Course title:
The Optic Neuropathies: Those That Swell and Those That Turn Pale

Course description:
To review common optic neuropathies that present with optic nerve pallor or optic nerve swelling.

Course objectives:
1) Understand definition of papilledema
2) Know how to evaluate papilledema
3) Know what the treatments are of papilledema
4) Know some causes to pseudopapilledema
5) Know the clinical appearance of ischemic optic neuropathy
6) Differentiate between non arteritic and arteritic ischemic optic neuropathy
7) Know causes of optic neuritis
8) Know how to assess the pale optic nerve
9) Know what tests to order for a pale optic nerve
Course Outline:

1) Introduction

2) Papilledema
   a) Definition of papilledema
      i) High ICP
         1. IIH
         2. Mass
         3. Sinus thrombosis
         4. Meningitis
      ii) Evaluation of papilledema
         1. Office
            a) Vf
            b) Oct
            c) B-scan
               i) r/o drusen
            d) FA
         2. Ancillary
            a) Imaging
               i) MRI brain with contrast
                  1. Contrast preferred if allowed to better assess for masses especially along the dura
               ii) MR venogram
                  1. Assess venous sinuses for thrombosis
                  2. Typically see transverse sinus stenosis
               iii) CT head with contrast if MRI cannot be done
               iv) CT head without contrast if contrast cannot be given
               v) MRI non contrast in pregnancy
            b) Lumbar puncture
               i) Especially if thin
               ii) Associated fevers
               iii) New onset headache
               iv) Stiff neck
(v) Don’t force it in IIH since statistically IIH most common cause of papilledema

(3) IIH

(a) Symptoms
   (i) Headache
   (ii) Tinnitus
   (iii) TVO
   (iv) Neck pain
   (v) Back pain
   (vi) Diplopia
   (vii) Visual loss

(b) Aggravating factors
   (i) Weight gain
   (ii) Anemia
   (iii) Vitamin A products
   (iv) Antibiotics
       1. Minocycline
       2. Tetracycline

(v) Hormones

(c) Signs
   (i) Papilledema is hallmark
       1. Papilledema grades
           a. Frisen 1-5
   (ii) Cranial nerve palsy
       1. 6th
       2. 4th
       3. 3rd
       4. other

(d) Treatment
   (i) weight loss
   (ii) diuretic
   (iii) ONSF
   (iv) Shunting procedure
(v) Bariatric surgery
(e) Monitoring
   (i) Exam
   (ii) Visual field
   (iii) Oct

3) Pseudopapilledema
   a) Optic nerve drusen
      i) Symptoms
         (1) None
         (2) Visual field loss
            (a) Progressive
            (b) Sudden
               (i) Vascular event
                  1. Arterial
                  2. Venous
      ii) Evaluation
         (1) Vf
         (2) Photos
            (a) Color
            (b) Autofluoresence
         (3) Bscan
         (4) OCT
         (5) CT
         (6) MRI
            (a) Rule out superimposed disease
      iii) Treatment
         (1) Iop lowering
         (2) Aspirin
   b) Hyperopic nerve
   c) Tilted disc
      o Anomalous/crowded

4) Ischemic optic neuropathy
a) Definition

b) Etiologies
   i) Non arteritic
      (1) Risks
         (a) Blood pressure
         (b) Diabetes
         (c) Sleep apnea
         (d) Medications
            (i) Erectile dysfunction drugs
            (ii) amiodarone
   ii) Arteritic
      (1) gca
   iii) Symptoms
      (1) Visual loss
      (2) Visual field loss
      (3) Seen on routine exam
   iv) Signs
      (1) Reduced vision
      (2) Apd
      (3) Visual field defect
      (4) Disc edema in AlON
      (5) Normal nerve in PION
   v) Treatment

5) Optic neuritis
   a) Definition
   b) Etiologies
      i) MS
      ii) NMO
      iii) Others
   c) Symptoms
      i) Visual loss
      ii) Visual field loss
iii) Pain with eye movements

d) Signs
i) Reduced vision
ii) Color vision loss
iii) Apd
iv) Visual field defect
v) Normal anterior exam
vi) Swollen nerve
vii) Pale nerve

e) Treatment
i) Steroids
   (1) IV solumedrol
   (2) Treat underlying disease

f) Monitoring
i) Visual fields
ii) Oct

6) Optic atrophy

a) Etiologies
i) Prior event
   (1) Traumatic
   (2) Prior ischemic
   (3) Prior inflammatory
   (4) Other
ii) Progressive visual loss
   (1) Compressive
   (2) Dominant optic atrophy
   (3) Toxic
      (a) Medications
   (4) Nutritional
      (a) Vitamin deficiency

b) Symptoms
i) Visual loss
ii) Visual field loss
iii) Proptosis
iv) Color vision loss
v) Headaches
c) Signs
   i) Reduced vision
   ii) Color vision loss
   iii) Apd
   iv) Visual field defect
   v) Optic atrophy
d) Office testing
   i) Visual field
   ii) Oct
e) Imaging
   i) MRI study of choice
   ii) CT scan if MRI cannot be done
   iii) Blood test
      (1) Cbc
      (2) Rpr
      (3) Ana
      (4) Ace
      (5) Nmo igg
      (6) Anti mog antibody
      (7) DsDNA
      (8) Esr
      (9) Crp
f) Treatment
   i) Treat underlying disease
g) Monitoring
   i) Visual fields
   ii) Oct
7) Conclusion