



Diabetic retinopathy

(diagnostics, therapy, classification)

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Diabetes mellitus- definition

- **Diabetes mellitus** is disease with high glucose level (hyperglycaemia) due to absolute or relative lack of insulin produced in beta cells of Langerhans pancreatic islets

Diabetes mellitus (late complications)

1. retinopathy
2. nephropathy
3. diabetic foot
4. neuropathy

Diabetic retinopathy (definition)

- **Diabetic retinopathy is microangiopathy,**
- **HbA1c is very important**

Classification of diabetic retinopathy

1. Nonproliferative DR (NPDR)

2. Proliferative DR (PDR)

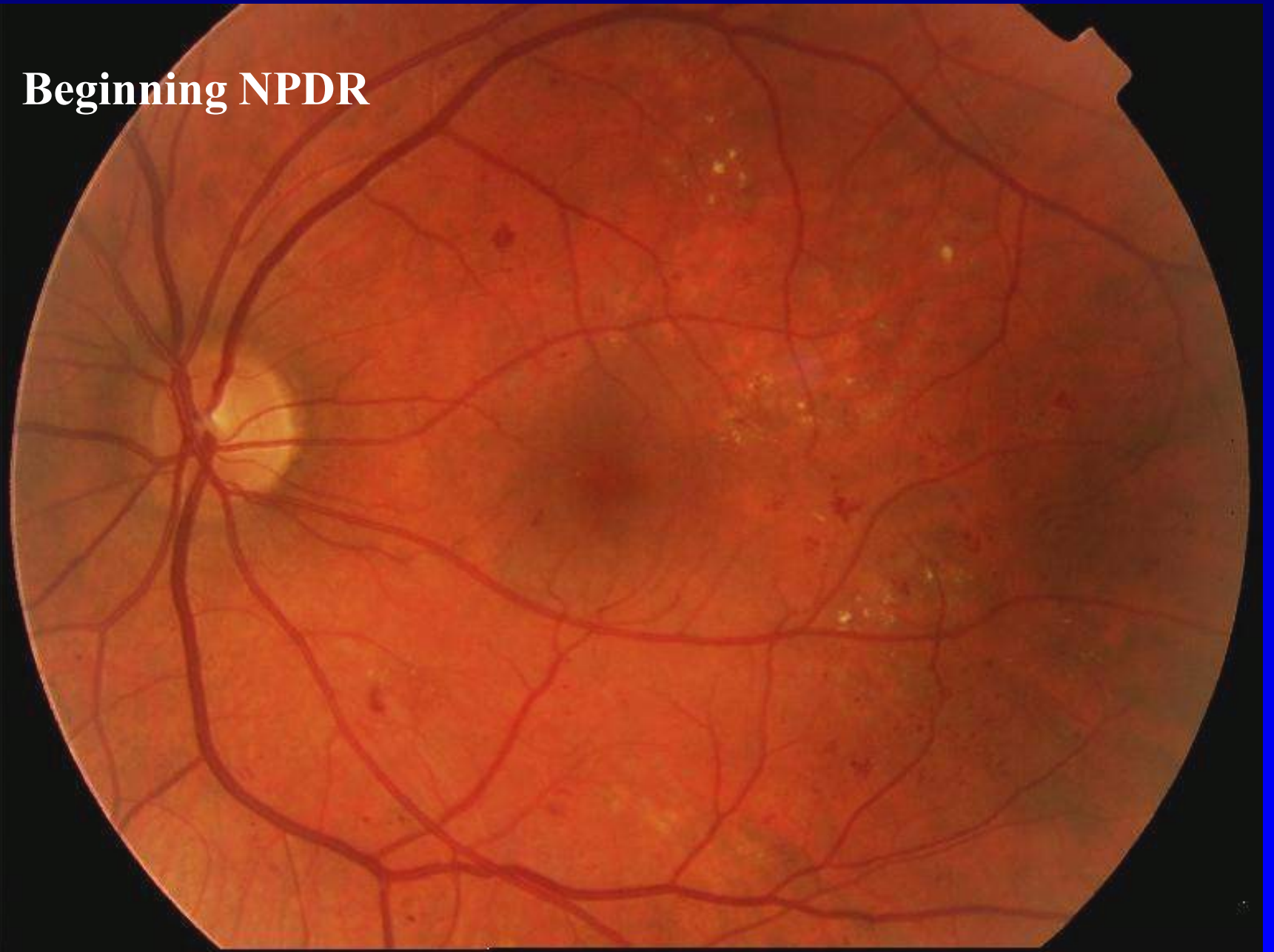
3. Diabetic maculopathy (M)

(each level of diabetic retinopathy may or may not be accompanied by diabetic maculopathy)

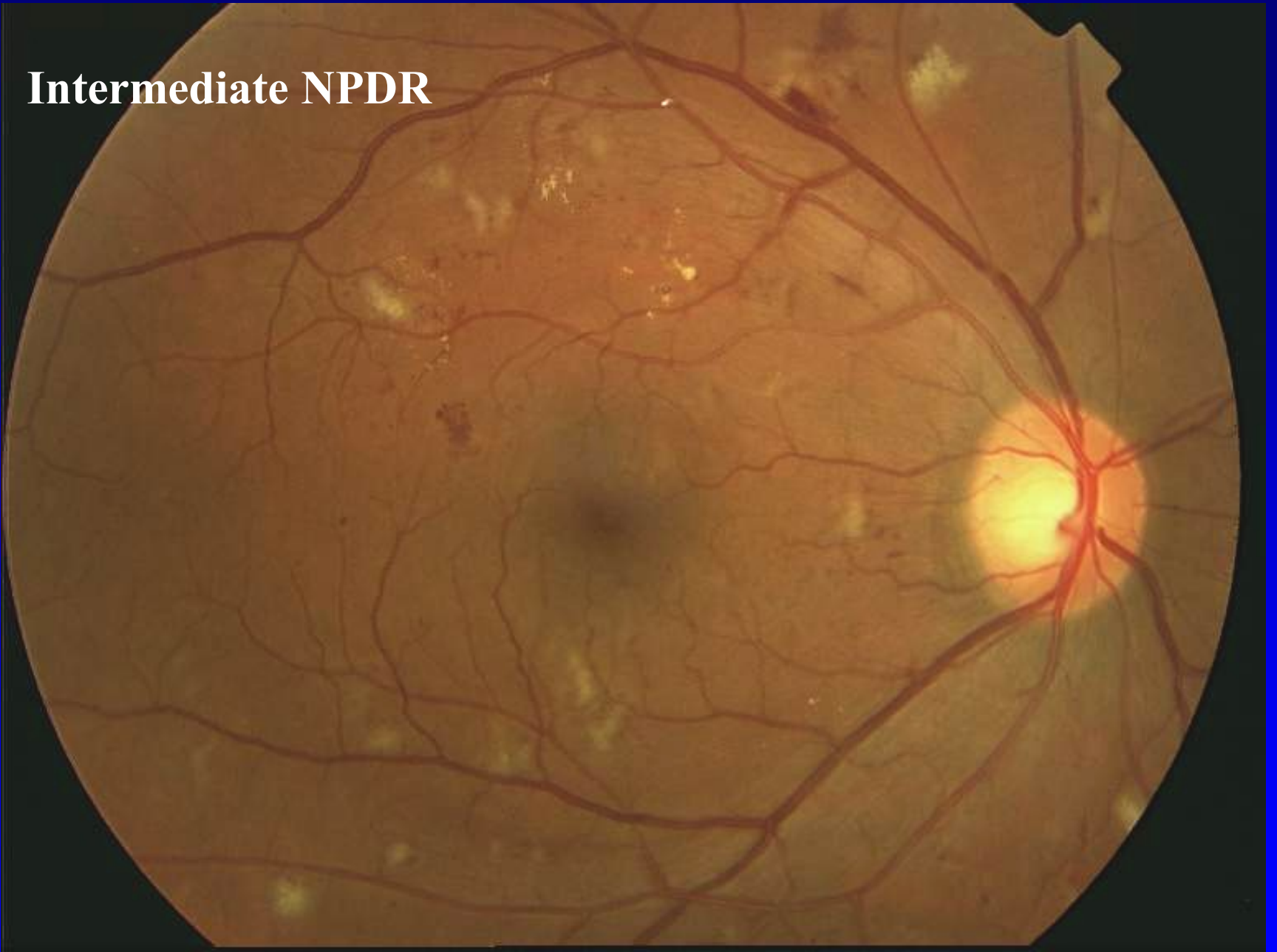
Nonproliferative DR (NPDR)

- **Beginning**
- **Intermediate**
- **Advanced**

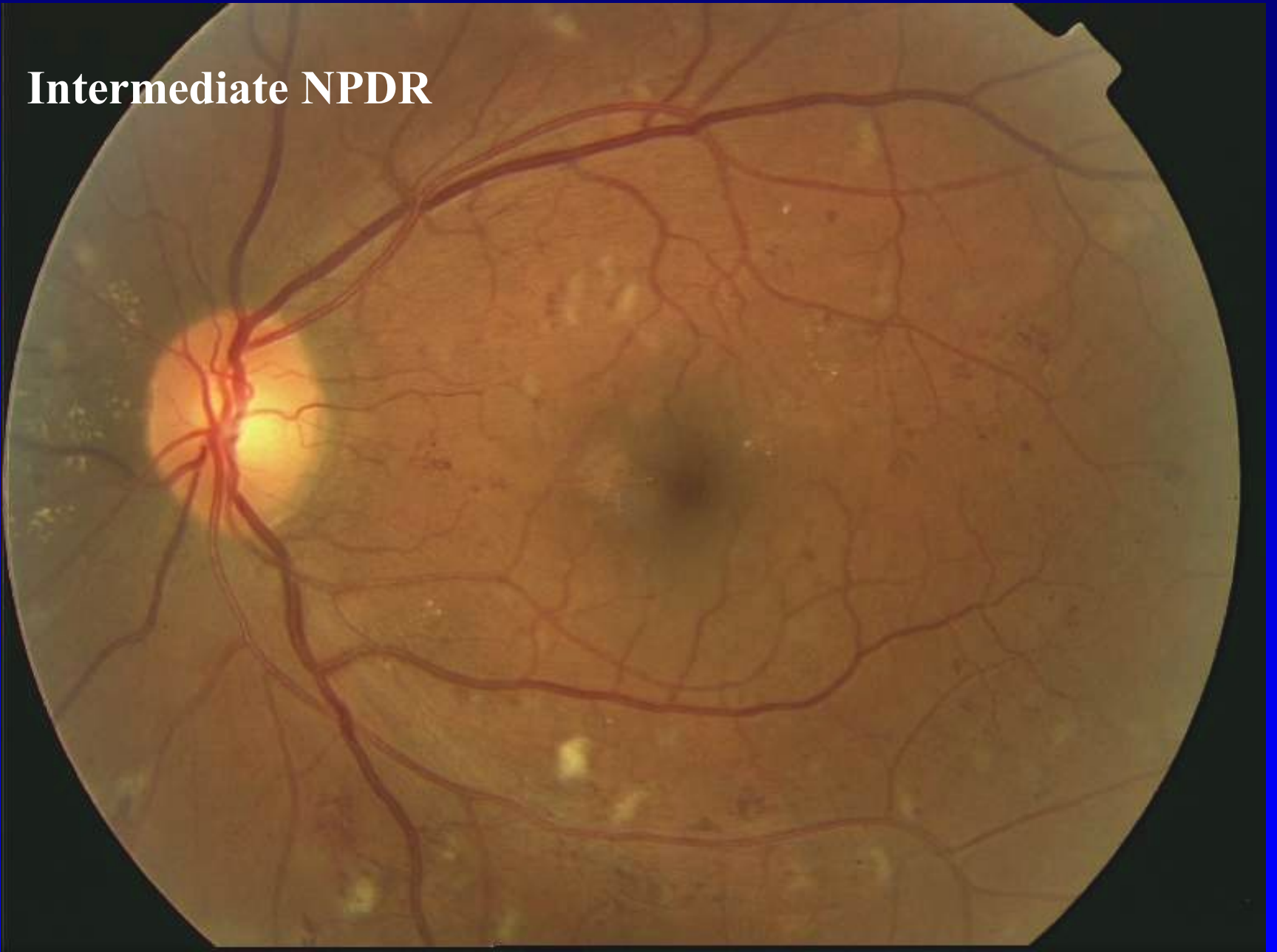
Beginning NPDR



Intermediate NPDR



Intermediate NPDR



Advanced NPDR



Proliferative DR (PDR)

- **Light**
- **Intermediate**
- **Fully advanced** VH- vitreous hemorrhage, PRH- preretinal hemorrhage, TRD- tractional retinal detachment at center of macula

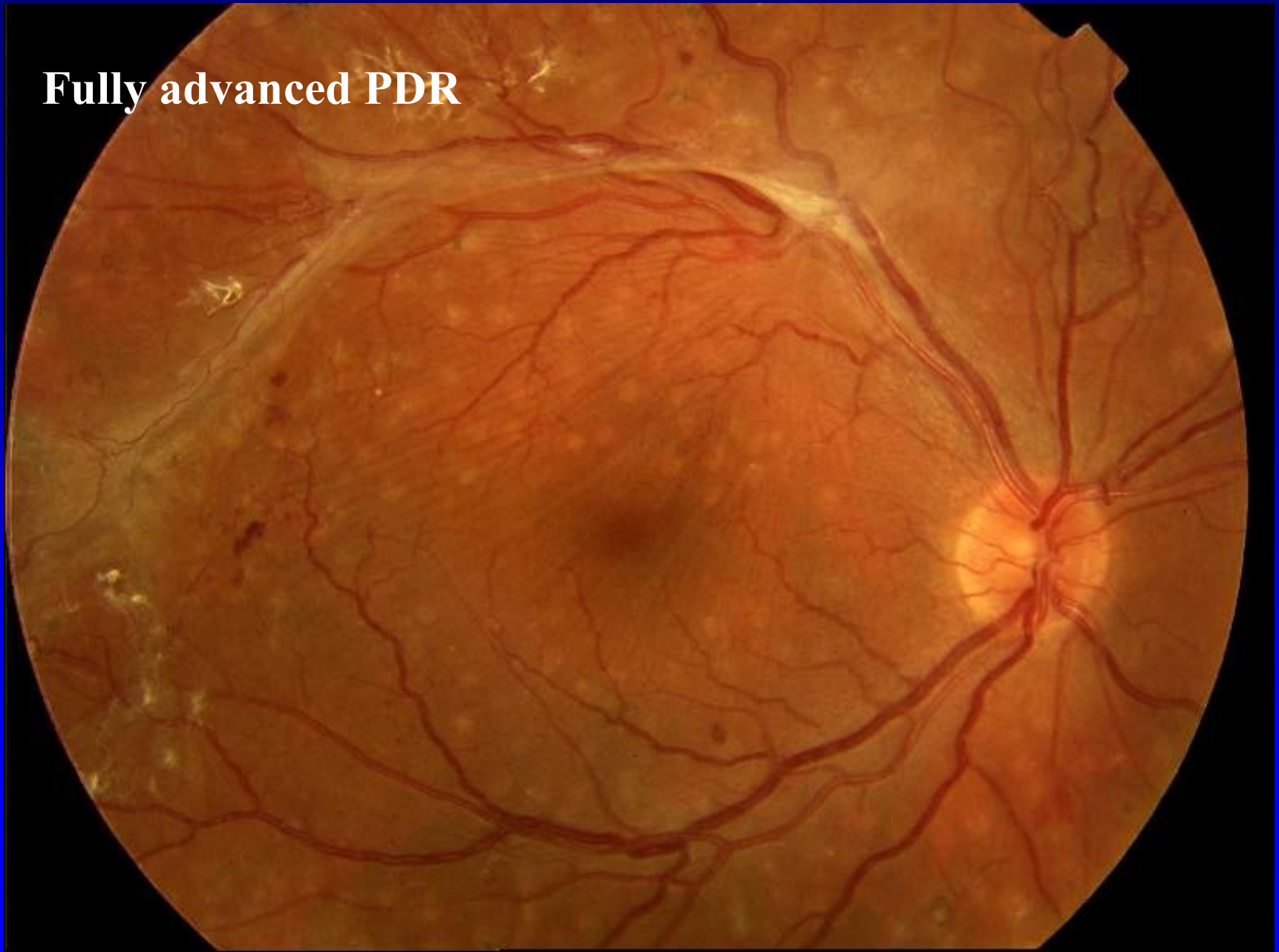
Light PDR



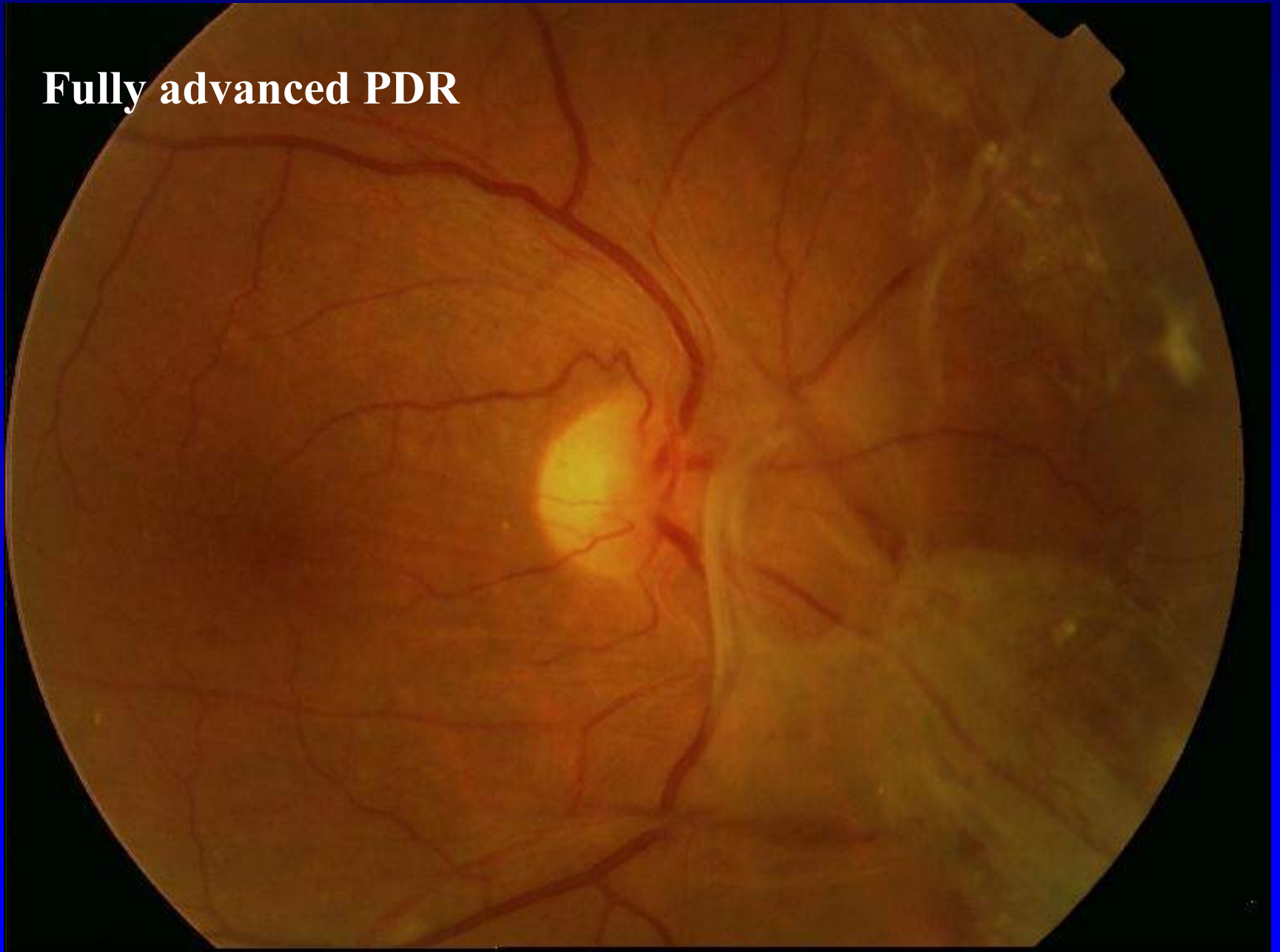
Intermediate PDR



Fully advanced PDR



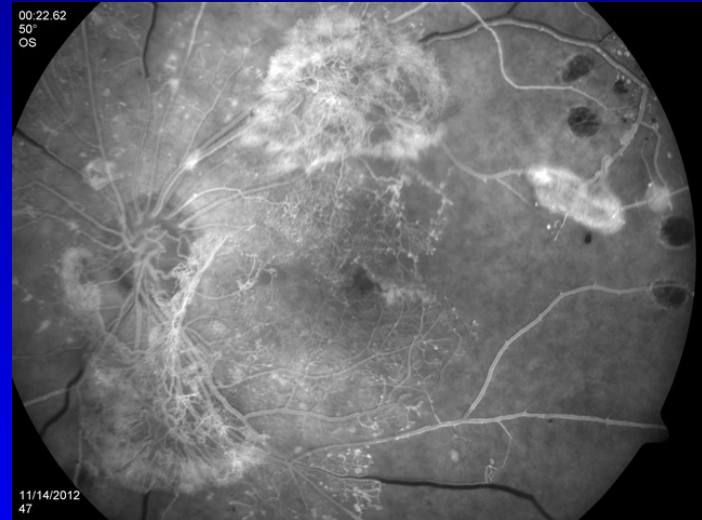
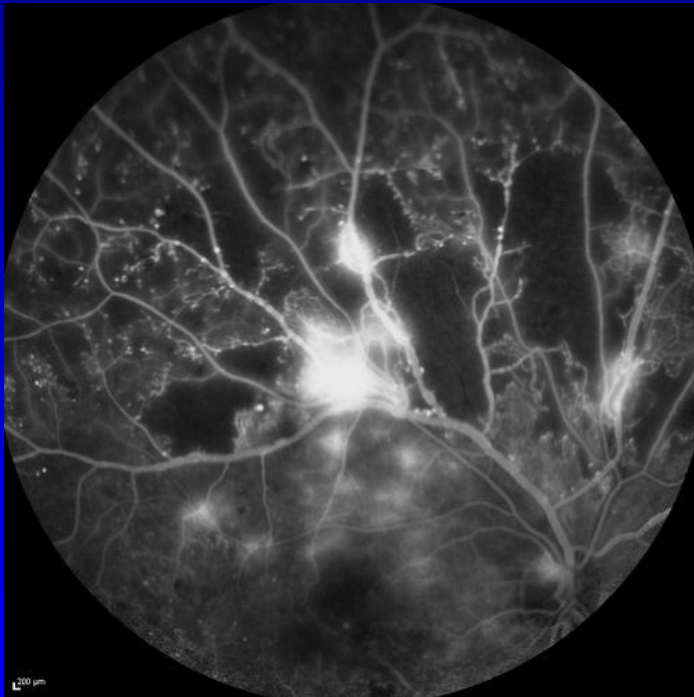
Fully advanced PDR



**Vitreous hemorrhage in
fully advanced PDR**



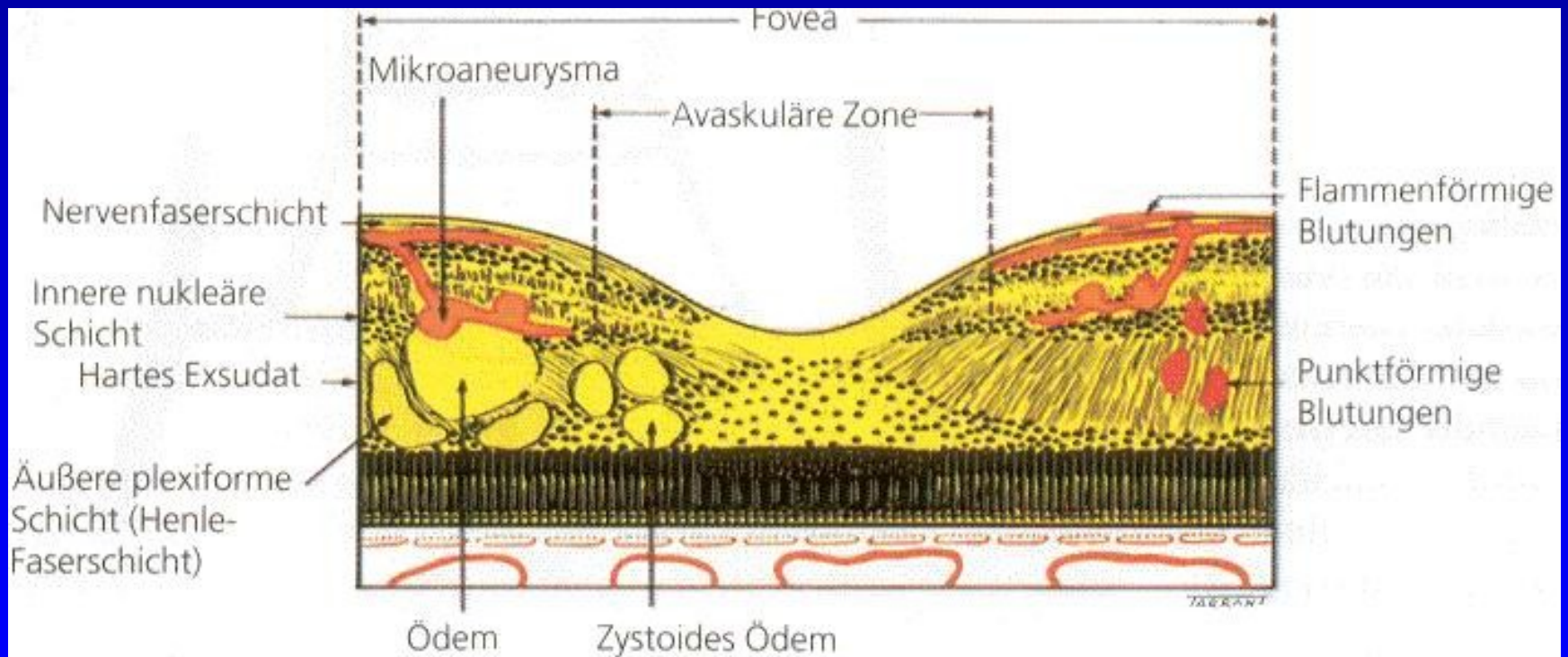
Fluorescein angiography



Diabetic maculopathy (M)

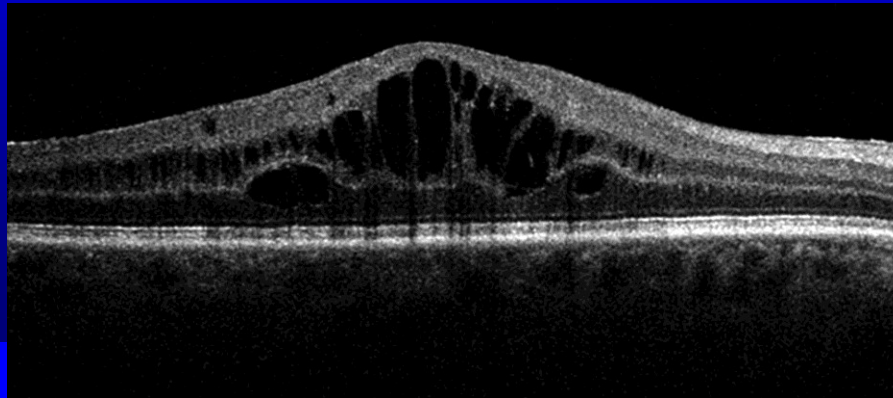
- Macular area is a predilection site for edema formation
- Microangiopathy leads to ischemia, fluid accumulation, formation of microcysts and cysts
- Hard exudates (lipid accumulation) occur on the boundary of ischemic and normal retina

Diabetic makulopathy (M)



Diabetic makulopathy (classification)

- **Focal edema**
- **Difuse edema**
- **Ischemic edema** (rare)- avascular zone in macula



Focal edema



Difuse edema



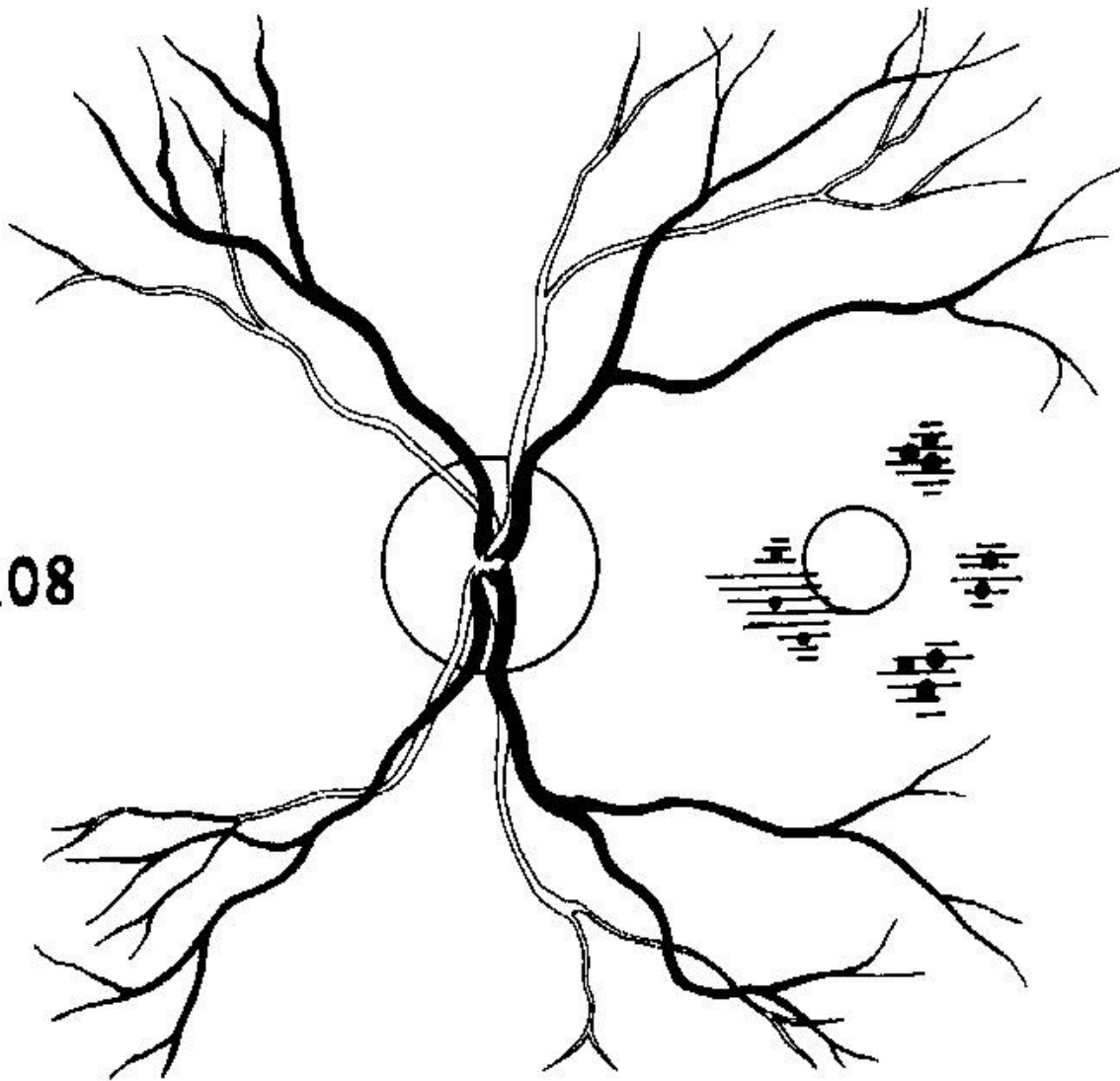
Ischemic edema



Macular oedema – laser therapy

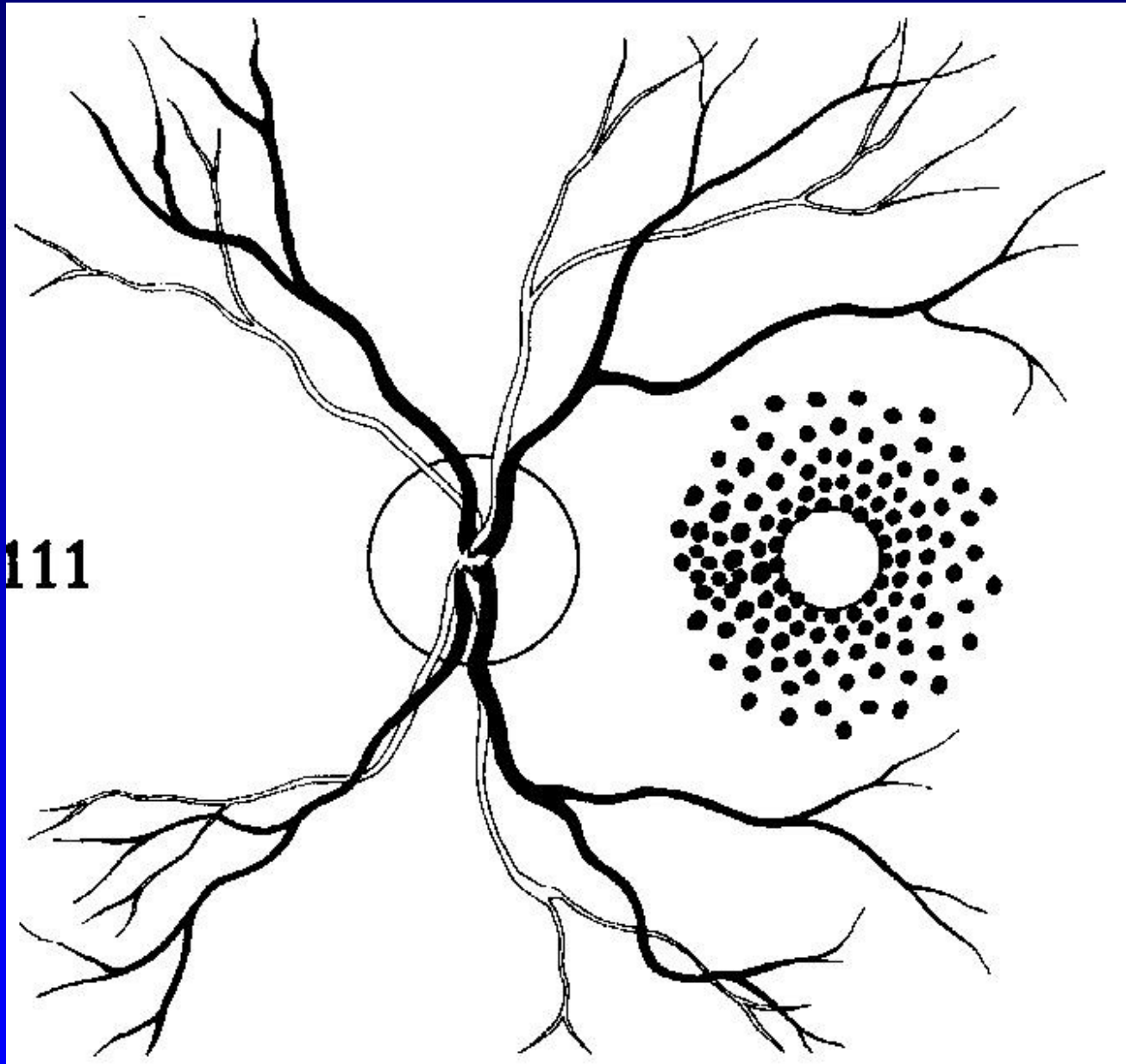
1. Focal
2. Grid

108



Focal laser





111

Grid laser

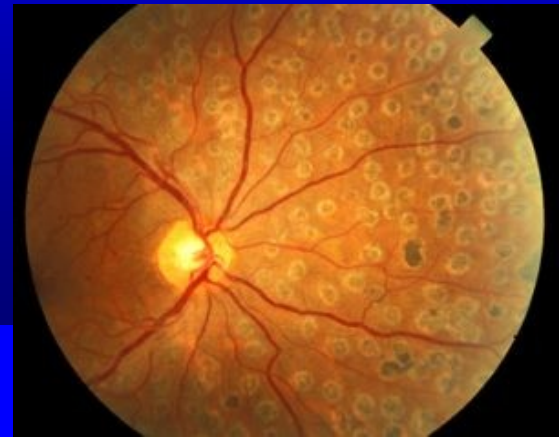


Macular oedema - anti VEGF

1. DME without reaction to laser therapy
2. Good compensation of DME
3. Lasting of DME < 2 years

Therapy of diabetic retinopathy

- Gold standard is laser photocoagulation of ischemic retinal parts – panretinal photocoagulation
- Laser can't be performed in central macular zone



Laser spots in retina
suffered from NPDR



Surgical therapy of DR

- **Pars plana vitrectomy**- (Machemer, Parel – 1970) – tractional retinal detachment, haemophthalmus