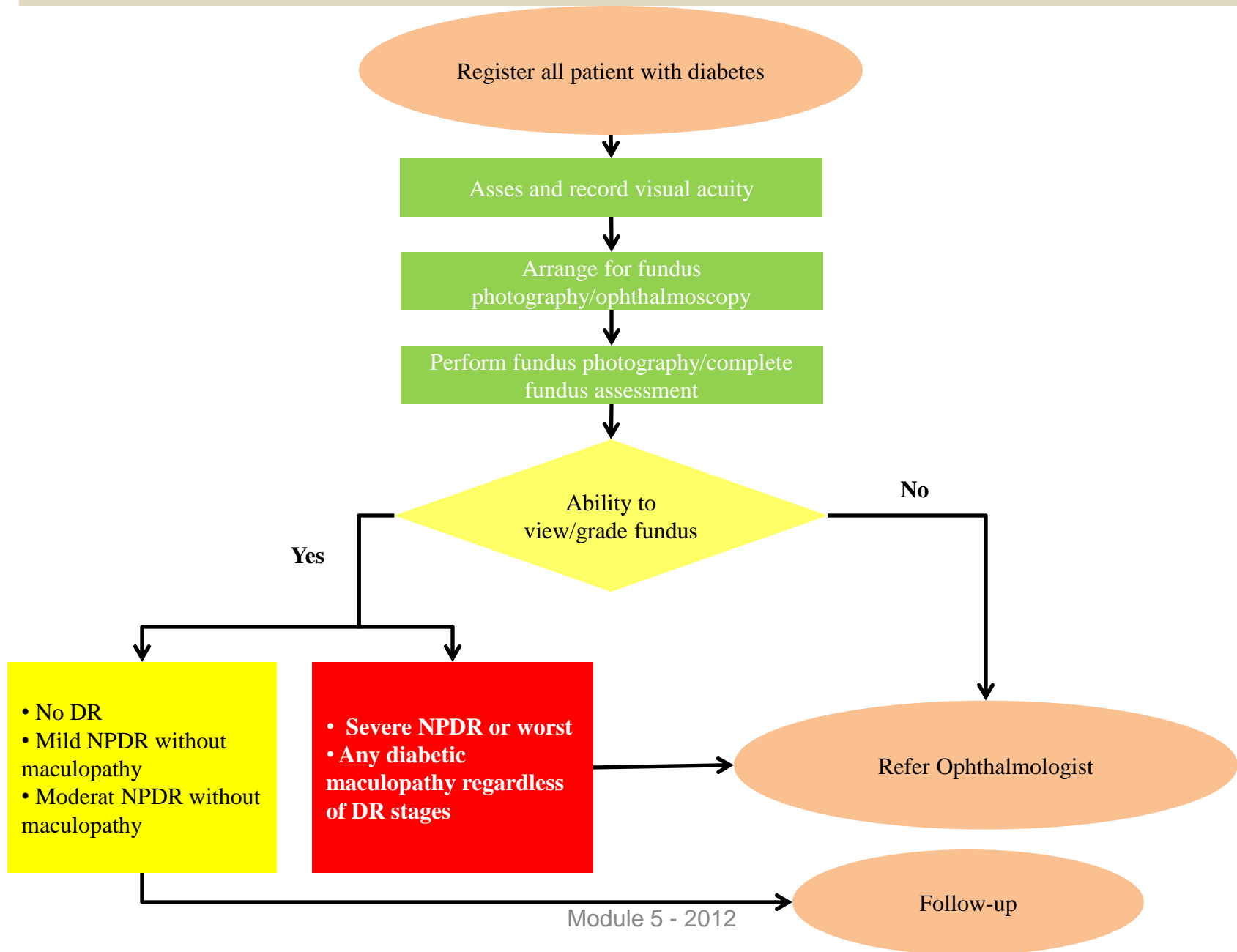
HANDBOOK : GUIDE TO DIABETIC RETINOPATHY SCREENING

MOH DIABETIC RETINOPATHY
SCREENING TEAM

2012



ALGORITHM FOR SCREENING OF DIABETIC RETINOPATHY TO PREVENT BLINDNESS



TIMING OF FIRST SCREENING

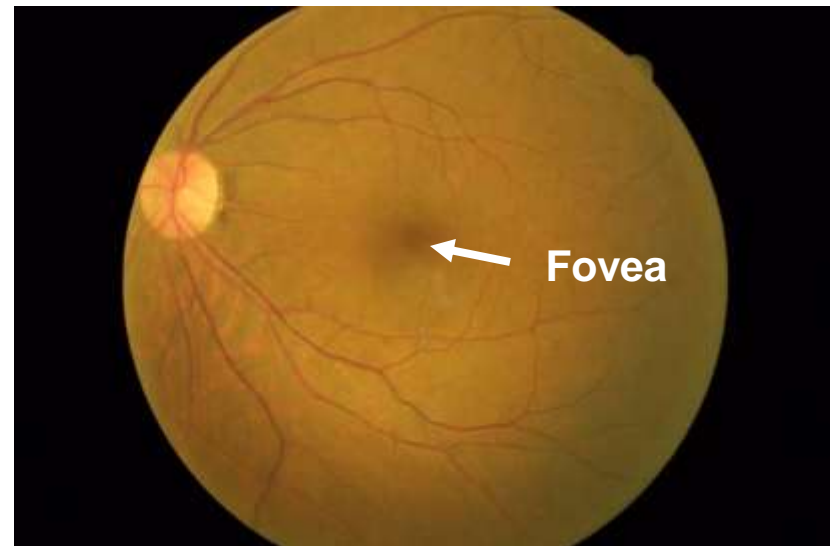
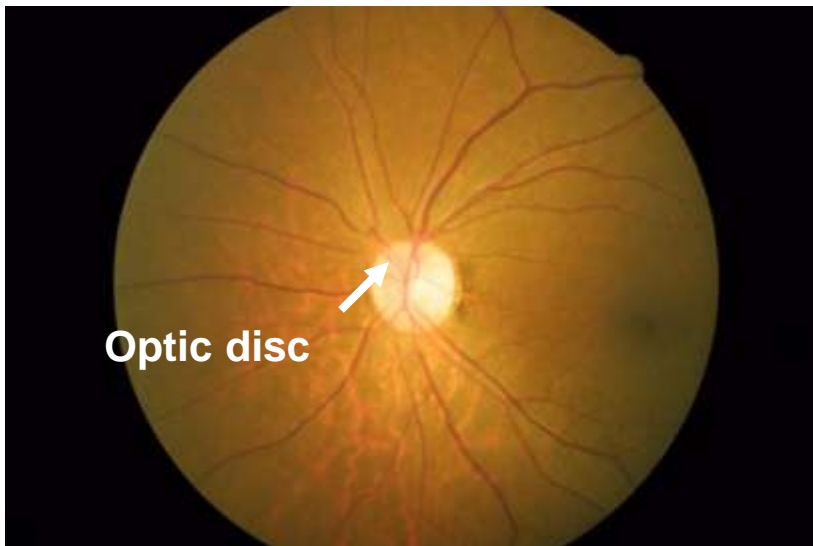
Type of DM	Recommended time of 1 st screening
Adult type 1 DM (T1DM)	Up to 3 years after diagnosis
Adult type 2 DM (T2DM)	At time of diagnosis
Pre-existing DM planning to get pregnant	Prior to conception
Gestational DM diagnosed in the first trimester only	At the time of diagnosis of GDM
Children T1DM	<ul style="list-style-type: none">i. At age 9 years with 5 years of DM durationii. At age 11 years with 2 years of DM duration
Children T2DM	At time of diagnosis

TECHNIQUE OF PHOTOGRAPHY

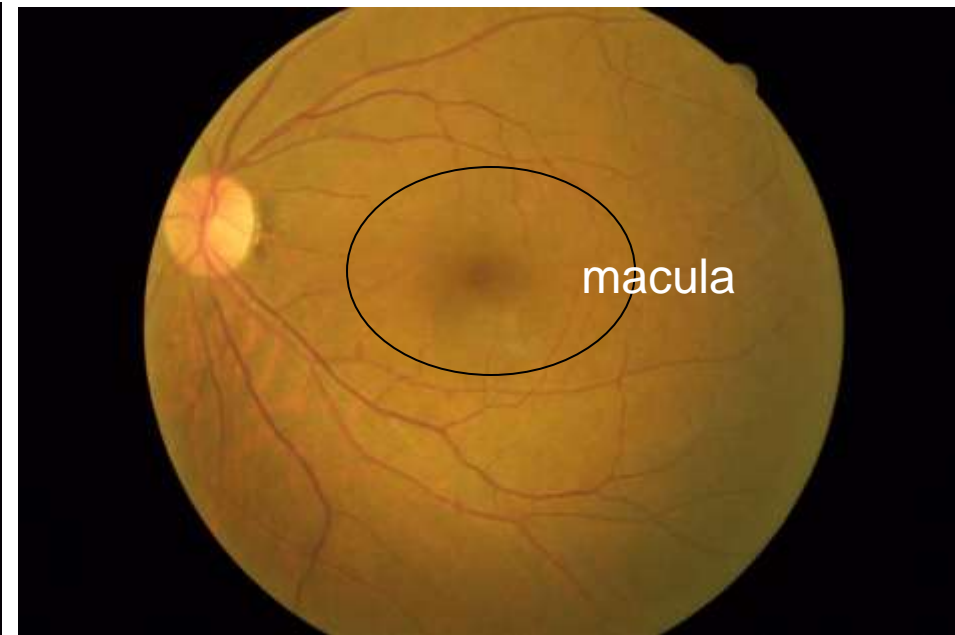
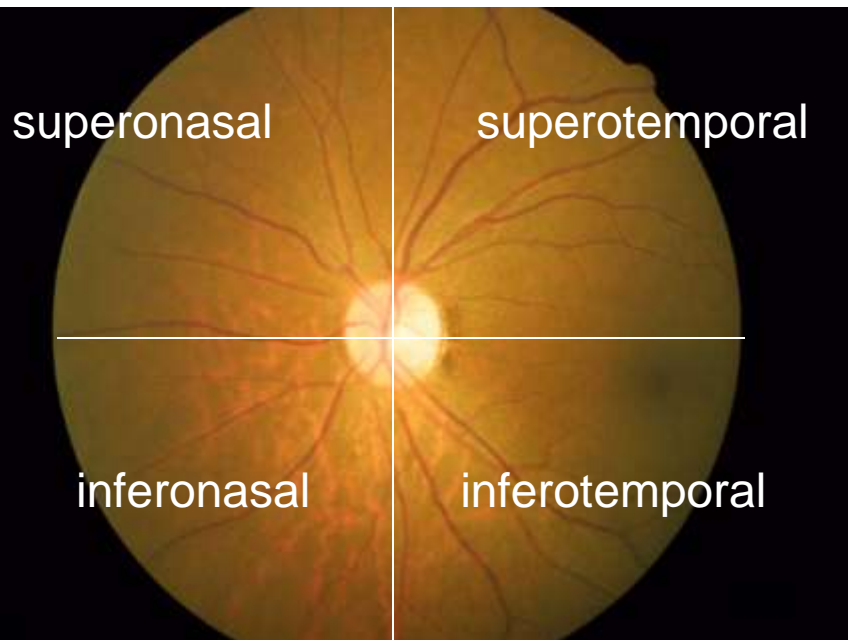
2 photographs (views) should be taken:

1. Optic disc as the center

2. Fovea as the center



NORMAL FUNDUS



FEATURES OF DIABETIC RETINOPATHY

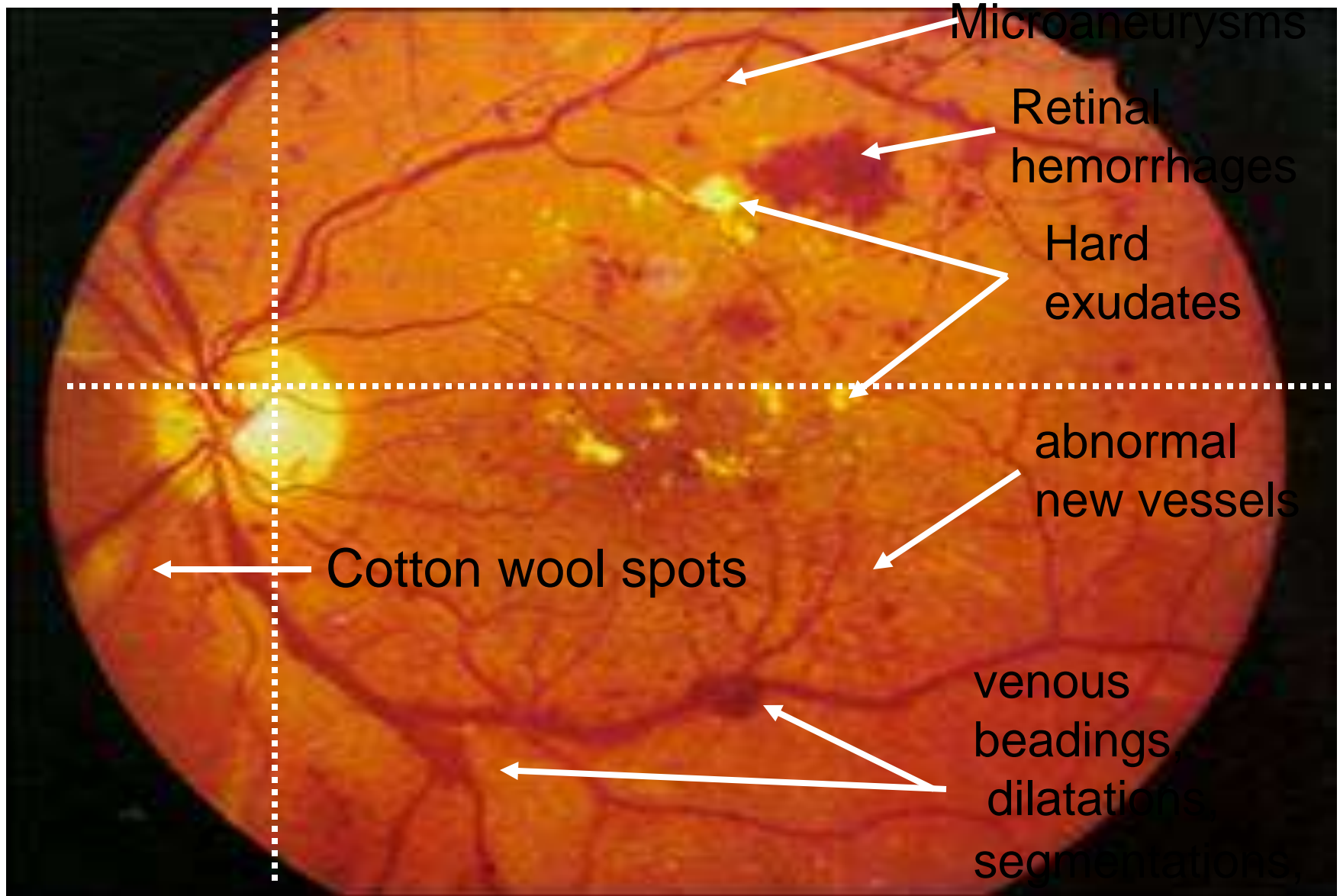


TABLE I: INTERNATIONAL CLINICAL DIABETIC RETINOPATHY AND DIABETIC MACULA OEDEMA DISEASE SEVERITY SCALE (AMERICAN ACADEMY OF OPHTHALMOLOGY)

RETINOPATHY STAGE	FINDINGS ON OPHTHALMOLOGY
No apparent retinopathy	No abnormalities
Mild non-proliferative DR (NPDR)	Microaneurysms only
Moderate NPDR	More than just microaneurysms but less than severe NPDR
Severe NPDR	Any of the following : 1. More than 20 intraretinal haemorrhages in each of 4 quadrants 2. Definite venous beading in 2 or more quadrants. 3. Prominent intraretinal microvascular abnormalities in 1 or more quadrants AND no signs of proliferative retinopathy

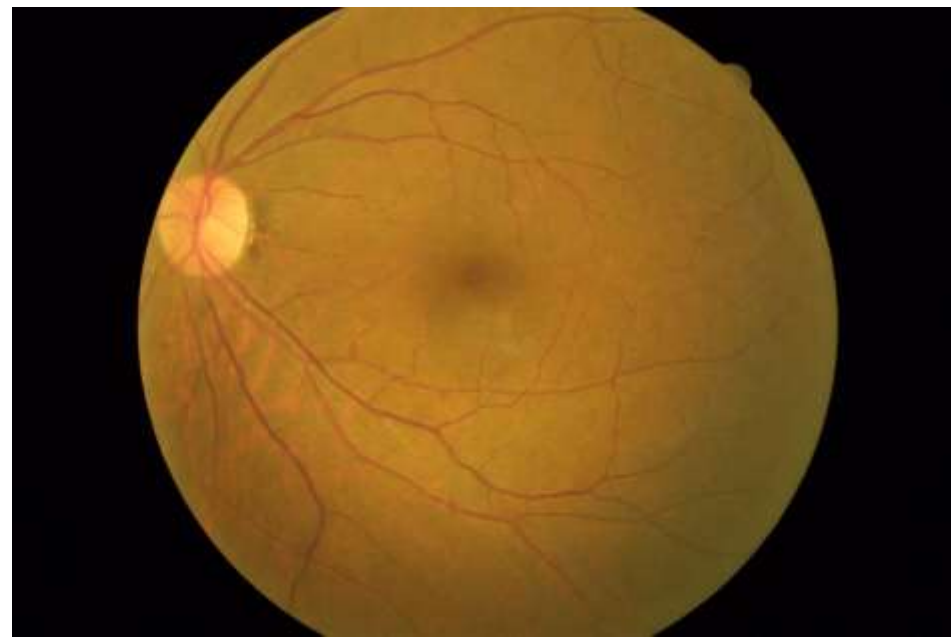
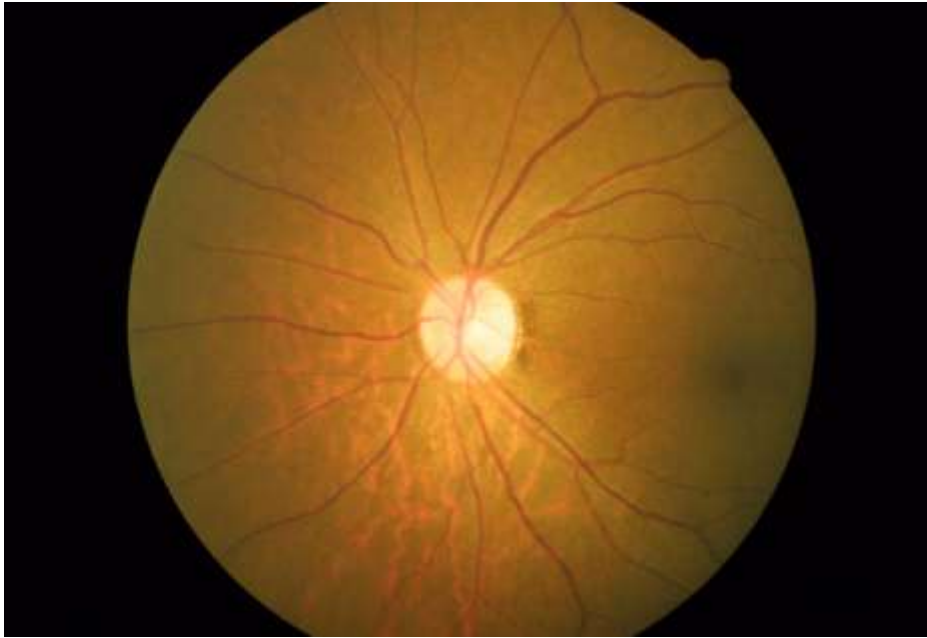
TABLE I: INTERNATIONAL CLINICAL DIABETIC RETINOPATHY AND DIABETIC MACULA OEDEMA DISEASE SEVERITY SCALE (AMERICAN ACADEMY OF OPHTHALMOLOGY)

RETINOPATHY STAGE	FINDINGS ON OPHTHALMOLOGY
Proliferative DR (PDR)	One of the following : 1.Neovascularization 2.Vitreous/preretinal haemorrhage
Advanced Diabetic Eye Disease (ADED)	One of the following : 1.Formation of fibrovascular tissue proliferation 2.Traction retinal detachment due to formation of posterior vitreous detachment 3.Dragging of retinal/distortion 4.Rhegmatogenous retinal detachment

TABLE I: INTERNATIONAL CLINICAL DIABETIC RETINOPATHY AND DIABETIC MACULA OEDEMA DISEASE SEVERITY SCALE (AMERICAN ACADEMY OF OPHTHALMOLOGY)

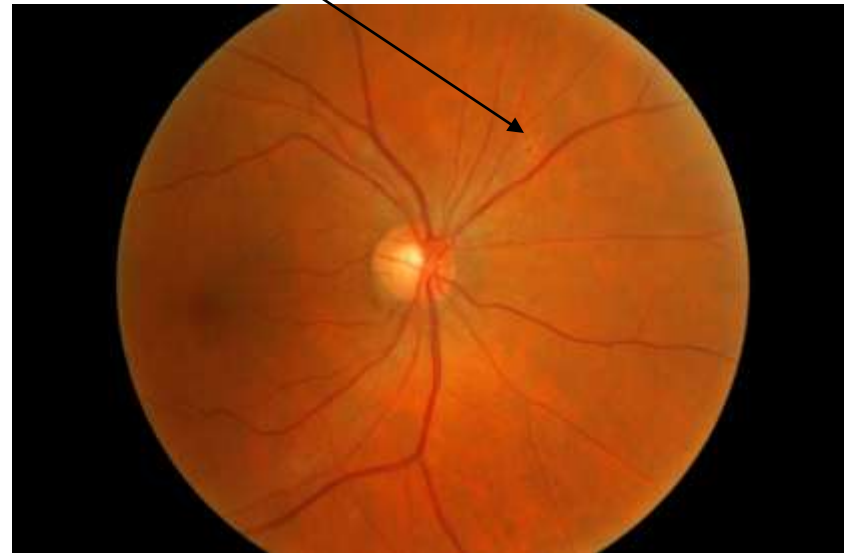
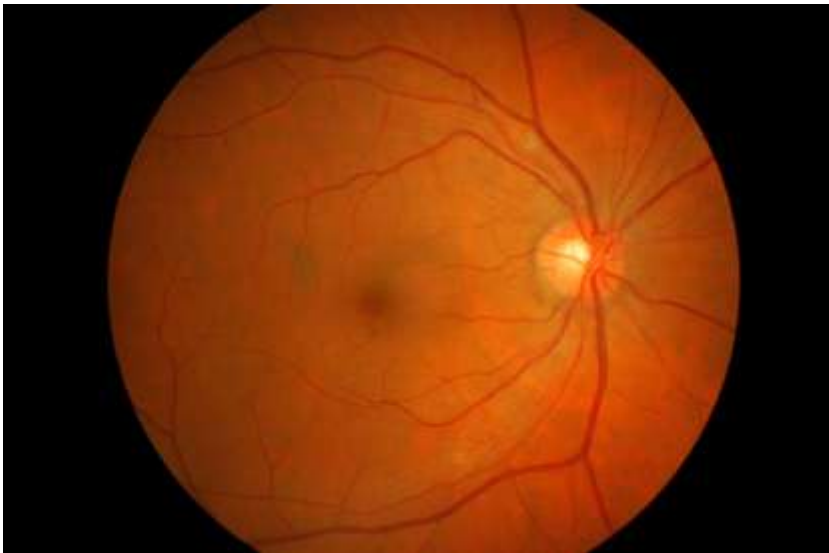
MACULA OEDEMA	FINDINGS ON OPHTHALMOLOGY
Absent	No retinal thickening or hard exudates in posterior pole
Present	<ul style="list-style-type: none"> • mild – some retinal thickening or hard exudates in posterior pole but distant from the macula • Moderate – retinal thickening or hard exudates approaching the centre of the macula but not involving the centre • Severe – retinal thickening or hard exudates involving the centre of the macula

NORMAL FUNDUS



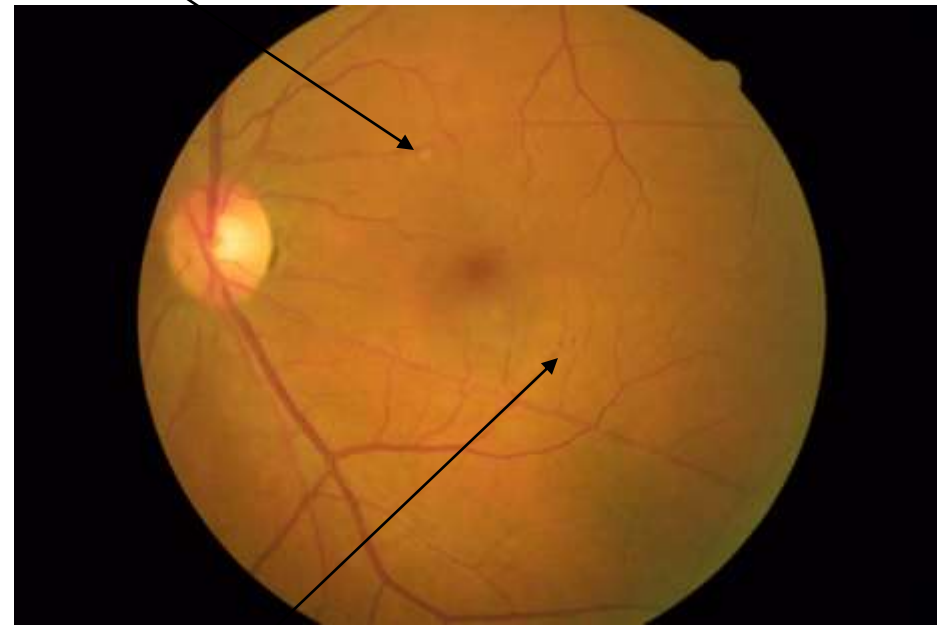
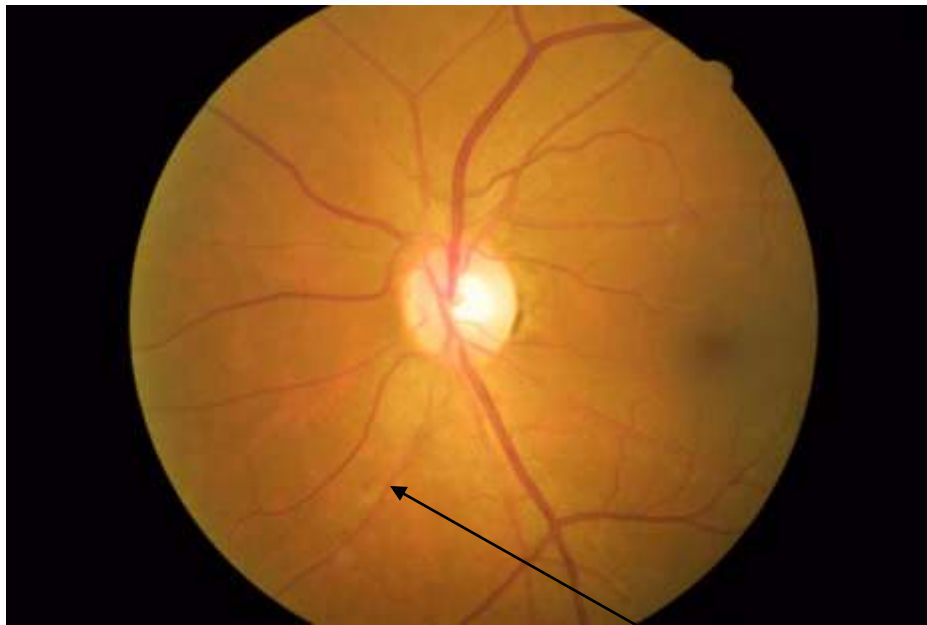
MILD NPDR

microaneurysm



MILD NPDR

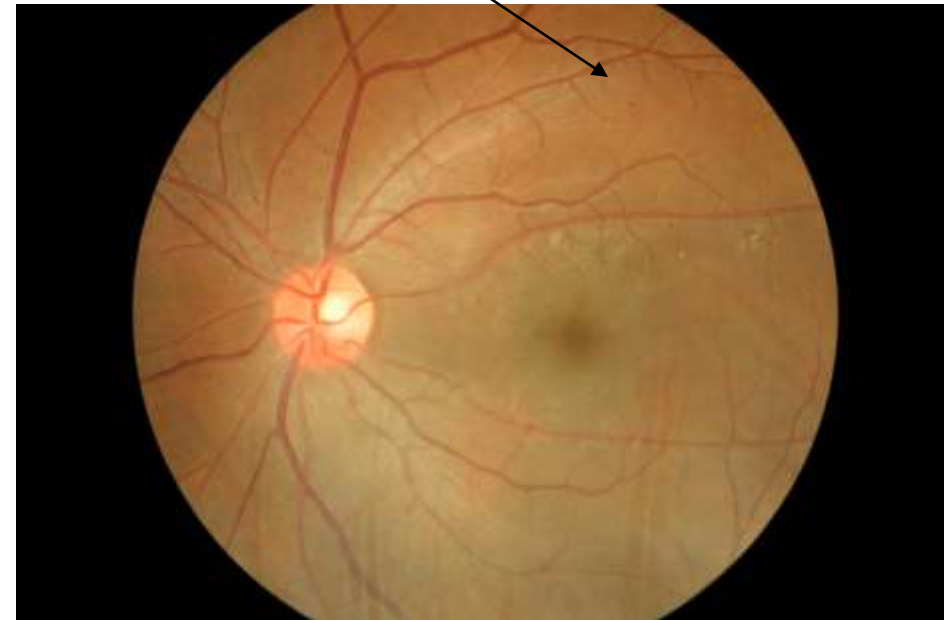
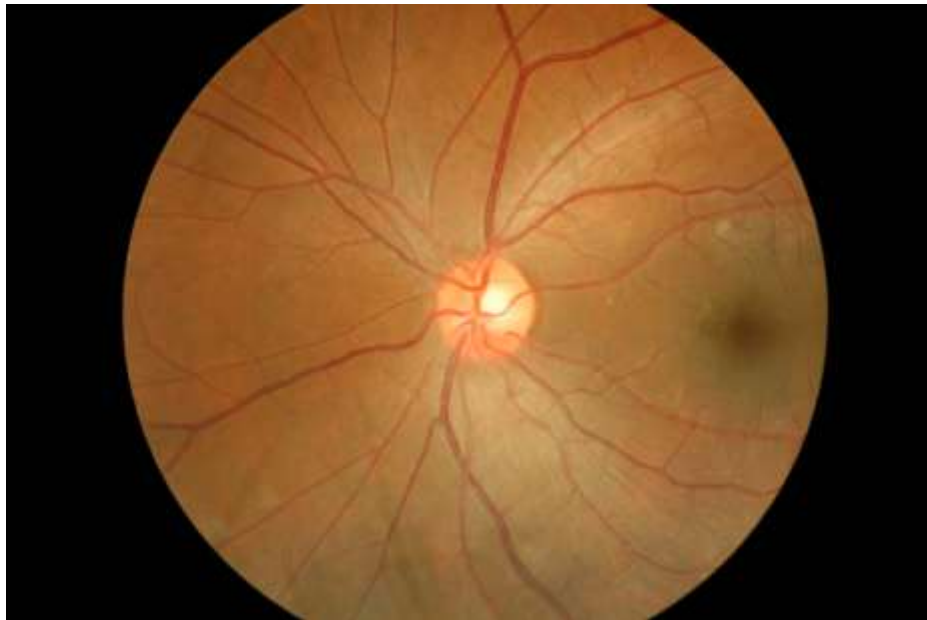
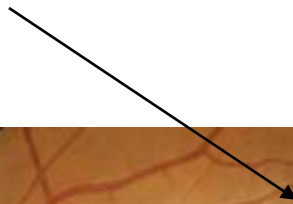
Hard Exudate



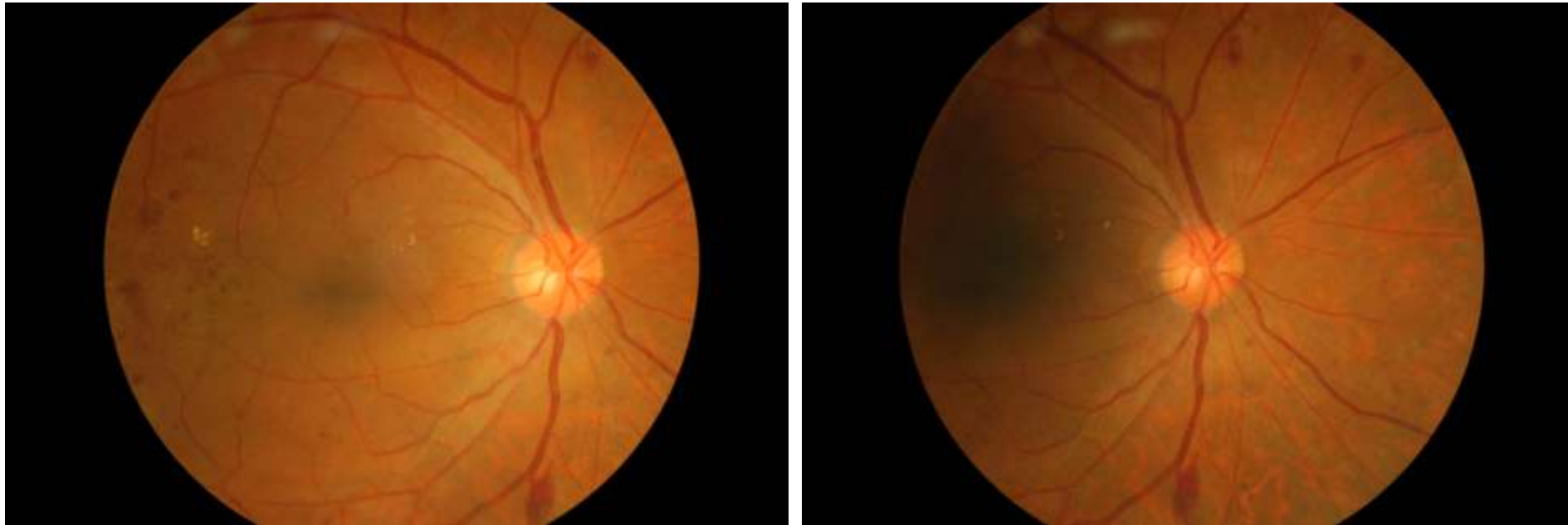
microaneurysm

MILD NPDR

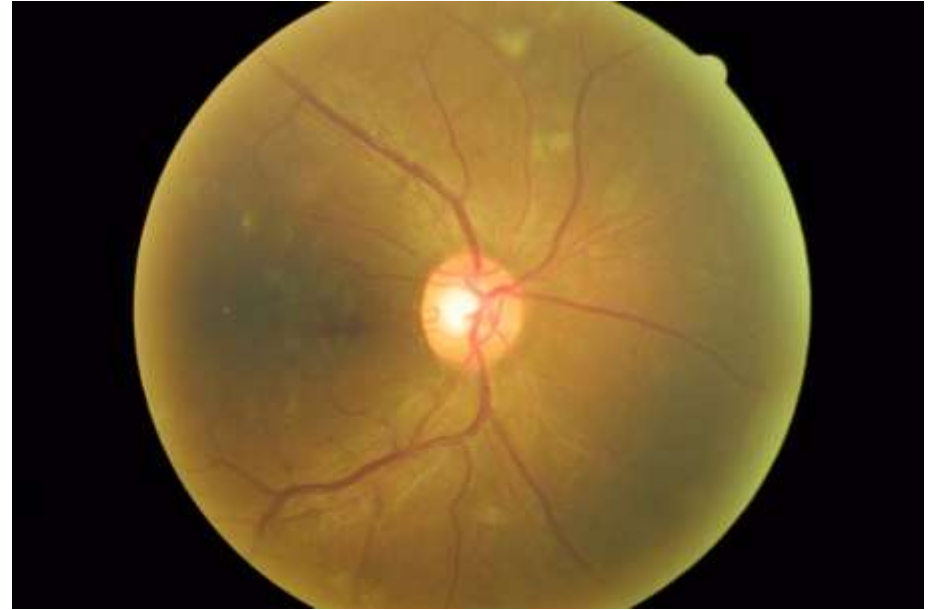
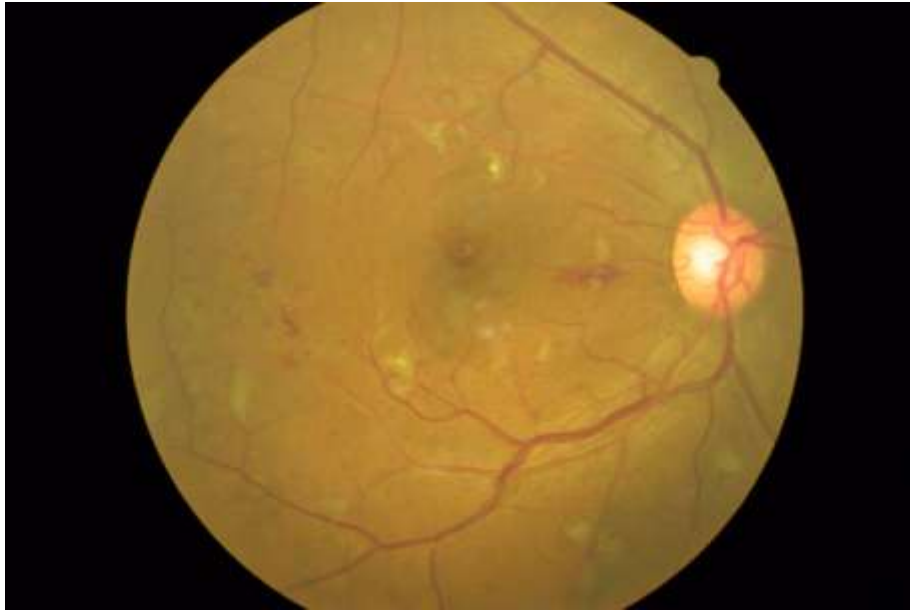
microaneurysm



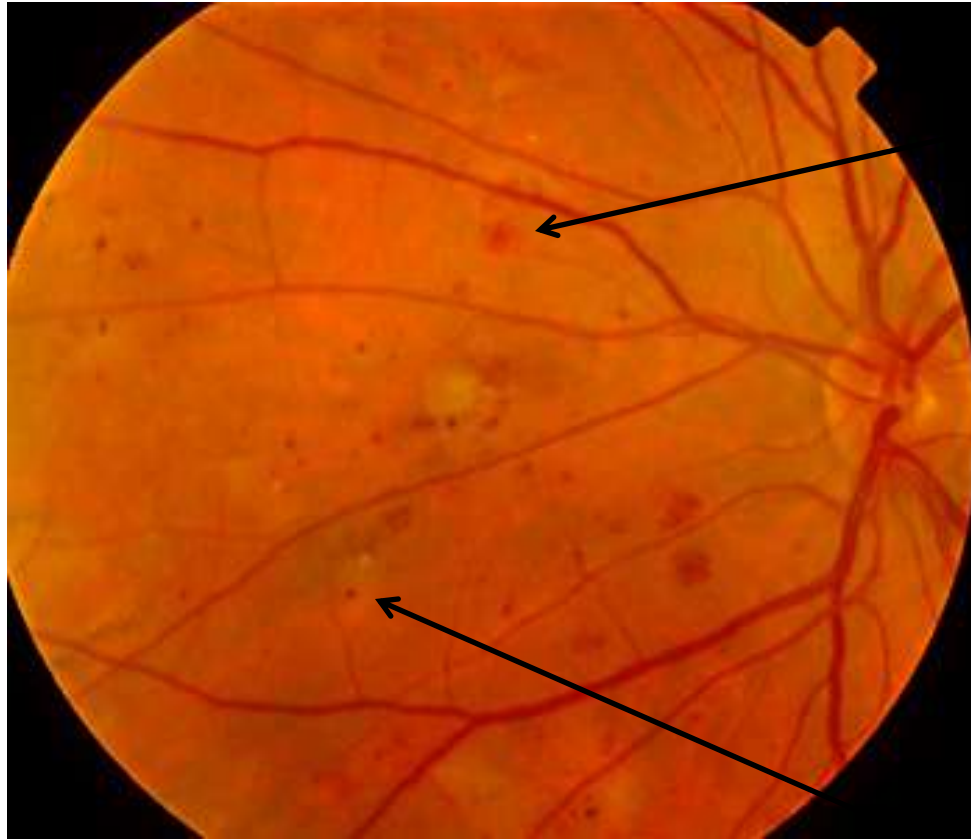
MODERATE NPDR



MODERATE NPDR



SEVERE NPDR



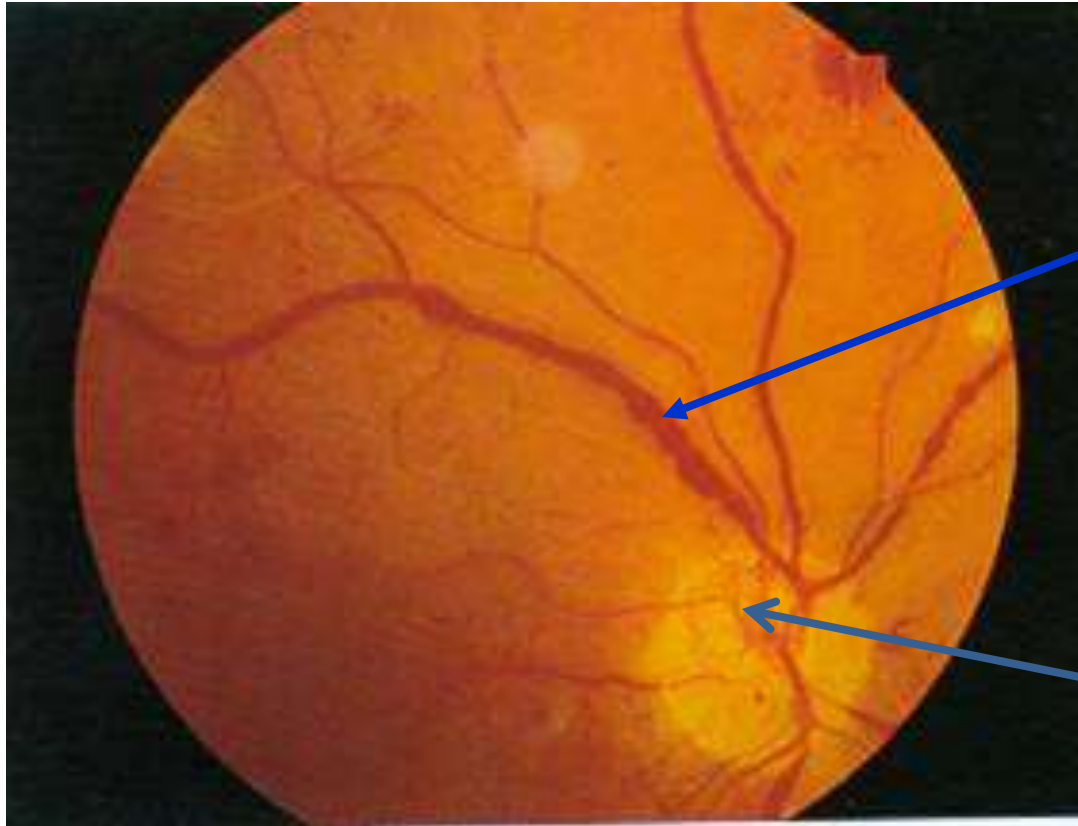
Blot haemorrhages

Dot haemorrhages

SEVERE NPDR



PROLIFERATIVE DR



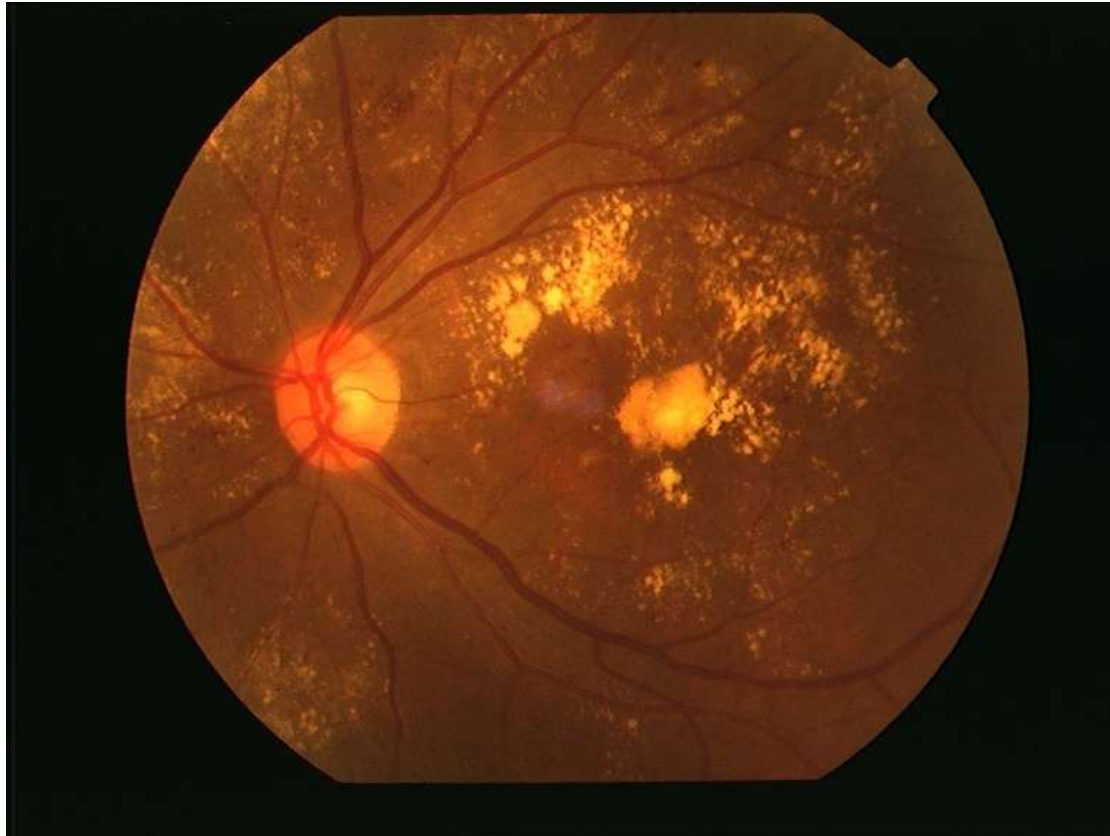
Venous
beading

New vessels
at disc

PROLIFERATIVE DR

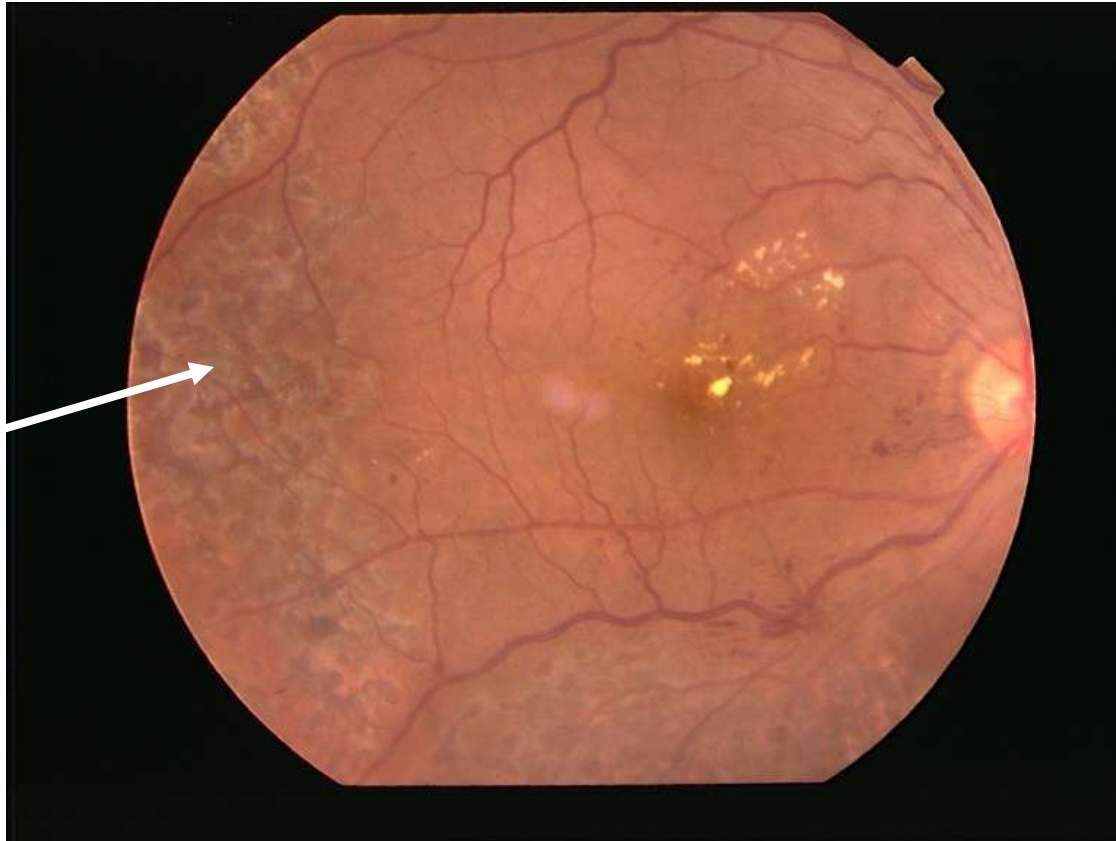


DIABETIC MACULOPATHY

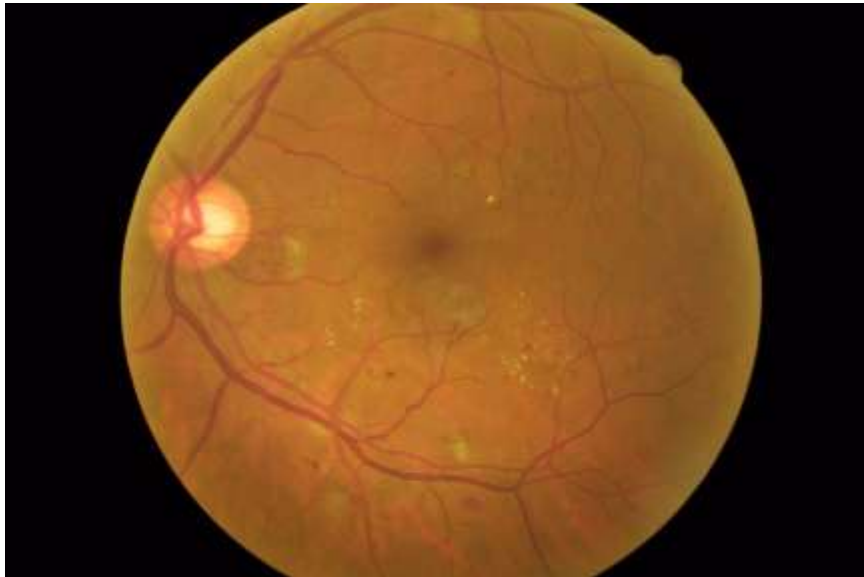


DIABETIC MACULOPATHY

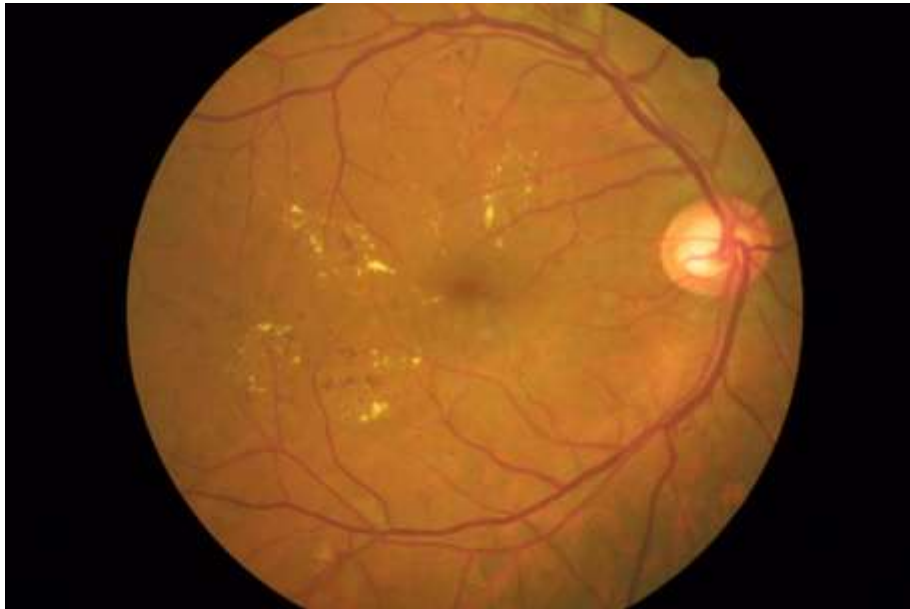
Laser
scars



MILD MACULOPATHY



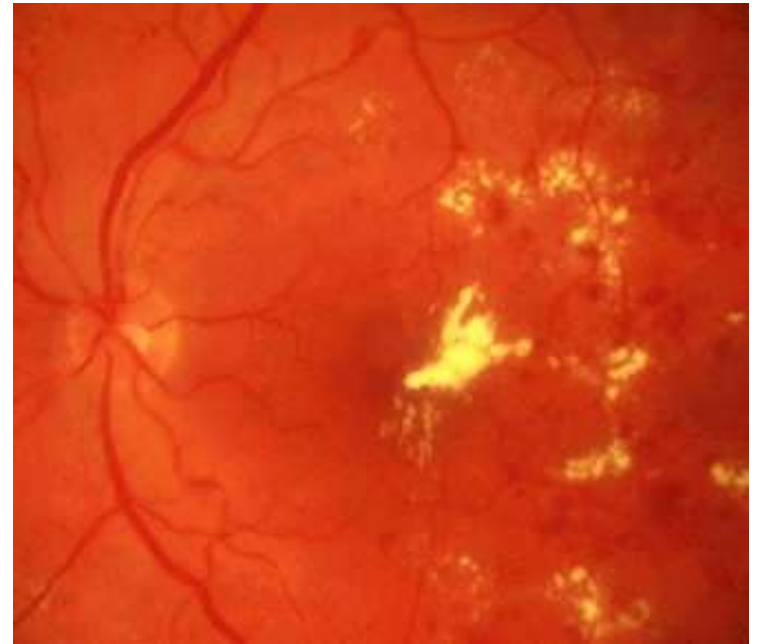
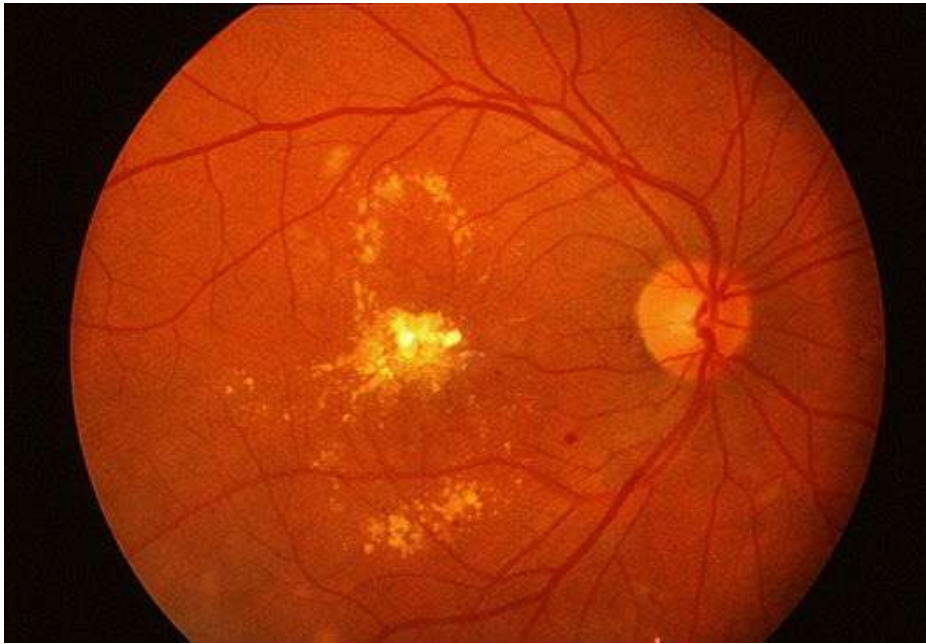
MODERATE MACULOPATHY



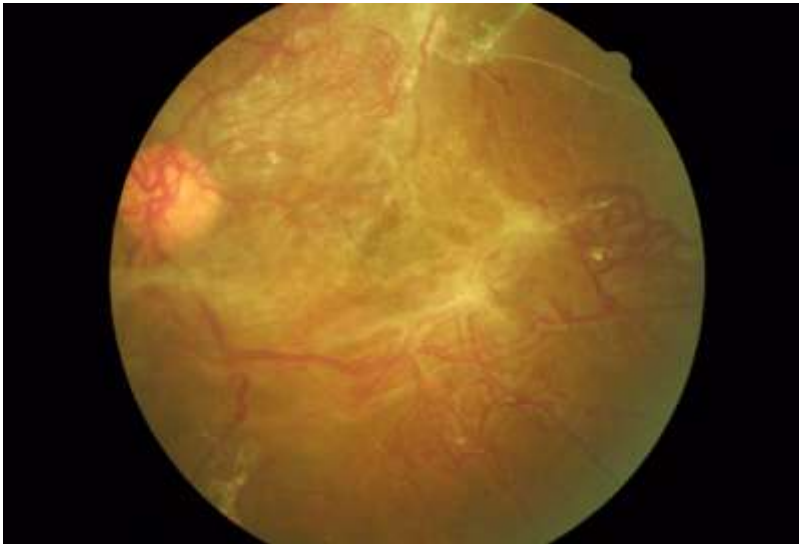
MODERATE MACULOPATHY



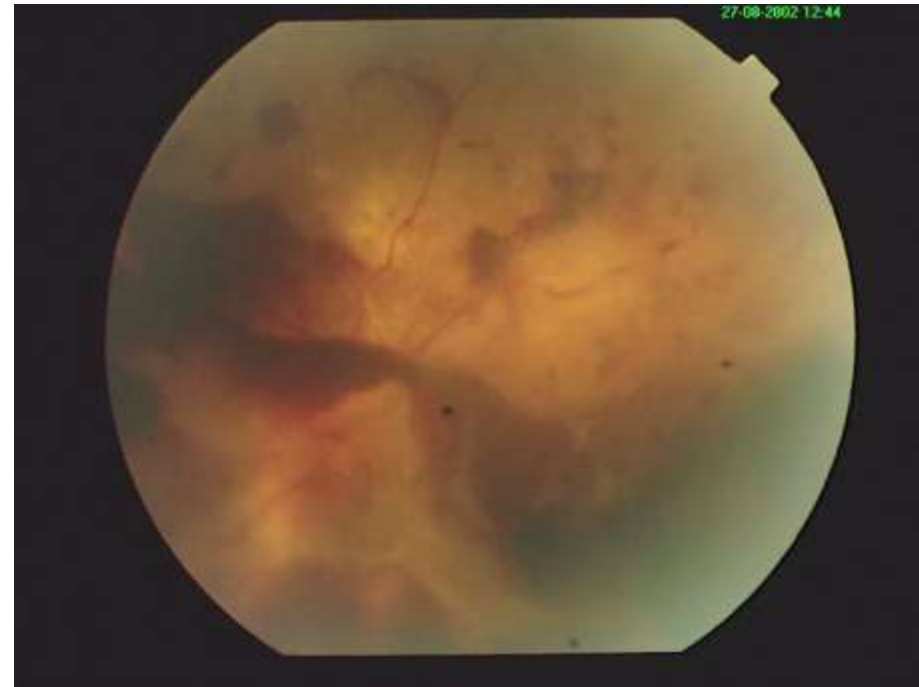
SEVERE MACULOPATHY



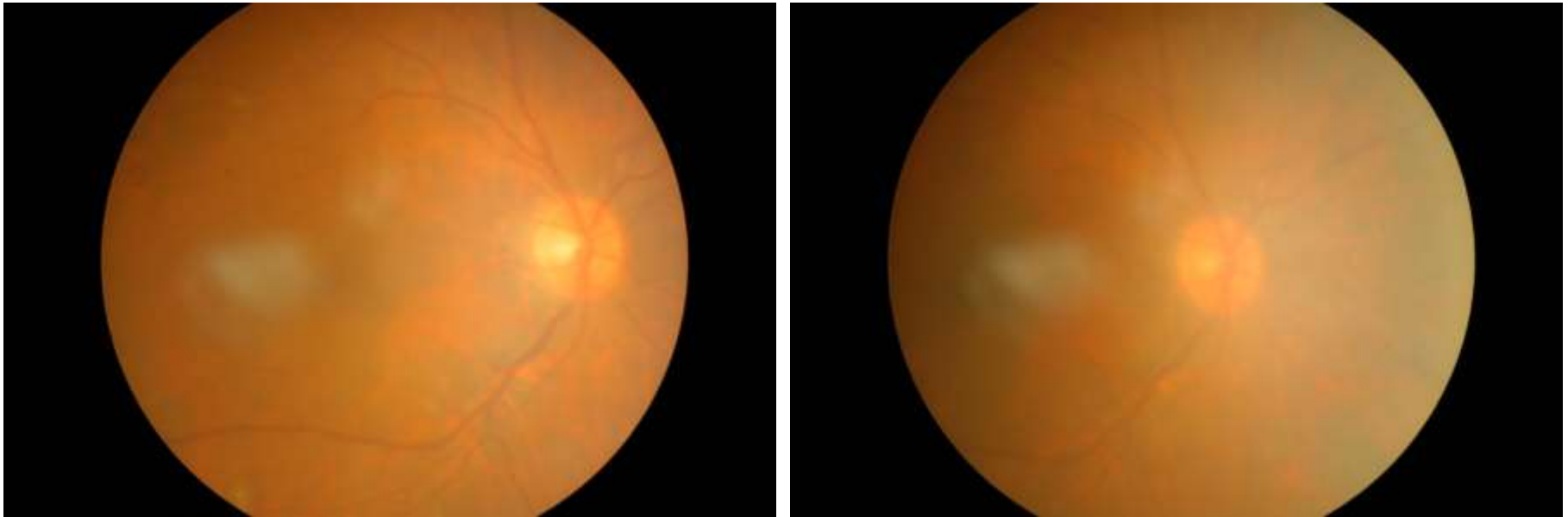
ADVANCED DIABETIC EYE DISEASE



ADVANCED DIABETIC EYE DISEASE



POOR QUALITY PHOTOS



Media opacity / small pupil / over exposed

RECOMMENDED FOLLOW UP SCHEDULE

STAGE OF RETINOPATHY	FOLLOW-UP
No DR	12 – 24 months
Mild NPDR without maculopathy	9 - 12 months
Moderate NPDR without maculopathy	6 months
Mild/moderate NPDR with maculopathy	Refer to Ophthalmologist
Severe NPDR without maculopathy	
Any maculopathy	
Proliferative DR	Refer urgently to Ophthalmologist
Advanced Diabetic Eye Disease (ADED)	
No DR to Mild NPDR In pregnant Women	Every 3 months
Moderate NPDR or worse in pregnant women	Refer to Ophthalmologist

WHEN TO REFER

Criteria for referral are :

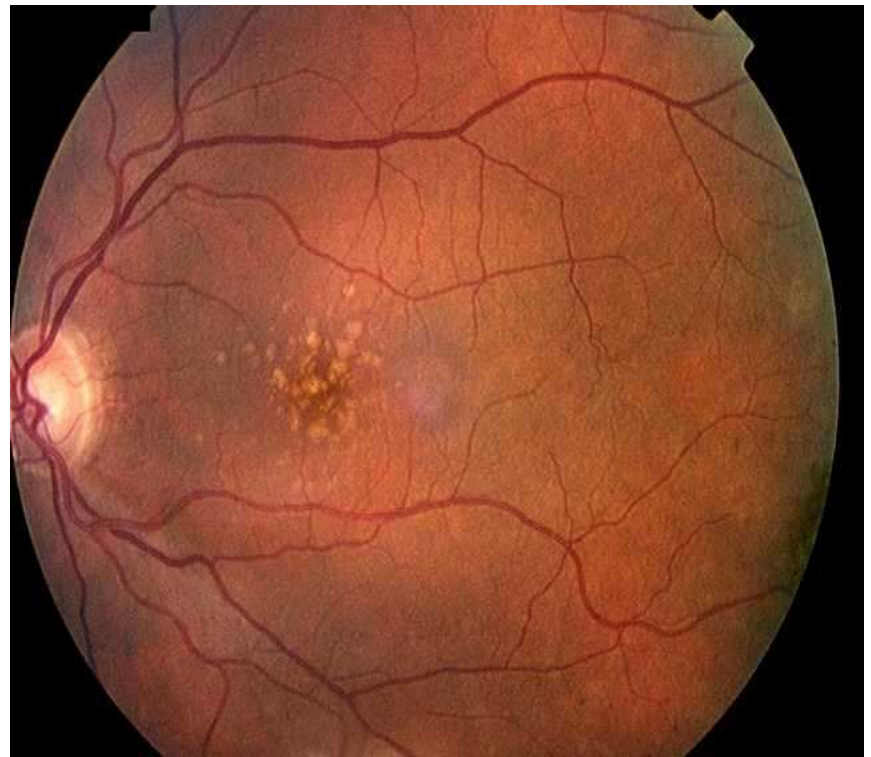
- Any level of diabetic maculopathy
- Severe NPDR
- Any PDR
- Unexplained visual loss
- If screening examination cannot be performed including ungradable fundus photo

CRITERIA FOR URGENT REFERRAL

URGENCY OF REFERRAL	OCULAR FEATURES
Emergency (same day referral)	<ul style="list-style-type: none">• Sudden severe visual loss• Symptoms or signs of acute retinal detachment
Within 1 week	<ul style="list-style-type: none">• Presence of retinal new vessels• Preretinal haemorrhages• Vitreous haemorrhage• Rubeosis iridis
Within 4 weeks	<ul style="list-style-type: none">• Unexplained drop in visual acuity• Any form of maculopathy• Severe NPDR• Worsening retinopathy

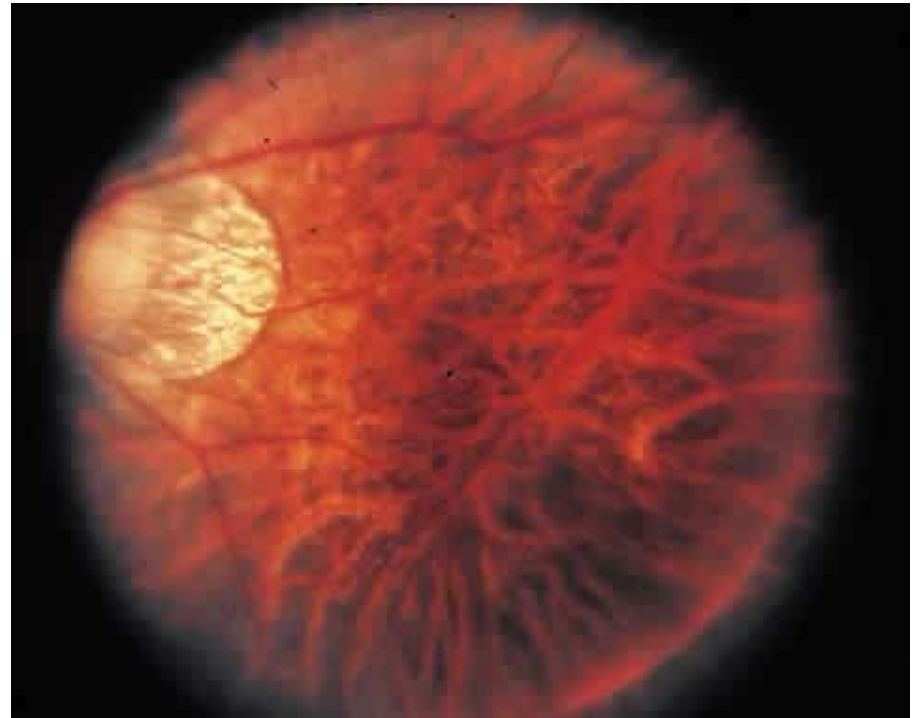
OTHER ABNORMAL FUNDUS FINDINGS

- **DRUSEN**



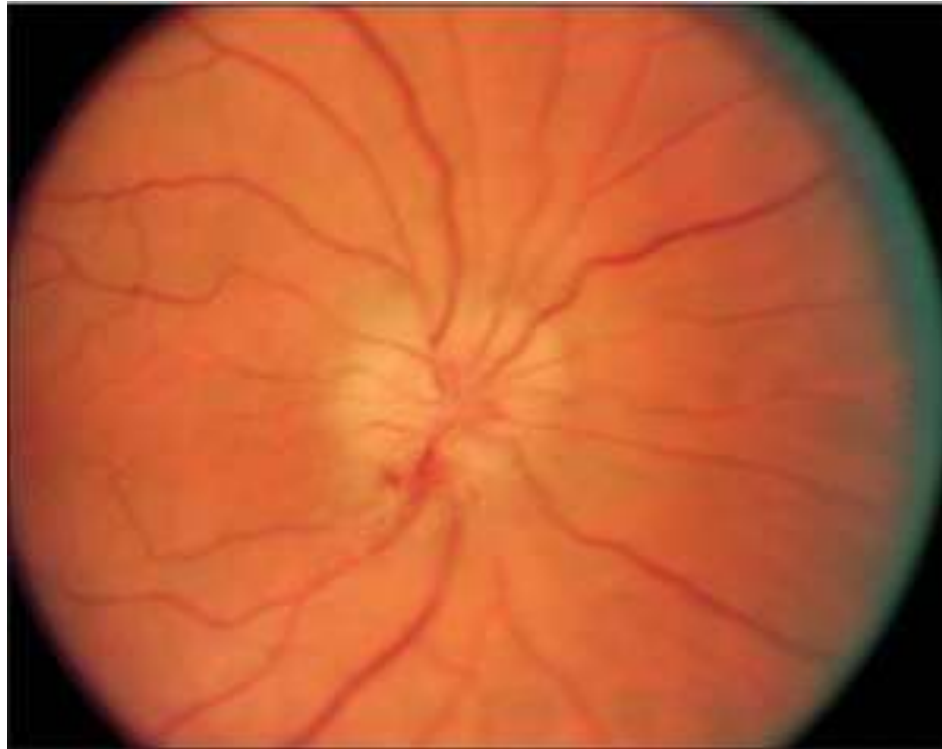
OTHER ABNORMAL FUNDUS FINDINGS

- MYOPIC CRESENT



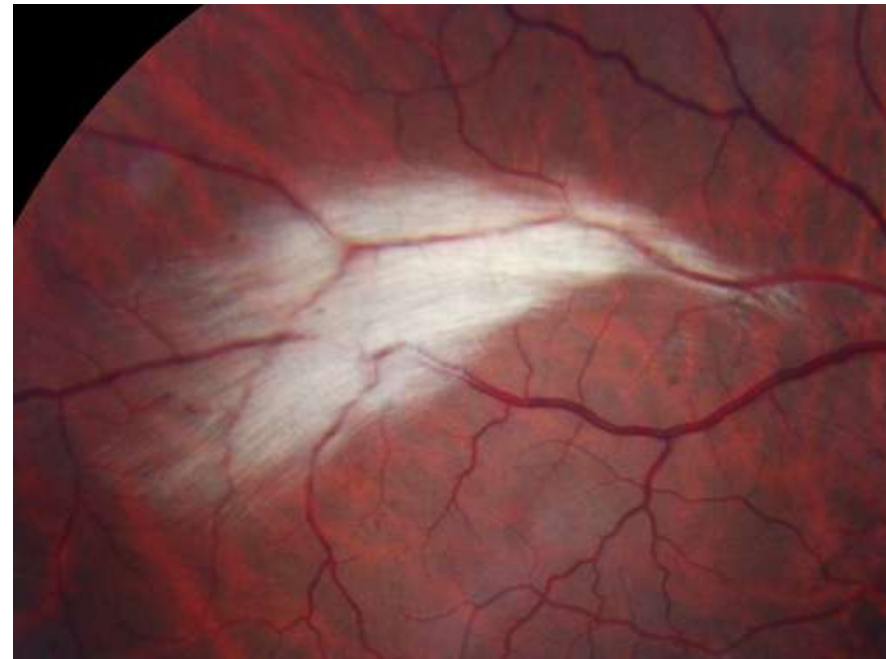
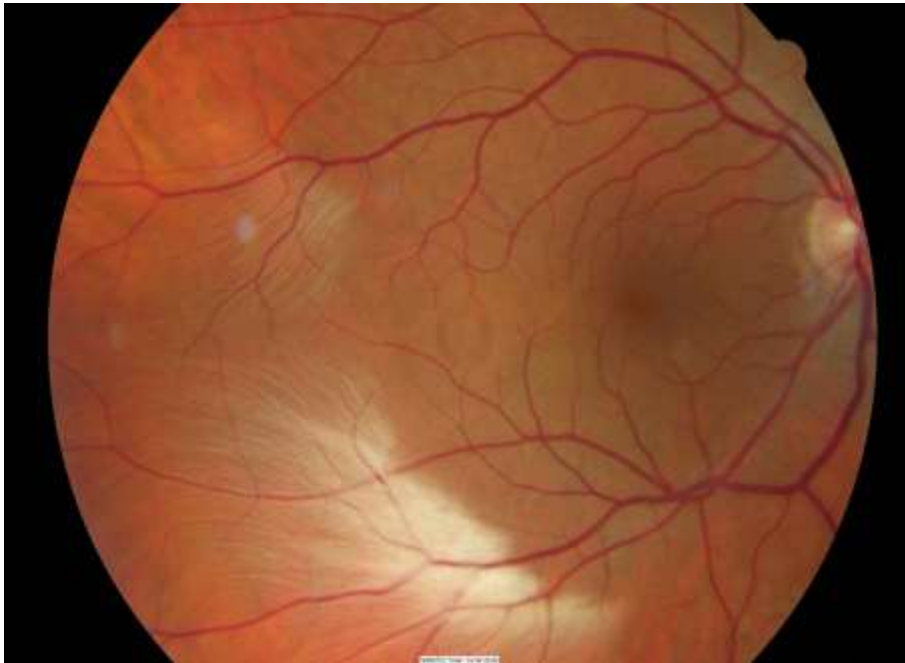
OTHER ABNORMAL FUNDUS FINDINGS

- OPTIC DISC SWELLING



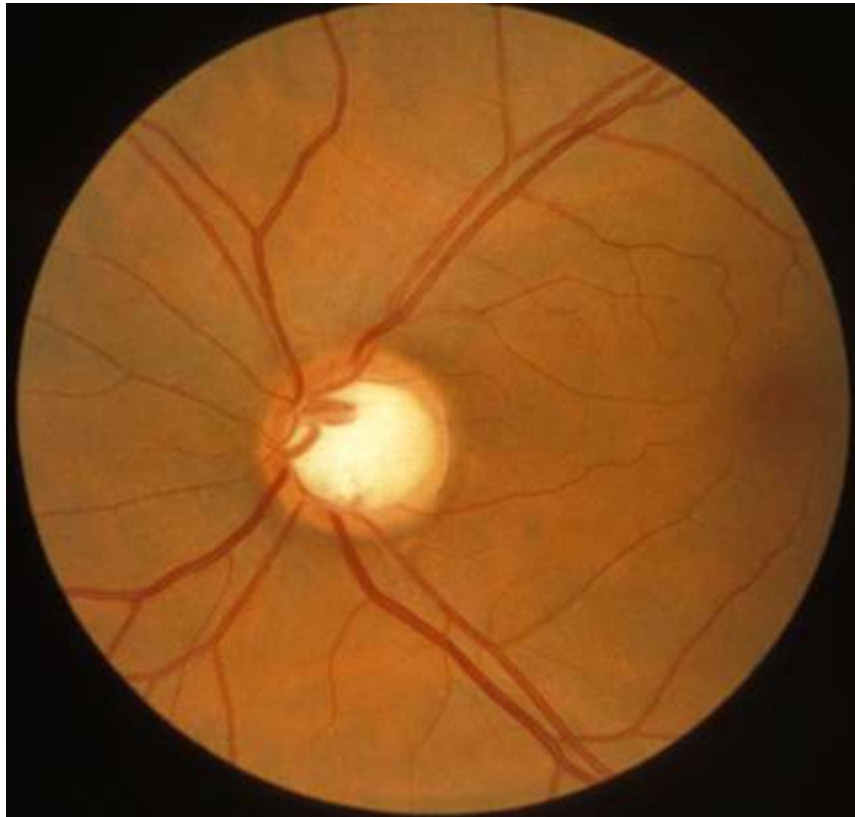
OTHER ABNORMAL FUNDUS FINDINGS

- MYELINATED NERVE FIBRE



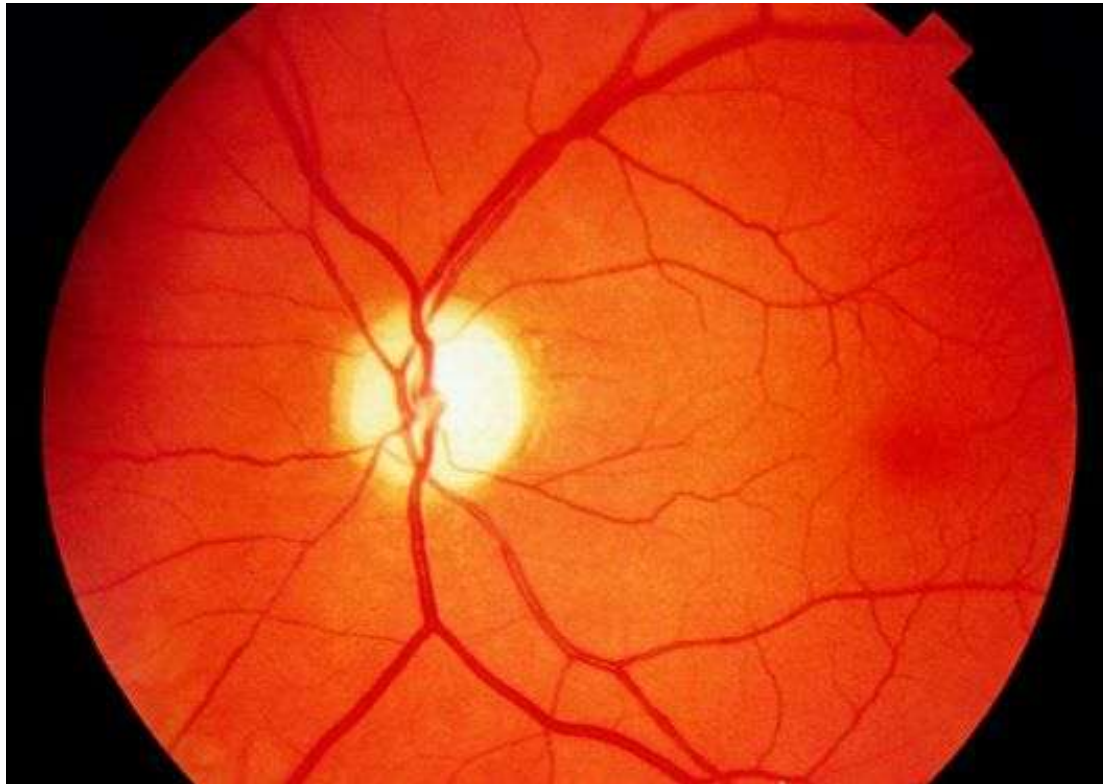
OTHER ABNORMAL FUNDUS FINDINGS

- GLAUCOMATOUS CUP



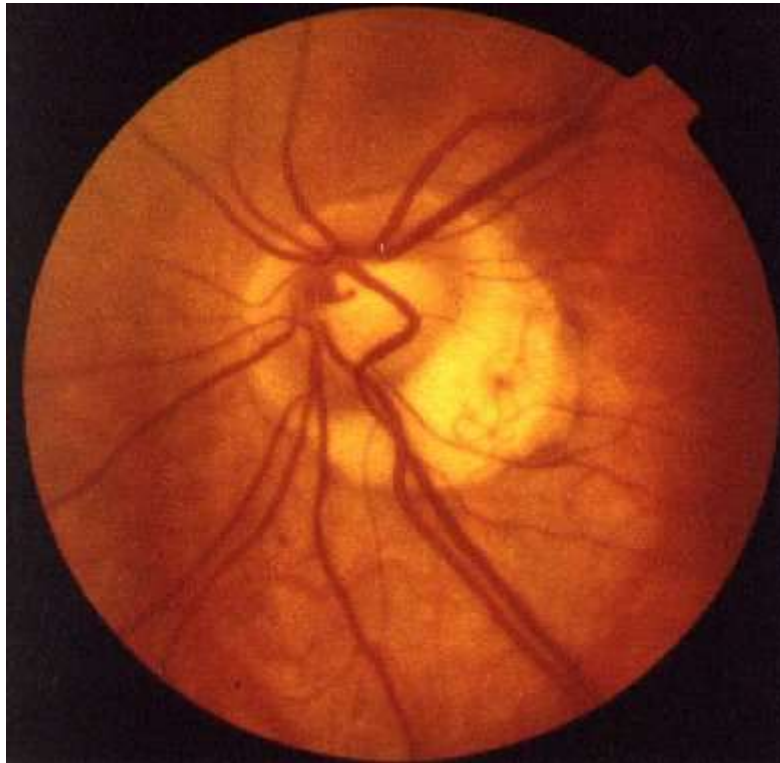
OTHER ABNORMAL FUNDUS FINDINGS

- OPTIC ATROPHY



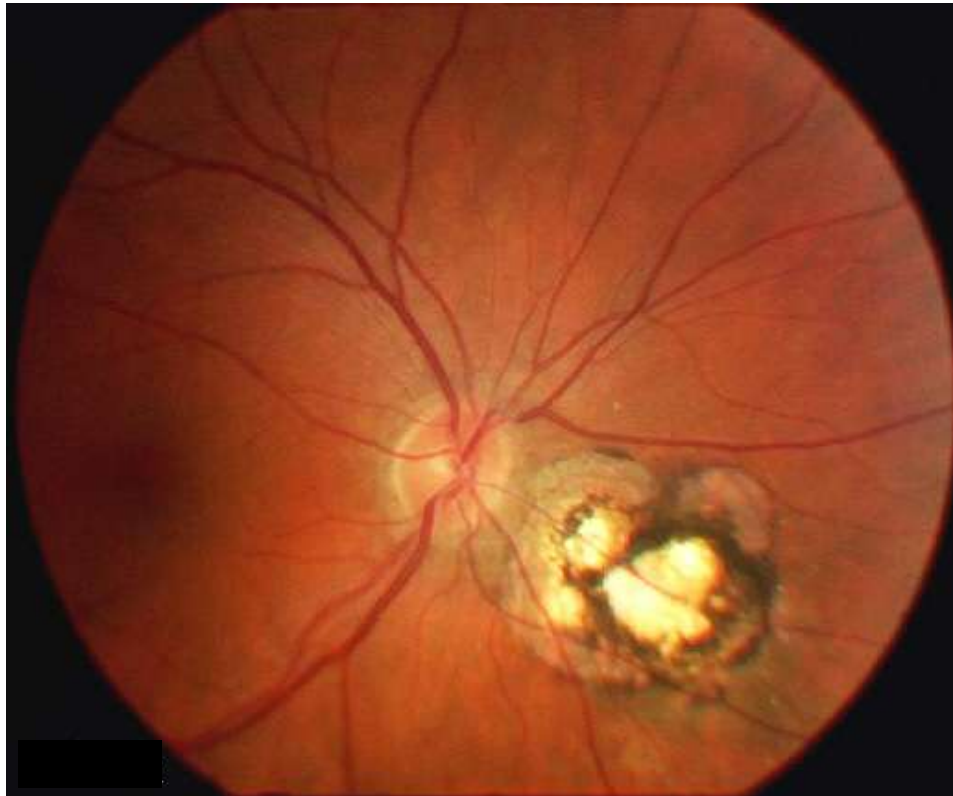
OTHER ABNORMAL FUNDUS FINDINGS

- TILTED OPTIC DISC



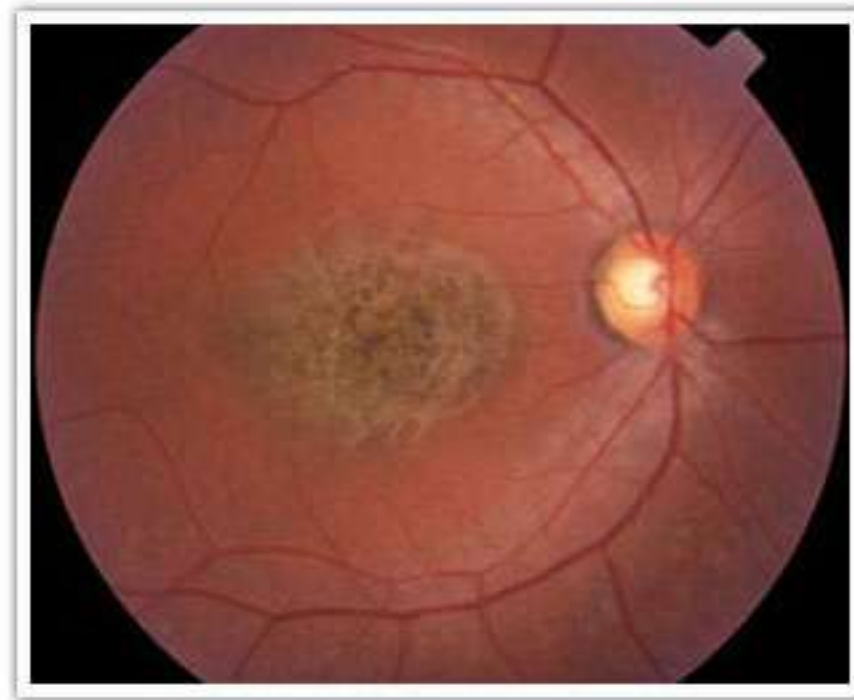
OTHER ABNORMAL FUNDUS FINDINGS

- CHORIORETINAL SCAR



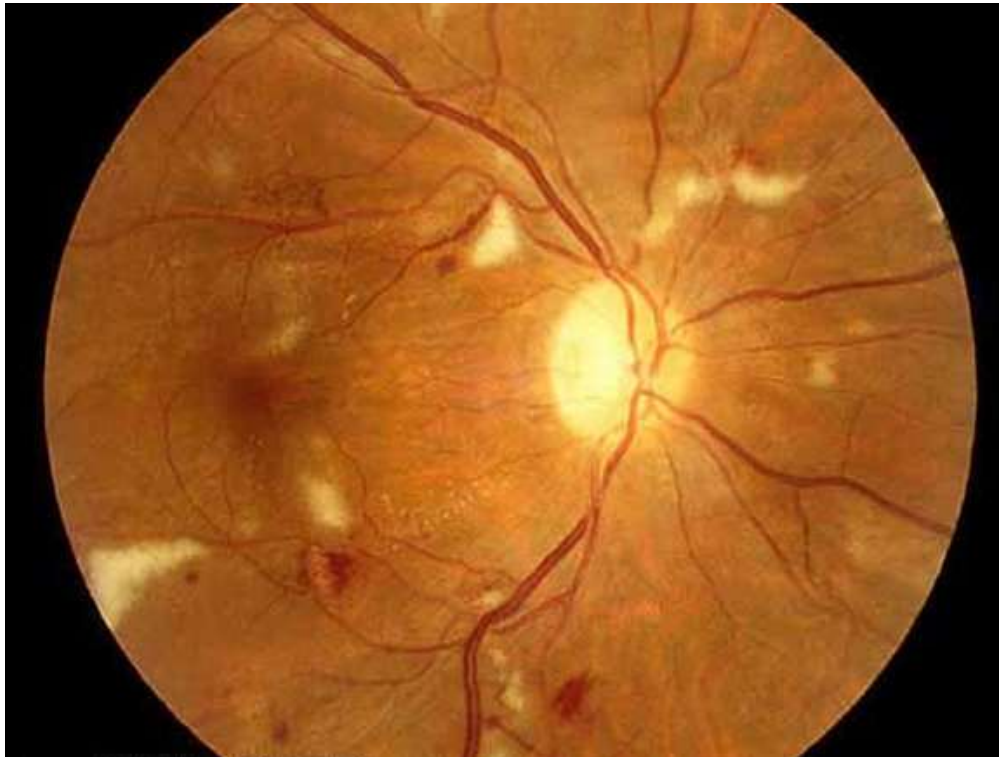
OTHER ABNORMAL FUNDUS FINDINGS

- MACULA SCAR



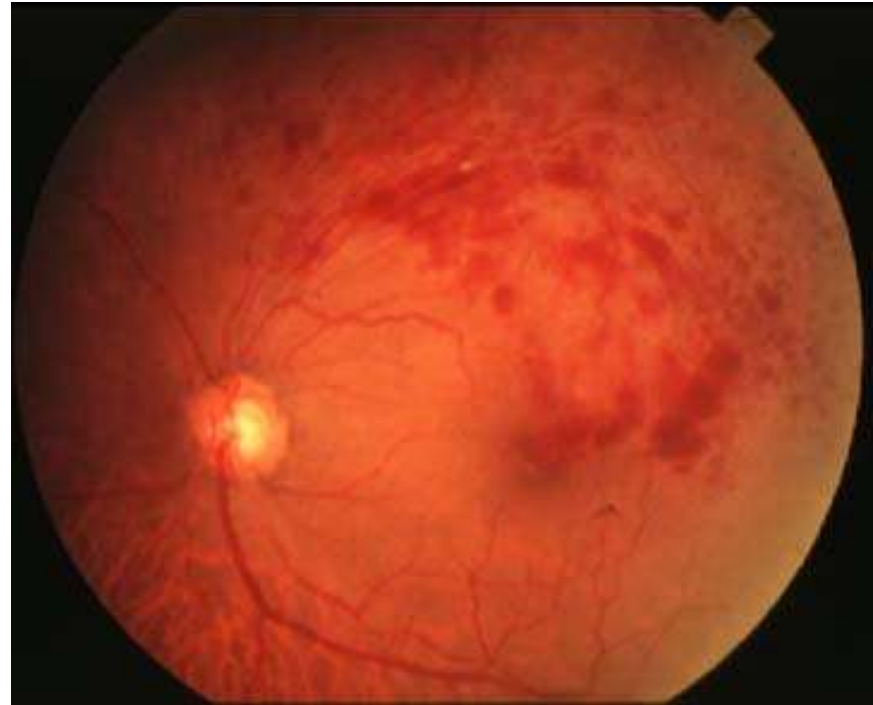
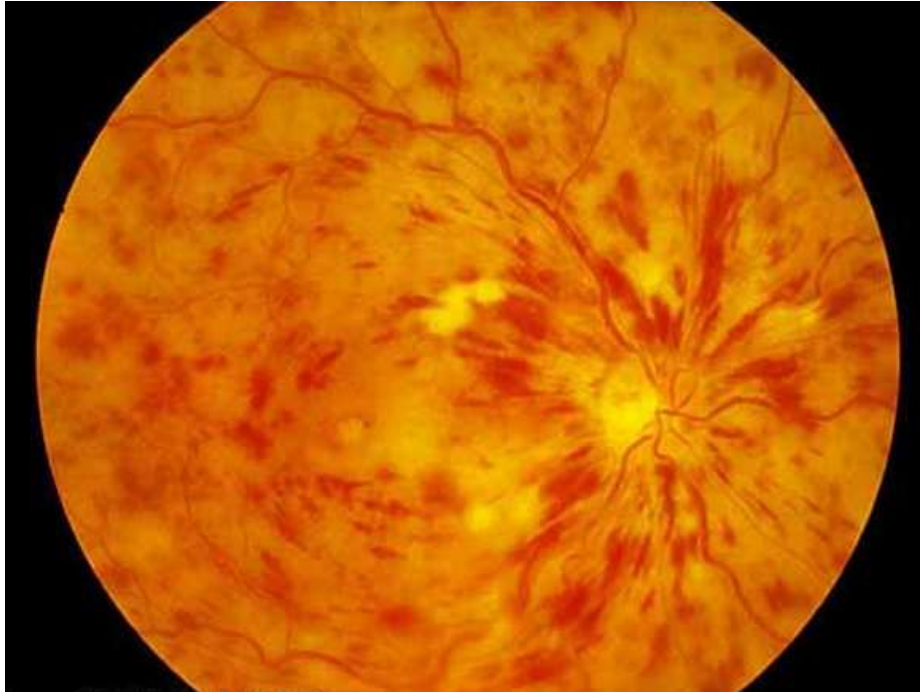
OTHER ABNORMAL FUNDUS FINDINGS

- HYPERTENSIVE RETINOPATHY



OTHER ABNORMAL FUNDUS FINDINGS

- CRVO/BRVO



A photograph of a waterfall cascading over dark, wet rocks in a lush green forest. The water is white and frothy as it falls, creating a series of small pools and rapids. The surrounding vegetation is dense and vibrant green, with ferns and other plants visible on the rocky slopes. In the background, a wooden fence and some trees are visible under a slightly overcast sky.

Thank you