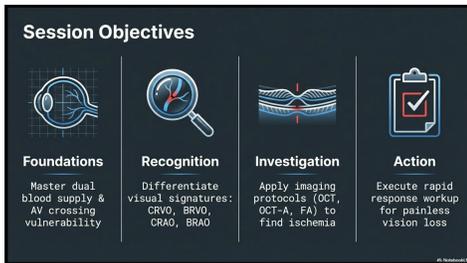
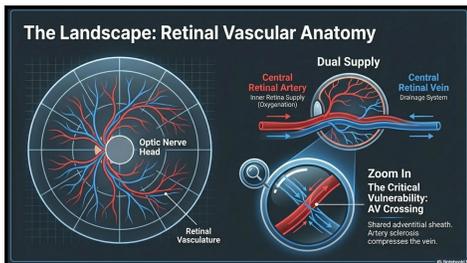


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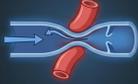


2



3

The Pathophysiology: Thrombus vs. Embolus

| VEIN OCCLUSION (The Clog) | ARTERY OCCLUSION (The Blockage) |
|--|--|
|  |  |
| Mechanism: Compression + Stasis Virchow's Triad: Vessel Damage, Stasis, Hypercoagulability Result: Rupture & Hemorrhage | Mechanism: Embolic Shower Source: Carotid Plaque or Cardiac Valve Result: Starvation & Ischemia |

4

Suspect 1: Branch Retinal Vein Occlusion (BRVO)

Diagnostic File

VISUAL SIGNATURE:

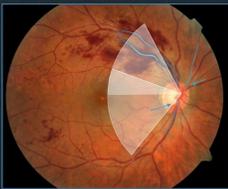
- Sectoral, wedge-shaped hemorrhage
- Apex points to AV Crossing
- Common Site: superotemporal Quadrant

BONNET SIGN:

- Distal banking/dilation of the vein.

SYMPTOM:

- Missing sector of vision. ⚠



5

Suspect 2: Central Retinal Vein Occlusion (CRVO)

Diagnostic File

VISUAL SIGNATURE:

- Diffuse hemorrhages in all 4 quadrants
- Dilated, tortuous veins ('Sausage-link')
- Disc Edema

CLASSIFICATION:

1. Non-Ischemic (Perfused)
2. Ischemic (Non-Perfused): >10 disc areas of non-perfusion. ***High Risk of Neovascular Glaucoma***



6

Suspect 3: Branch Retinal Artery Occlusion (BRAO)

Diagnostic File

VISUAL SIGNATURE:

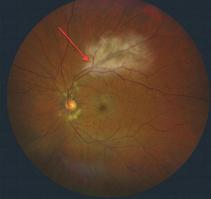
- Localized retinal whitening (Edema)
- Distal to obstruction
- Pallor replaces hemorrhage

THE SMOKING GUN:

- Hollenhorst Plaque (Refractile Cholesterol)

SYMPTOM:

- Sudden altitudinal field defect.



7

Suspect 4: Central Retinal Artery Occlusion (CRAO)

OPHTHALMIC EMERGENCY

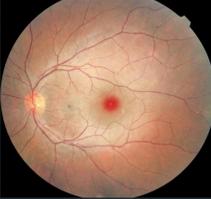
Diagnostic File

VISUAL SIGNATURE:

- Cherry-Red Spot (Choroid remains perfused)
- Diffuse Retinal Pallor
- Box-carring of blood column

URGENCY:

Time is Retina. Stroke Protocol Required.



8

Evidence: Fluorescein Angiography (FA)

ARTERIAL DELAY



ROBOTO MONO
Abrupt cutoff & delayed arc-to-retina time.

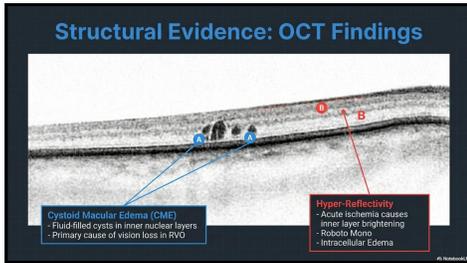
VENOUS LEAK



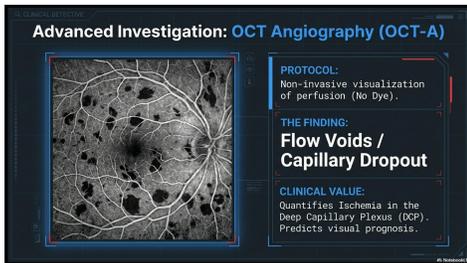
ROBOTO MONO
Staining, leakage, and capillary non-perfusion.

KEY DIFFERENTIATOR: Artery = Cutoff // Vein = Leakage

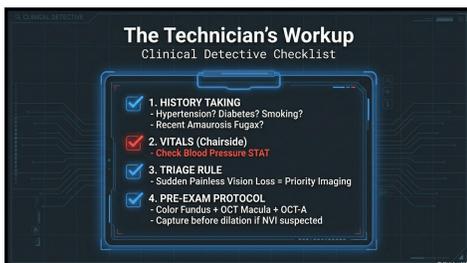
9



10



11



12

Case Study: The Collision
 Reference: Zhang et al., Frontiers in Medicine, 2025

RETINAL WHITENING (BRAO)

HEMORRHAGE (BRVO)

PATIENT:
65-year-old Male

COMPLAINT:
Sudden blurry vision

THE CONFLICT:
Simultaneous Pallor (Artery) + Blood (Vein)

ROOT CAUSE:
Carotid Atherosclerosis

LESSON:
Always look beyond the eye.

13

The Verdict: Management & Treatment

Diagnosis

VEIN OCCLUSION (Target: Edema)

- Anti-VEGF (Ranibizumab, Aflibercept, Faricimab)
- Steroids (Ozurdex)
- Laser (PRP) if Neovascularization

ARTERY OCCLUSION (Target: Life)

- Stroke Center Referral
- Goal: Prevent CVA
- Visual recovery is rare

14

Summary: The Clinical Detective Matrix

| ENTITY | VEIN (RVO) | ARTERY (RAO) |
|-------------|---------------------------|-----------------------------------|
| Mechanism | Thrombus (Compression) | Embolus (Plaque) |
| Visual Sign | Hemorrhage & Edema (RED) | Pallor & Cherry-Red Spot (WHITE) |
| OCT Sign | Cystoid Macular Edema | Inner Layer Hyper-reflectivity |
| Action | Treat the Eye (Anti-VEGF) | Treat the Patient (Stroke Workup) |

"Your imaging and history taking are the first steps in saving vision and potentially saving a life."

15
