CENTRAL RETINAL VEIN OCCLUSION
COMBINED WITH CILIORETINAL ARTERY OCCLUSION

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CASE # 1
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- 45 years old lady.
- Otherwise healthy.
- Complaining of disturbed vision in OS for 1 week.
- VA 6/9
6 WEEKS LATER
RECEIVED NO TREATMENT

VA 6/9

VA 6/6 after 6 weeks!

CASE # 2
CASE # 2

• 60 years old man.
• Hypertensive.
• Complaining of profound visual loss in OS for 1 week.
• VA 1/60
AFTER 1 MONTH AFTER 1 INJECTION OF AVASTIN
AFTER 2 MONTHS AFTER 2ND INJECTION OF AVASTIN
COMMENT
CENTRAL RETINAL VEIN OCCLUSION WITH CILIORETINAL INFARCTION

• The first definitive study of retinal vein occlusion complicated by infarction within the territory of one or more cilioretinal arteries was published in 1976.
  

CENTRAL RETINAL VEIN OCCLUSION WITH CILIORETINAL INFARCTION

• In the meantime, this fascinating disorder has generated a plethora of publications, including
  
  • incidental case descriptions,
  • single case reports,
  • and multiple case series
CENTRAL RETINAL VEIN OCCLUSION WITH CILIOTRETINAL INFARCTION

• Indeed, CRVO + CRI is arguably the most common cause of retinal infarction in young individuals!

PATHOPHYSIOLOGIC BASIS

• Reduction or elimination of the arteriovenous perfusion gradient across the cilioretinal circulation

• “the intraluminal pressure in the cilioretinal artery(s) approximates to the raised venous pressure sustained by the input pressure in the larger central retinal artery (CRA) supply
SIGNS OF CILIORETINAL ISCHEMIA/INSUFFICIENCY

- Translucent pale gray swelling localized to the territory of one or more cilioretinal arteries signifies oncotic necrosis within the inner retina.

- The topography of the CRIs is highly variable, but no more so than predictable given the normal variation in the cilioretinal supply.
SIGNS OF CILIORETINAL ISCHEMIA/INSUFFICIENCY
ANGIOGRAPHIC FEATURES

• A reciprocating pattern of cilioretinal arterial inflow on fundus fluorescein angiography

• Systolic advancement of the dye front and its diastolic retraction.
ANGIOGRAPHIC FEATURES

• The intermittent interruption and reversal of flow seen in the cilioretinal artery indicates that the arterial lumen is not physically obstructed and neither does the vessel completely collapse.

• Retinal infarction contiguous with the optic disk after CRVO has been attributed to occlusion of an early branch of the CRA.

• Cilioretinal filling during FFA typically precedes filling of the CRA and its branches, but this is not necessarily the case in CRVO + CRI nor in health, and so differentiating a cilioretinal artery from a branch of the CRA arising within the substance of the ONH is not always clear cut.
ANGIOGRAPHIC FEATURES

• As a general rule, however, infarction contiguous with the optic disk after CRVO represents CRI unless or until clearly shown otherwise, especially if there is no underlying thromboembolic tendency.

BRANCH FLOW EXCLUSION AND DIVERSION HYPOTHESES

• First, flow will be excluded from cilioretinal branches of the PCA after CRVO owing to reduction and eventual elimination of the arteriovenous perfusion gradient across the cilioretinal circuit,

• and second, flow will be diverted away from the cilioretinal arteries toward paths of lesser resistance: choroidal arterial steal.
To understand why some eyes with CRVO associated with CLRAO develop permanent visual loss in the distribution of cilioretinal artery while others have only temporary loss, it is essential to consider retinal tolerance time to acute ischemia.
RECOVERY

• Studies have shown that acute retinal ischemia lasting for up to 100 minutes causes no irreversible retinal damage and the retina recovers its function fully; however, after that, the longer the acute ischemia, the greater the irreversible ischemic damage.

• Eyes with 240 minutes of acute retinal ischemia have no recovery of visual function.

CENTRAL RETINAL VEIN OCCLUSION WITH CILIoretinal Infarction

• Central retinal vein occlusion with CRI is seldom mentioned in textbook chapters on ocular vascular occlusions, but its occurrence, although often overlooked, is not unusual!
CENTRAL RETINAL VEIN OCCLUSION WITH CILIORETINAL INFARCTION

• Failure to recognize that CRI is a complication of CRVO or hemi-CRVO may result in
  • inappropriate investigations (such as a search for a source of embolism)
  • or ill-advised management (such as paracentesis).

THANK YOU