

# ISCHEMIC OPTIC NEUROPATHY

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## TYPES

Anterior Ischemic  
Optic Neuropathy  
(AION)

Posterior Ischemic  
Optic Neuropathy  
(PION)

# ETIOLOGY

## AION

- NONARTERITIC (NAION)
  1. HYPERTENSION
  2. D.M TYPE II
  3. OSA
  4. HLD
  5. ANEMIA
  6. DRUG (PDE-5 INHIBITORS, AMIODARONE)
- ARTERITIC (AAION)
  - GIANT CELL ARTERITIS
- POST OP
  - CATARACT, CARDIAC

## PION

- POST OP
  - SPINAL SURGERY
- ARTERITIC (RARE)
  1. HYPERTENSION
  2. D.M TYPE II
  3. OSA
- NONARTERITIC (RARE)
  - GIANT CELL ARTERITIS

# DIFFERENTIAL DIAGNOSIS

## AION

- OPTIC NEURITIS
- PION
- AAION FROM NAION
- RETINAL VESSELS OCCLUSION
- OPTIC NERVE COMPRESSION

## PION

- AION
- POSTERIOR CEREBRAL ARTERY STROKE
- CENTRAL RETINAL ARTERY OCCLUSION
- OPTIC NEURITIS

NAION



Variable presentation



Painless vision loss unilaterally



May be severe immediately or may progress over days to weeks



Optic disc edema



May precede vision loss in some cases



Resolves in over 2 months

# PRESENTATION



MALE



AGE > 50



SMALL OPTIC CUPS  
(CROWDED DISCS)

RISK  
FACTORS

# DIAGNOSIS

- DECREASED VISUAL ACUITY
- VISION LOSS IS ALTITUDINAL WITH INFERIOR ALTITUDINAL LOSS MORE COMMON
- FUNDOSCOPY : SWOLLEN OPTIC DISC WITH HYPEREMIA
- OPTICAL COHERENCE TOMOGRAPHY (OCT) AND OCT ANGIOGRAPHY CAN SHOW PROGRESSION OF RETINAL GANGLION CELL DAMAGE AND CAPILLARY DILATION TO LATE CAPILLARY ATTENUATION.



Surgery and Oral steroid use has shown no effectiveness in different studies



Intravitreal injections have a much higher efficacy



Most commonly tested drugs besides Steroids are Bevacizumab and erythropoietin.



Preventive treatment for progression to other eye is daily use of aspirin and management of DM, HTN and OSA.

## MANAGEMENT

AAION

GCA

# PRESENTATION

Monocular painless vision loss

Decreased visual acuity

Rapid afferent pupillary defect

Altitudinal vision loss

Systemic signs

- Headache/neck pain
- Jaw Claudication
- Scalp/ temporal tenderness
- Polymyalgia
- Fatigue/ weight loss

# RISK FACTORS



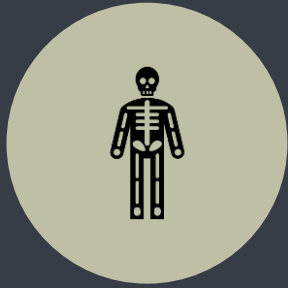
Female



Age > 50



Caucasian  
ethnicity



INFLAMMATORY MARKERS  
(ESR AND CRP) ARE HIGHLY  
SPECIFIC FOR GCA



TEMPORAL ARTERY BIOPSY IS  
GOLD STANDARD OF  
DIAGNOSIS



MRI AND US OF SCALP  
VESSELS IS BEING USED MORE  
AND MORE AS NONINVASIVE  
PROCEDURE OF DIAGNOSIS

# DIAGNOSIS

# MANAGEMENT

- HIGH DOSE STEROIDS
- INITIALLY GIVE IV METHYLPREDNISOLONE FOLLOWED BY ORAL PREDNISONE
- ONCE DIAGNOSIS IS CONFIRMED BY BIOPSY, CONTINUE STEROID AND TAPER OVER 1 YEAR
- ALTERNATIVE USE OF STEROID SPARING AGENTS LIKE METHOTREXATE AND TOCILIZUMAB FOR PATIENTS WITH HIGH RISK OF STEROID SIDE EFFECTS.

PION

# PRESENTATION

- ACUTE BILATERAL PAINLESS VISION LOSS
- SOME CASES MAY BE UNILATERAL AND THOSE PATIENTS HAVE RAPID AFFERENT PUPILLARY DEFECT.
- OPTIC DISC APPEARS NORMAL
- VISION LOSS IS NOT ALTITUDINAL AS COMPARED TO AION.

# RISK FACTORS



Women



Median age is 50



Post op complication of spinal surgery or radical neck dissection



Risk factors before surgery include Diabetic, obese and hypertensive patients.



Risk factors of surgery involve longer than 7 hours duration, prone position with facial frame support and intraoperative blood loss, hypotension or fluid administration.

# DIAGNOSIS



Diagnosis is mainly clinical with diagnosis of exclusion



MRI with contrast of Orbit is used to rule out cerebral vision loss due to strokes in posterior cerebral artery.



No treatment has shown efficacy post vision loss



Preventive treatment during surgery includes limitation of risk factors like duration of surgery and intraoperative hypotension.



Correction of anemia by transfusion and decreased usage of vasopressors is recommended during and after surgery.

## MANAGEMENT