Diabetic macula oedema and lucentis

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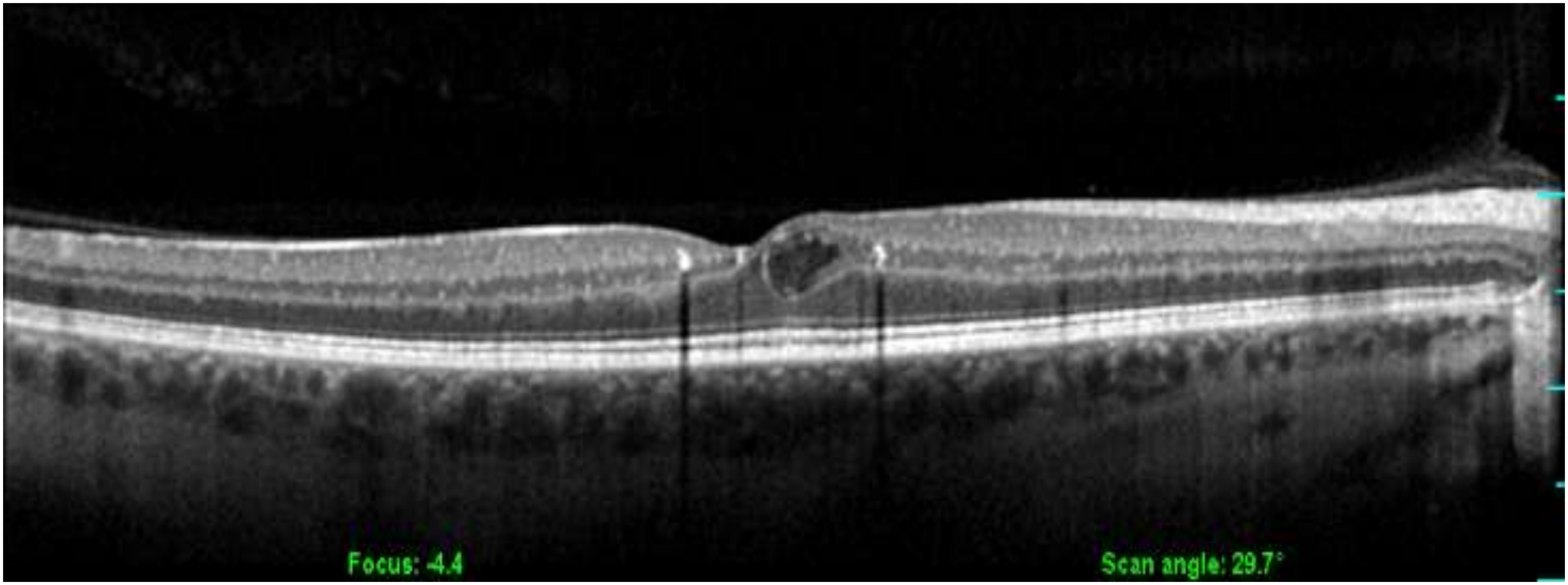
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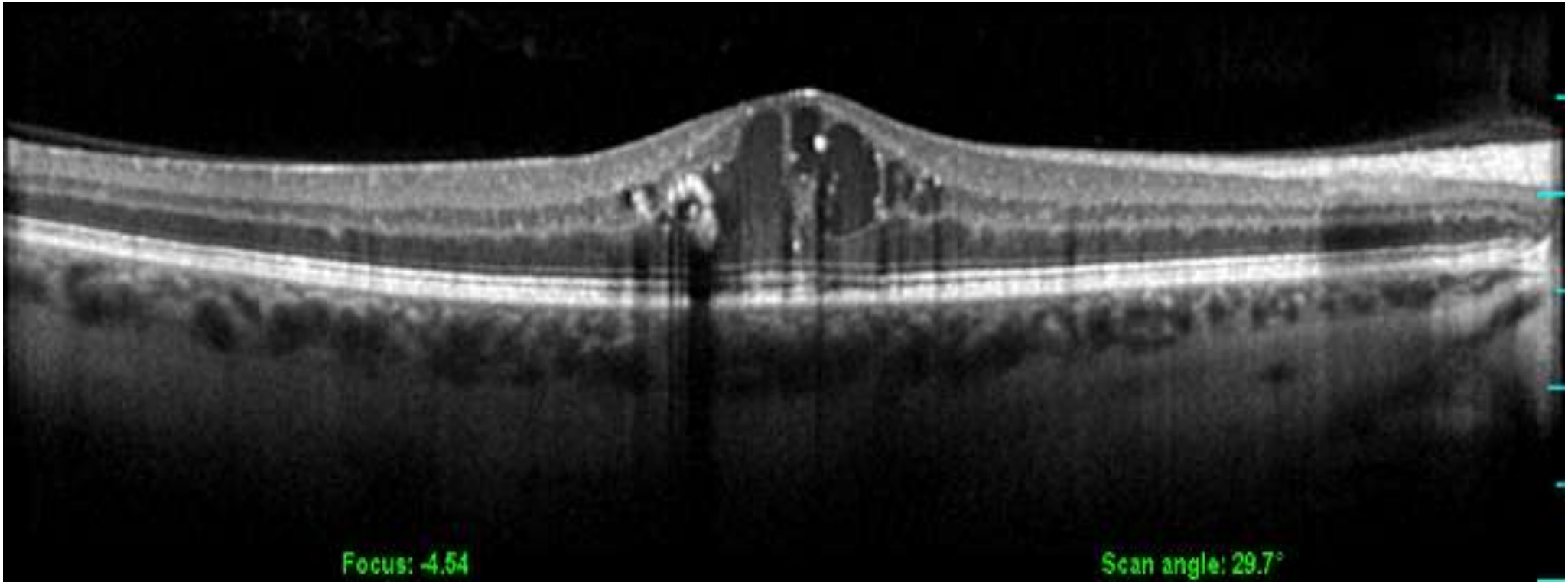
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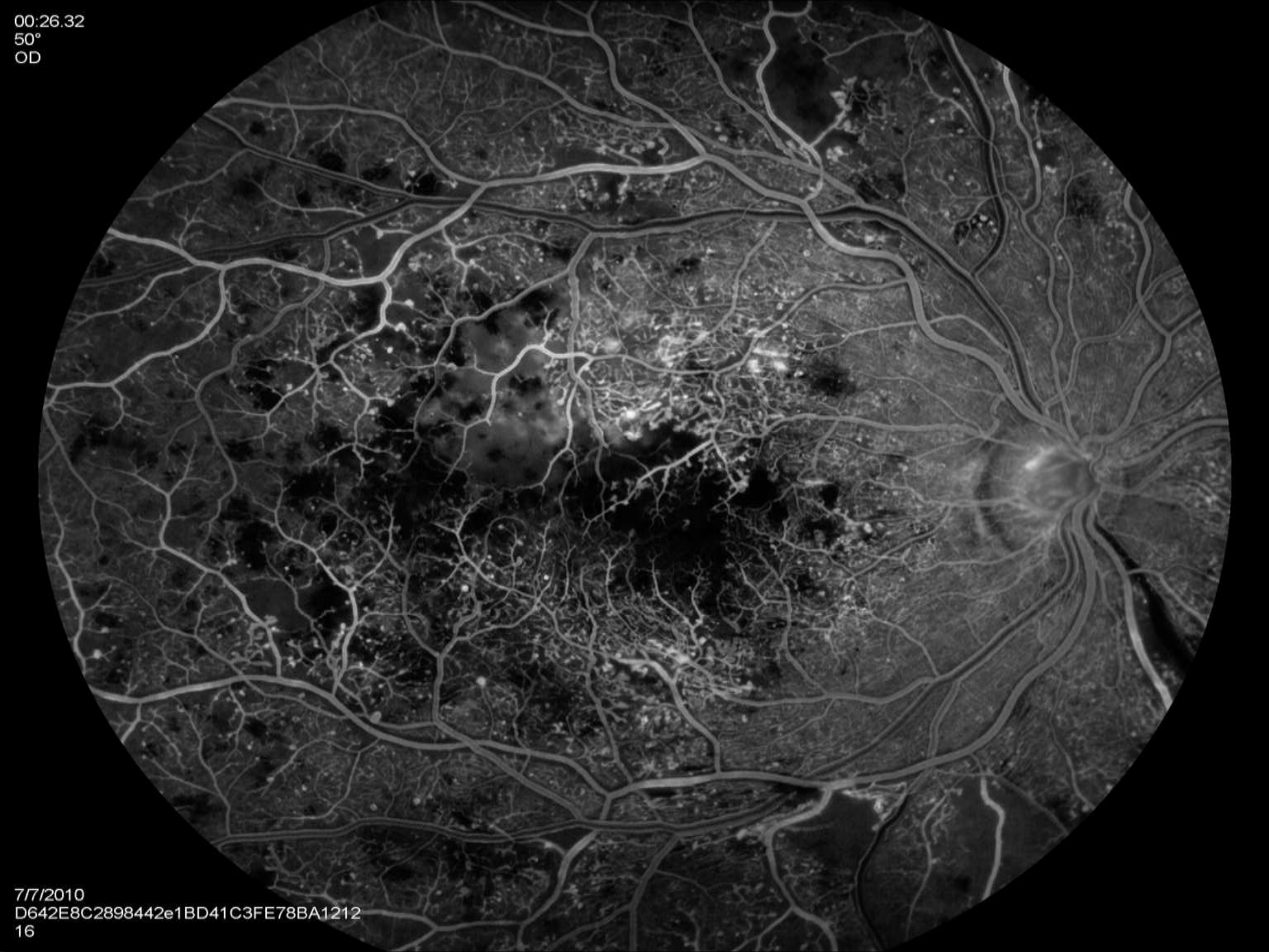
Diabetes and vessel damage

- Multifactorial
- Basement membrane thickening
- Non-enzymatic glycosylation of proteins
- Osmotic disruption (aldose reductase pathway)
- Increased red cell rigidity
- Increased platelet adhesiveness
- Increased affinity for O_2 of glycosylated haemoglobin
- Loss of retinal pericytes
- Dyslipidaemia
- Hypertension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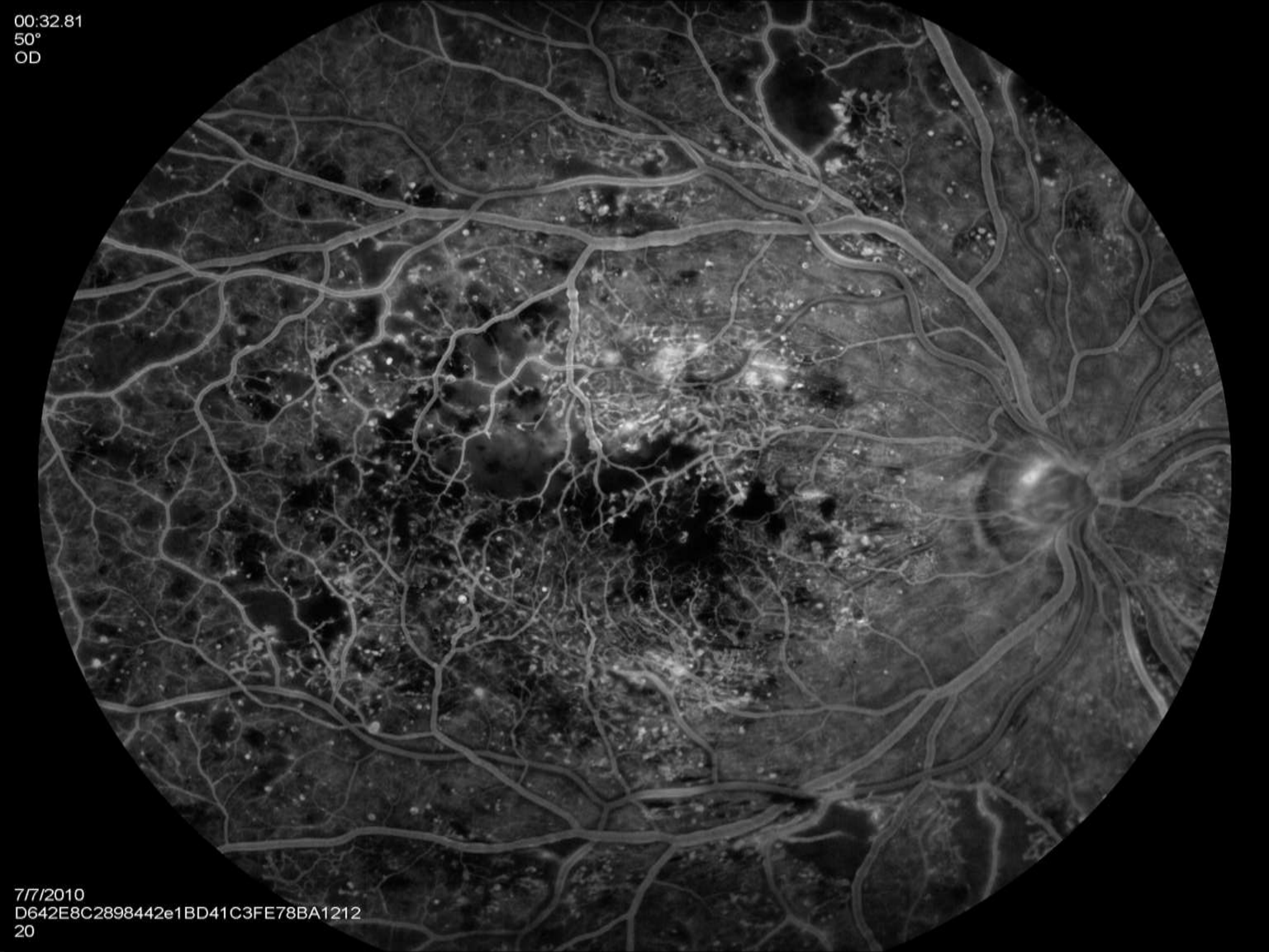
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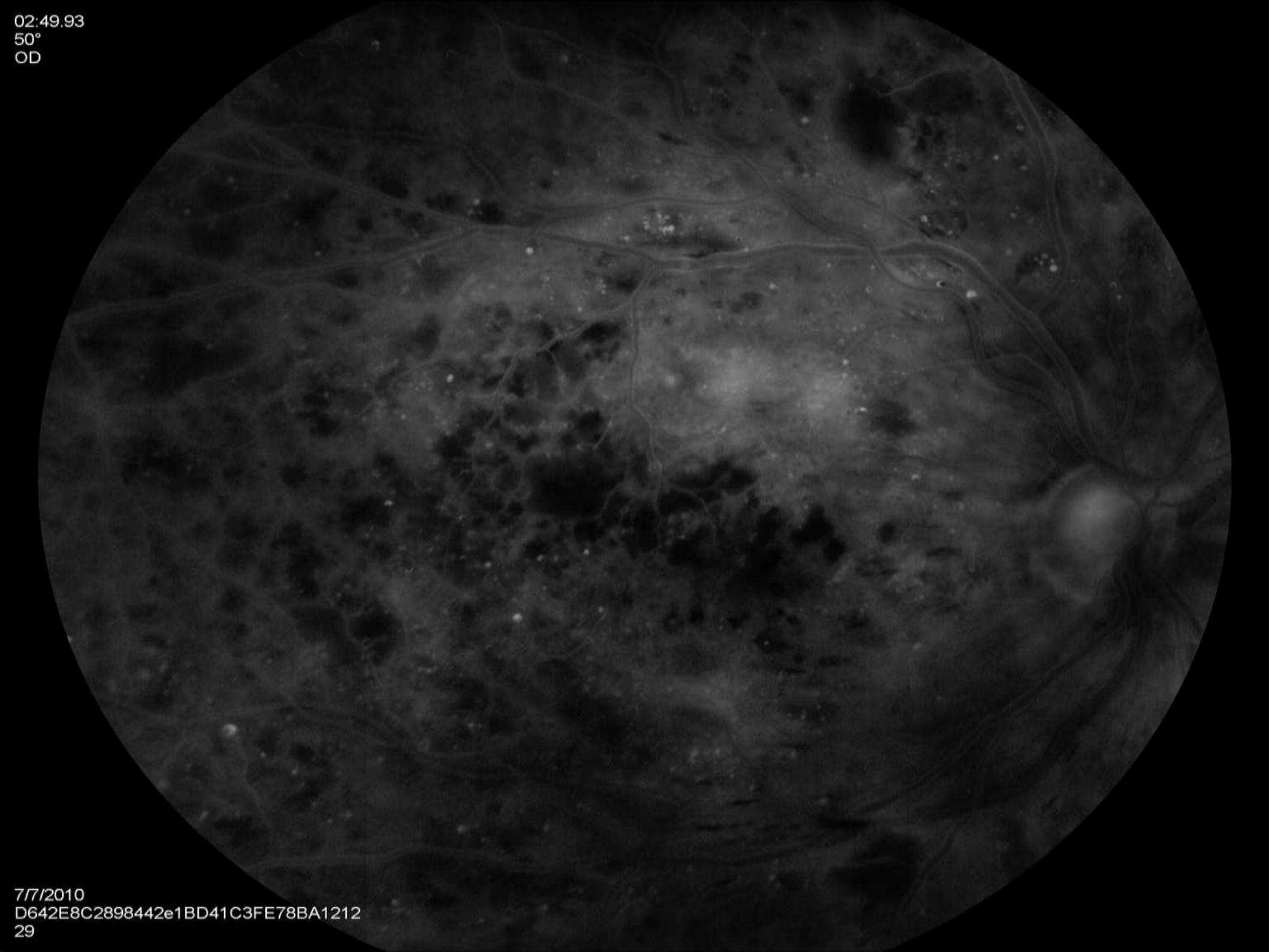
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Vessel dilatation and leakage

- Driven by many factors
- Reduced oxygen
- Increased CO_2
- Decreased tissue pH
- Increased potassium
- Expression of chemical factors by ischaemic tissue
- FGF, PDGR, VEGF

Vascular endothelial growth factors

- Multifunctional proteins
- Many different isoforms
- VEGF group A
  - 121
  - 165
- Wide ranging physiological and pathological effects

VEGF physiological functions

- Maintain normal blood vessels
- Maintain fenestrae in capillaries
- Increase vascular permeability
- Angiogenesis
- Neuroprotective
- Neuromigratory

Pathological neovascularisation

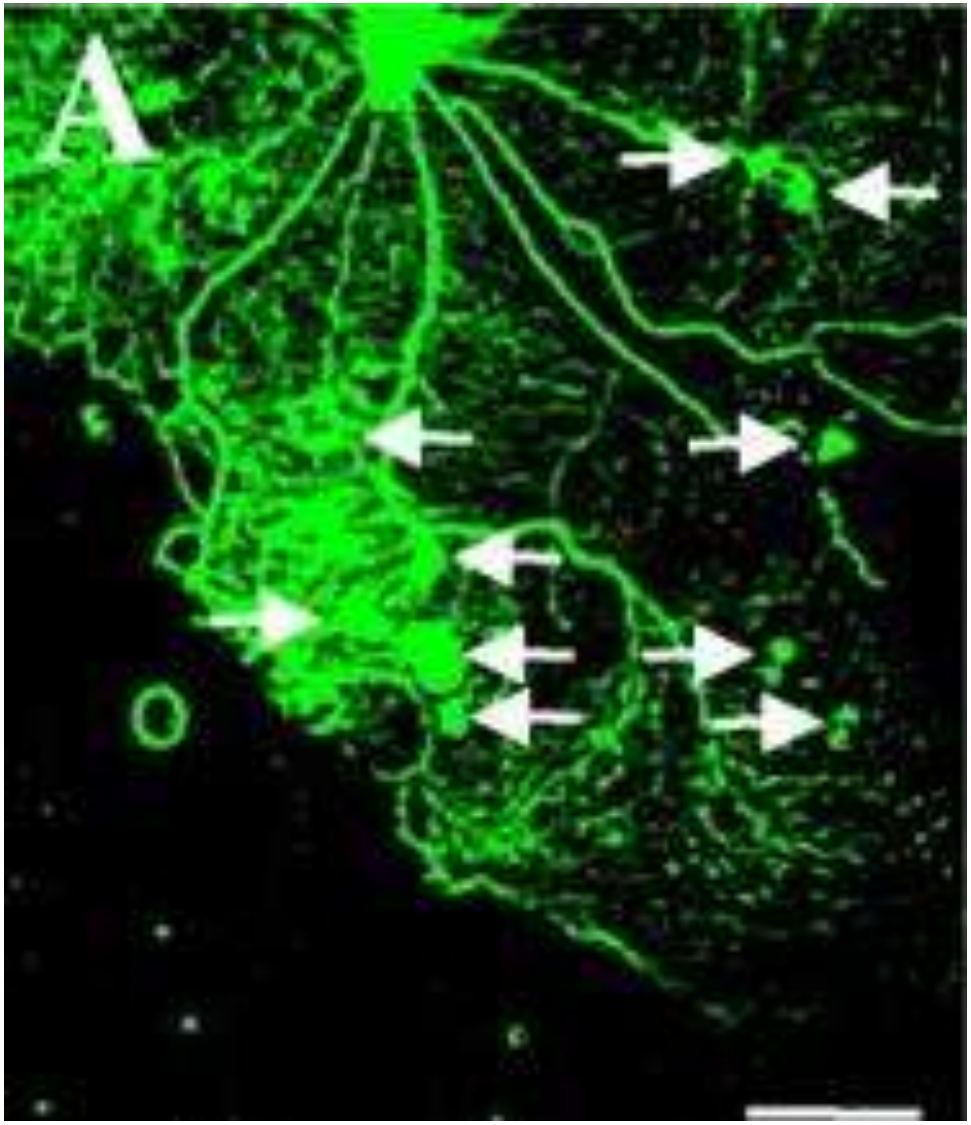
In presence of ischaemia

See pathological neovascularisation

‘Tufts’ of new vessels

Laden with white cells

Inflammation is prominent



Implicated in many ocular diseases

- Diabetic eye disease
- Age-related macular degeneration
- Retinal vein occlusion
- Retinal artery occlusion
- Rubeosis iridis
- Ocular tumours

VEGF and diabetic retinopathy

- Reduced expression of VEGF is beneficial for controlling and reducing diabetic retinopathy and maculopathy
- Laser – reduce ischaemic tissue load, approximates middle retina to choroid, damages blood retinal barrier to allow VEGF to leave the eye
- Vitrectomy – removes reservoir of VEGF

Ranibizumab

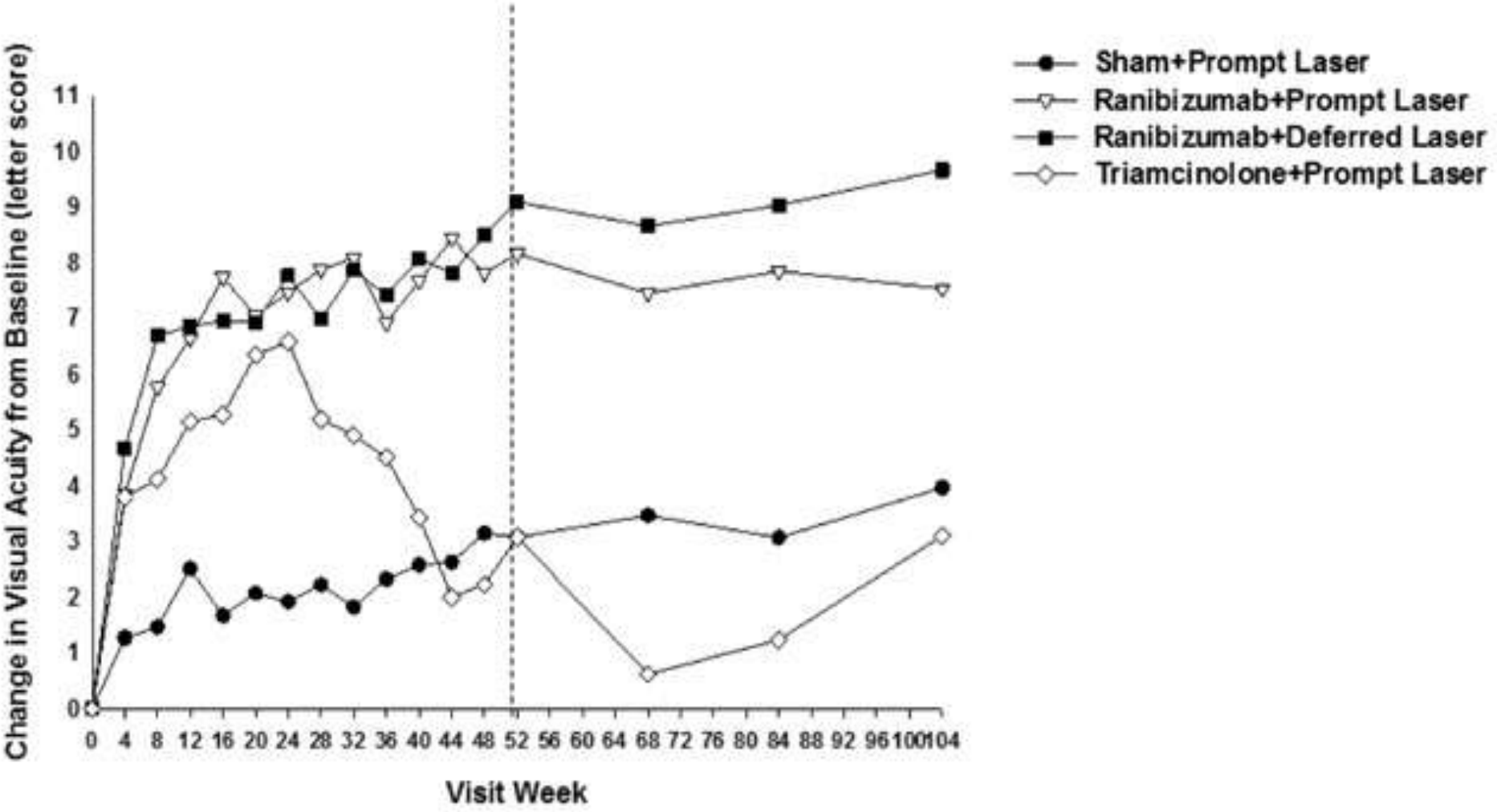
- Monoclonal antibody fragment
- Binds to the receptor binding site of the VEGF A molecules
- Therefore inhibits their action
- Injected into the eye
- Half life in the eye about 12-15 days
- First used in wet AMD
- Now licensed for use in diabetes and wet AMD

Ranibizumab and wet AMD

- Available since 2008
- Funded by NHS
- Transformed the visual prognosis
- Huge amount of work for us
- Watch out for AMD changes in the screening photos
- Any haemorrhage/exudate and drusen and RPE changes = wet AMD until proven otherwise
- Please refer urgently

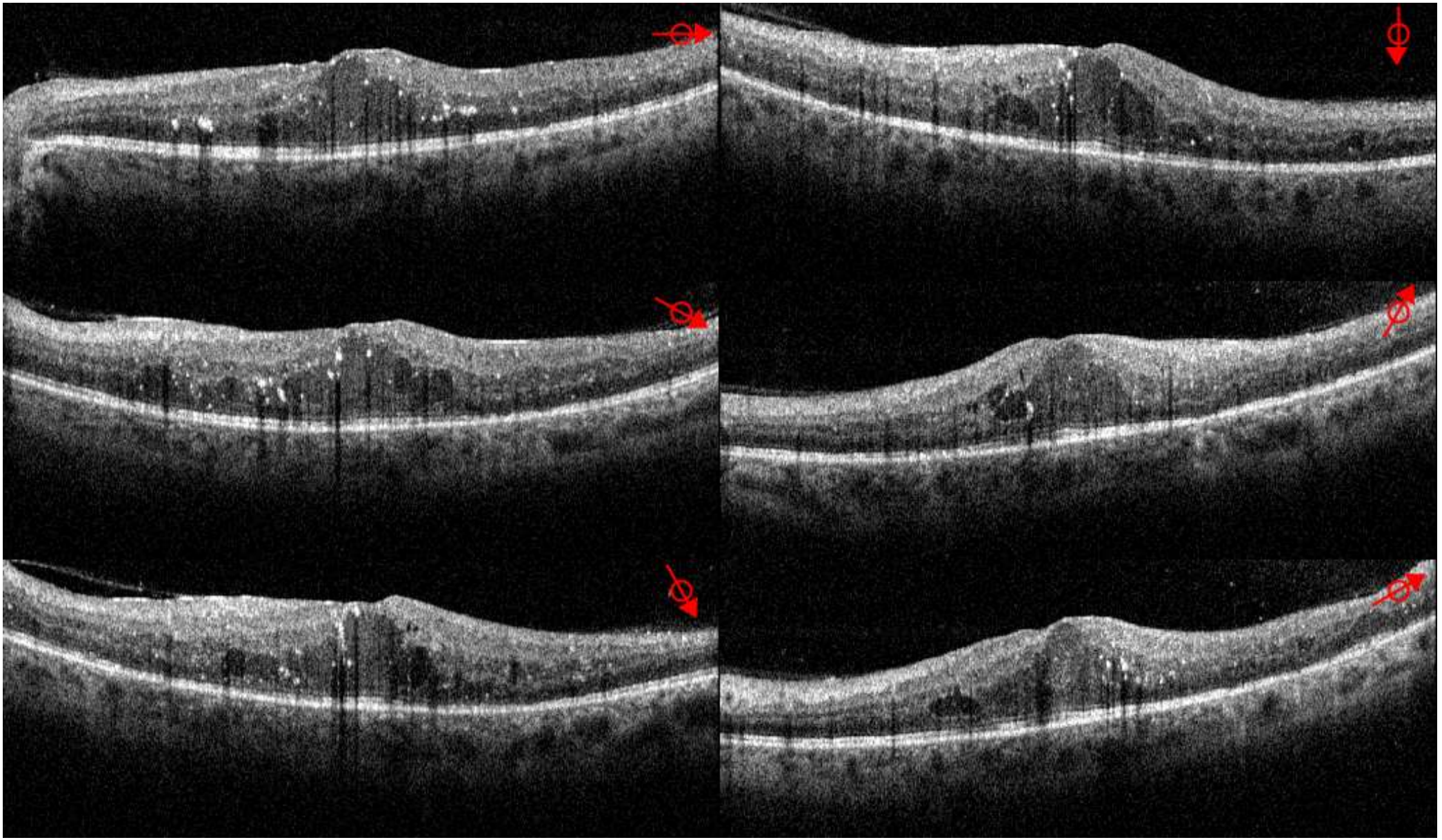
Studies in diabetes

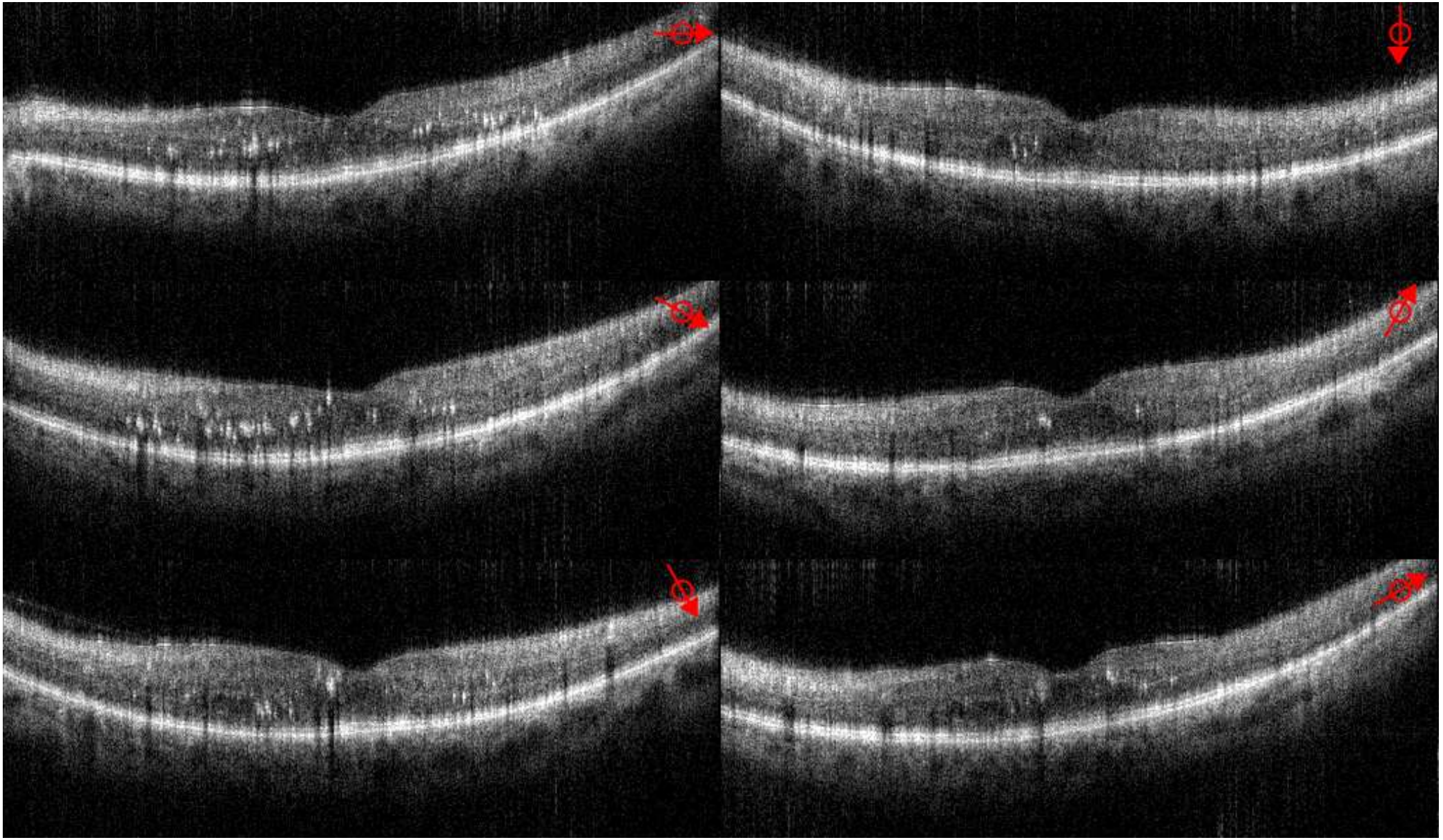
- READ-2 study
  - Ranibizumab 7 letters, laser -1 letter
- RESOLVE
  - Ranibizumab 10 letters, laser – 1 letter
- RESTORE
  - 37% gained >10 letters, laser 16%
- DRCRnet Study
  - 40% gained >10 letters, laser 20%

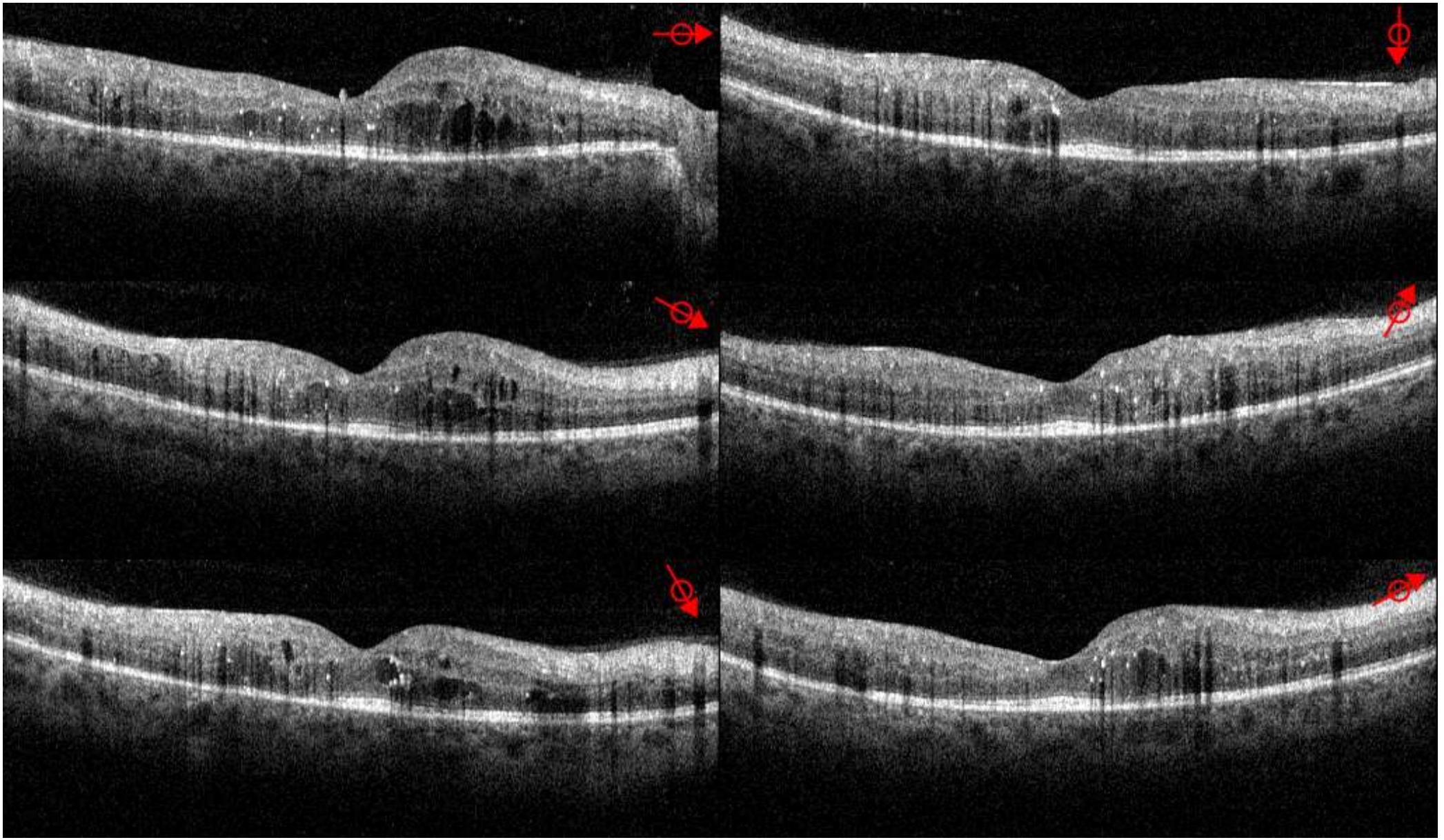


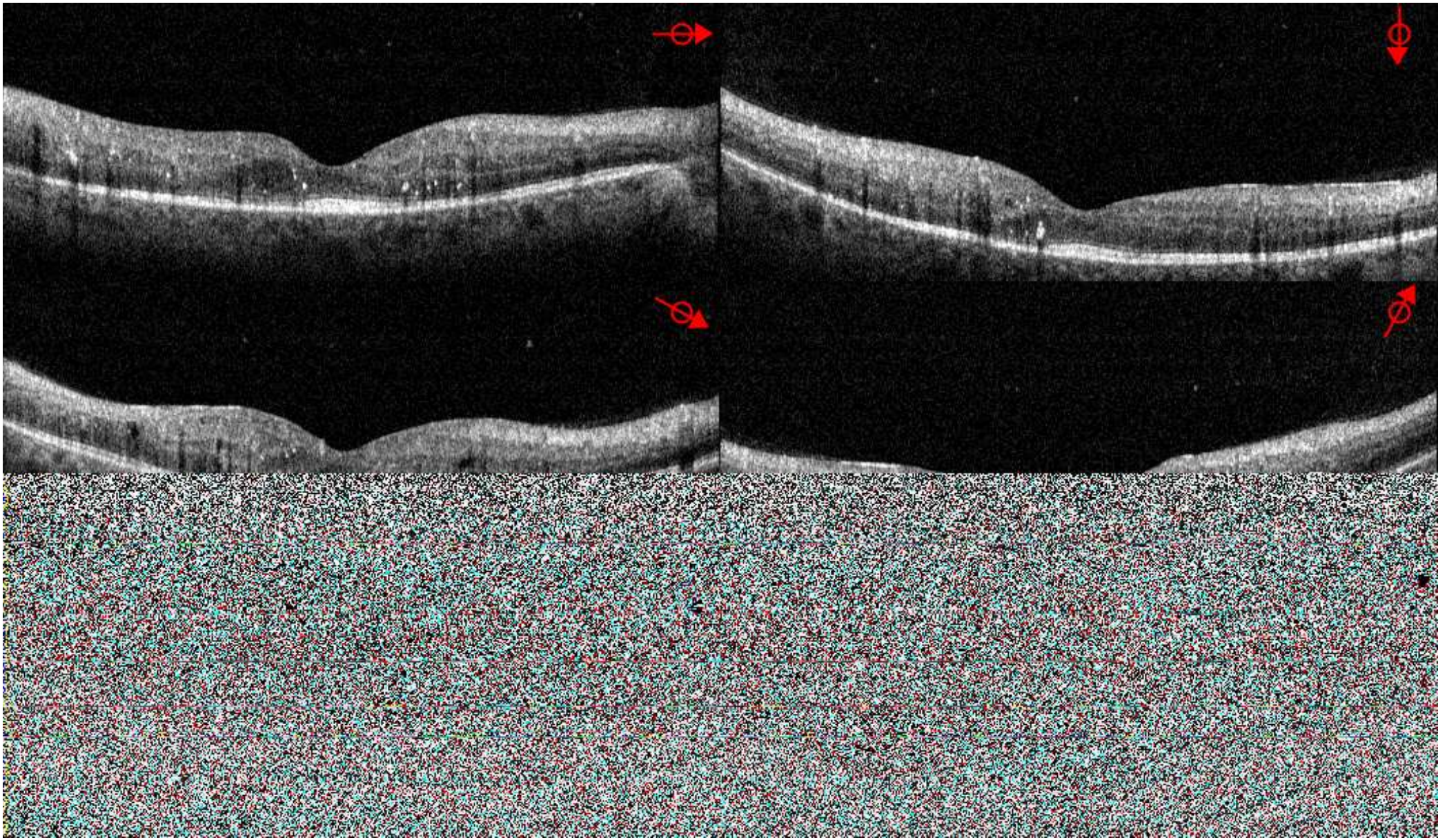
	52 weeks	68 weeks	84 weeks	104 weeks
Sham+Prompt Laser, N	210	202	197	211
Ranibizumab+Prompt Laser, N	136	134	135	136
Ranibizumab+Deferred Laser, N	139	136	135	139
Triamcinolone+Prompt Laser, N	141	128	133	142

A









NICE funding

- NICE FAD July 2011
- Effective
- Too expensive

- PCTs now refuse to fund this treatment

- Appeal in progress

Impact on screening programme

- Important to know about new treatment
- Ask about previous laser
- Ask about injections
- May need prompt referral to hospital eye service
- Anti-VEGF therapy is a stunning new mode of treatment
- I hope that the funding issue doesn't stymie it!