

HYPERTENSIVE RETINOPATHY ⚡

Definition:

Damage to retinal circulation and retina due to high blood pressure (i.e. hypertension).

Pathogenesis ⚡

1) Vasoconstriction:

- Spasm of retinal arterioles in response to raised BP → narrowing

2) Increased vascular permeability:

- Ischemia → breakdown of blood-retinal barrier → edema, lipid exudates, cotton wool spots, hemorrhages

3) Arteriosclerotic changes:

- Thickening of vessel walls in older patients

- Manifested as arteriolar reflex changes & AV nipping
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Clinical Features

Symptoms:

- Mostly asymptomatic
- Sudden, painless visual loss in severe cases

Signs (Fundus Exam):

Keith-Wagener-Barker Classification (Older adults)

Grade	Features
I	Generalized arteriolar narrowing, broadening of arteriolar light reflex, vein partially concealed
II	Above + focal arteriolar constriction, Salus sign (AV deflection)

III	Above + retinal edema, hard exudates, cotton-wool spots, flame-shaped hemorrhages, copper wire arterioles, Bonnet sign (vein banking)
IV	Above + optic disc edema, silver wire arterioles

Key Signs:

- AV nipping / Gunn sign → vein tapering at AV crossings

Modified Scheie Classification (Young adults) 🧑

Grade	Features
I	Generalized arteriolar constriction
II	Focal arteriolar constriction
III	Retinal edema, flame & splinter hemorrhages, cotton-wool spots, hard exudates

IV	Optic disc edema
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Malignant Hypertension:

- Bilateral disc edema (papilledema) + systemic HTN
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Treatment 

- Control systemic BP → retinal lesions may resolve over time
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- Extra -

Classic Signs in Hypertensive Retinopathy

- Copper wire: Moderate arteriolar sclerosis; arterioles appear reddish-brown with a bright central light reflex.
- Silver wire: Severe arteriolar sclerosis; arterioles appear shiny white with obliterated blood column.

- Salus sign: Deflection of venules at arteriovenous crossings due to stiff arteriole.
- Bonnet sign: Banking or looping of a venule distal to an arteriovenous crossing.
- Gunn sign (+ve): Tapering of venule on either side of an arteriovenous crossing.
- Flame-shaped hemorrhages - superficial retinal hemorrhages along nerve fiber layer.
- Cotton-wool spots - microinfarcts in nerve fiber layer.
- Hard exudates - lipid deposits in the retina.
- Papilledema - optic disc swelling in malignant hypertension.

-> The End <-