ISCHEMIC OPTIC NEUROPATHY

Moin Ud Din

MBBS, MD

SKZMDC

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

PRESENTATION

- 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

RISK FACTORS

MALE

AGE > 50

SMALL OPTIC CUPS
(CROWDED DISCS)

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.

MANAGEMENT

- 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.

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

DIAGNOSIS

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

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.

MANAGEMENT

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.