UNEXPLAINED VISUAL LOSS

PRESENTED BY

MAI ABDELNABI MOHAMMED

ASSISTANT PROFESSOR OF OPHTHALMOLOGY, ALEXANDERIA UNIVERSITY

INTRODUCTION

- **Definition**: Vision loss without an immediately apparent cause
- **Importance**: Early diagnosis crucial to prevent permanent damage

COMMON CAUSES

- Optic neuropathy.
- Orbital diseases.
- Occult Retinal and macular diseases.
- Early keratoconus.
- Functional (non-organic) vision loss
- Vascular events or occult trauma

CLINICAL CASE (1)

- 55 year old male patient.
- Diabetic and hypertensive for 10 years.
- Complaining of **painless progressive visual loss** in right eye over 14 days.

Clinical examination

- BCVA OD 6/60, OS 6/6
- RAPD in right eye grade 3 in right eye
- Color vision 6/15 Ishihara plates in right eye.
- Fundus : hyperemic optic disc swelling in right eye, normal optic disc with normal cup disc ratio in left eye

Investigations ordered

- Perimetry that showed right inferior altitudinal scotoma.
- Based on the clinical findings diagnosis of non arteritic Anterior ischemic optic neuropathy.
- Referred to internal medicine for work up and multivitamins were prescribed.

Do u think this was right diagnosis

- Though age group , systemic condition of the patient in favor of diagnosis of Non arteritic AION…
- **The following was against:**

➢Progressive VL over 2 weeks.

➢No disc at risk in the left eye.

➢Hyperemic edema in the affected eye (atypical).

TEN WEEKS LATER

- VA in right eye decline to 3/60 with pallor of optic disc.
- Patient was referred at this point.
- I ordered **MRI with contrast using fat suppression and DWI**.
- Blood tests : **CBC, electrolytes, acute phase reactants, angiotensin converting enzyme, anti nuclear antibody, syphilis serology, serum vitamin B12, RBC folate and liver function.**

Results

- MRI show enhancement of optic nerve (sign of optic neuropathy other than non arteritic AION).
- Increase serum Ca.
- Increase serum angiotensin converting enzyme.
- Others was normal.

Raise suspicion of sarcoid optic neuropathy

Chest x ray was confiramatory

Treatment

- Due to delay in diagnosis
- Iv steroids for 5 days followed by oral steroids 1.5 mg/kg for 15 days followed by gradual taper of 10 mg/ week under close observation of visual function.
- Patient show partial improvement to 6/24 in his right eye..

Clinical case 2

- 18 years old male patient.
- Complaining of **acute painless loss of vision in right eye for 2 weeks**.
- On examination:

➢BCVA OD 1/60 , Os 6/6

➢**Color vision in the affected eye was 13/15 Ishihara plates.**

➢**No RAPD.**

➢Fundus : mild hyperemic disc with talengectasia

Investigations

- Perimetry: dense central scotoma
- VEP un recordable with normal PERG but reduced compared to fellow eye.
- OCT show thickening of RNFL with reduced ganglion cell layer complex.
- MRI with contrast was normal

Retrobulbar optic neuritis ?? (Typical optic neuritis)

- No RAPD.
- Good color vision.
- Free MRI.
- Worsening of vision over 2 weeks.
- Iv steroids for 5 days followed by oral steroids for 11 days
- **No improvement .**
- **At this point he was referred**

Investigations

- Based on previous investigations (Oct , electrophysiology and MRI)
- Based on clinical examination
- CBC
- Acute phase reactants
- Angiotensin converting enzyme and serum electrolytes.
- Peripheral blood gene sequencing (mitochondrial DNA) (11778,3460,14484).

- Positive only mitochondrial DNA 14484 mutation.
- Together with Oct , MRI, clinical findings, age group, negative family history.
- Confirm diagnosis of **leber’s hereditary optic neuropathy**
- **Only available treatment is idebenone.**

Clinical case 3

- 28 years old female patient .
- Her main complain was blurry vision in the left eye that increased gradually over period of month.
- According to her ophthalmologist report BCVA was 6/60 in left eye otherwise examination was normal
- Her FFA and Oct was free.
- MRI was free.

A diagnosis of retrobulbar optic neuritis was made

- Referred to neurologist who send her to do VEP.
- That was totally free.
- However he gave her recommended steroids
- 2 months later, BC VA in left eye was 3/60, right eye 6/60
- He ordered MRI spinal cord that was free.
- He started plasmapheresis ????

At this point was referred

- On examination nothing was new except for the severe light sensitivity.
- I advised her to repeat electrophysiological tests??
- Multi focal ERG was almost flat
- **Occult Macular dystrophy**

RED FLAGS IN HISTORY

- Sudden vs. gradual onset visual loss.
- Amaurosis fugax
- Pain with eye movements
- Associated neurological or systemic symptoms
- History of trauma or ocular surgery

KEY EXAMINATION STEPS

- Visual acuity and correlation between distance and near VA.
- Pupillary reflexes (RAPD, paradoxical response and bilateral affection).
- Cyclopleigic refraction.
- Fundoscopy for optic disc evaluation
- Color vision and contrast sensitivity

IMPORTANT INVESTIGATIONS

- Optical Coherence Tomography (OCT) and FFA.
- Visual field.
- Electrophysiology.
- MRI of brain and orbits with contrast.

CONCLUSION

- Systematic approach critical
- Early investigations guide management
- Multidisciplinary team involvement improves outcomes.
- Exclude occult ocular and orbital disorders before considering neurophthalmic disorders.
- Empirical steroids in suspected optic neuritis then proper work up.
- Giving steroids without definite diagnosis is based on no science.

REFERENCES

- StatPearls: Optic Neuritis and Visual Loss
- AAO Guidelines on Visual Loss
- Neurology: Vision Loss Approaches (2024)

Thank you