A Curious Case of Bilateral Optic Disc Edema

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CASE PRESENTATION

51 year old white female presenting with blurred vision
Case Presentation

• 51 yo white female c/o “cloudy vision” OU upon waking this morning
• Like “looking through dirty glasses”
• Eyes feel tired, strained, and sore
History of Present Illness

• Denies any previous episodes
• Denies frequent headaches (admits to occasional stress-related headaches responsive to OTC NSAIDs)
• Denies pulsatile tinnitus

Anything else you would like to ask regarding her initial presentation?
Medical History

- Past Ocular History: presbyopia
- Past Medical History: hypertension
- Past Surgical History: none
- Family History: heart disease, diabetes
- Social History: denies using tobacco products, admits to occasional alcohol, denies any recreational drug use
- ROS: recent significant weight loss, otherwise non-contributory
Medical History

Meds:
• **Tribenzor** 40/5/12.5mg 1 tab PO daily
• **Phentermine** HCl 37.5mg ½ tab PO daily
• **Topamax** 25mg 2 tabs PO daily

Allergies:
• Penicillin
Medical History

Upon further questioning...

• Participating in a medical weight loss program
• Lost approximately 30 pounds over the last 3 months
• Used Phentermine for 12 weeks, and then discontinued it
• Started taking Topamax 1 week prior during the transition off of the Phentermine
Physical Exam

• General
  Alert and oriented x 4, pleasant affect

• Visual Acuity (UCVA)
  OD: 20/30, pinholes to 20/25-
  OS: 20/25-, pinholes to 20/20-

• IOP
  OD: 38
  OS: 40

• External
  unremarkable

• Anterior Segment
  1+ cell and flare OU

• Gonioscopy
  Angles closed OU
Physical Exam

• DFE was attempted but patient was too photosensitive to cooperate with exam
Diagnosis & Treatment

• Diagnosis
  Acute Angle Closure OU, secondary to Topamax
  Acute Anterior Uveitis OU, secondary to Topamax
  Blurred vision OU

• Management
  Stop Topamax
  Simbrinza (brinzolamide/brimonidine) 1%/0.2% gtts bid OU
  Prednisolone acetate 1% gtts qid OU
  Atropine sulfate 1% gtts bid OU

• Follow-up
  RTC in 1-2 days for IOP check
Day #3

Patient presents complaining of continued blurred vision, increased pain and redness, and dryness OU

• Visual Acuity (UCVA)
  OD: 20/40+, pinholes to 20/20
  OS: 20/30-, no improvement with pinhole

• IOP
  OD: 8
  OS: 9

• External
  Pupils dilated with Atropine

• Anterior Segment
  Conjunctival chemosis OU
  Trace cell and flare OU
Day #3

• Posterior Segment
  Vitreous: clear OU
  Cup-to-disc ratio: <0.1 OU
  Optic disc edema OU
    disc elevation, chronic in appearance
    no disc hemorrhages
    relatively sharp margins
  Macula: flat, attached OU
  Vessels: normal caliber OU
  Periphery: intact 360° and unremarkable OU
Diagnosis & Management

• Allergic reaction to Atropine sulfate gtts
  Instructed patient to d/c Atropine gtts

• Acute Angle Closure OU, secondary to Topamax
  Improved, IOP WNL
  Continue Simbrinza gtts

• Acute Anterior Uveitis OU, secondary to Topamax
  Improved
  Continue prednisolone acetate gtts

• Disc edema OU
  Unknown etiology
  Return for further diagnostic testing:
  OCT optic nerve
  Humphrey Visual Field 24-2
1 Week

• Patient states her eyes feel sore and ache toward the end of the day.
• She feels that her vision OD is not as bright and clear as OS.
• She noticed some gray spots in her vision OD, but notes that they don’t move around like a normal floater.
• The redness and irritation stopped soon after she d/c Atropine gtts a few days ago.
1 Week

- **Visual Acuity (UCVA)**
  - OD: 20/40, no improvement with pinhole
  - OS: 20/20

- **Manifest Refraction**
  - OD: -0.75 +0.75 x 090, corrects to 20/25-

- **IOP**
  - OD: 11
  - OS: 10

- **Anterior Segment**
  - Chemosis resolved OU
  - Trace AC cell and flare OU

- **Posterior Segment**
  - Chronic-appearing optic disc elevation OU
OCT Optic Nerve at 1 week
Visual Field Testing at 12 days

OD

OS
2 Weeks

- Patient still complains of blurred vision OD
- Using Simbrinza and prednisolone acetate gtts as directed
2 Weeks

- **Visual Acuity (UCVA)**
  OD: 20/40+, pinholes to 20/30+
  OS: 20/20-

- **Manifest Refraction**
  OD: -0.75 +1.00 x 090, corrects to 20/25
  OS: plano

- **IOP**
  OD: 12
  OS: 12

- **Ishihara Color Plates**
  OD: 5.5/7
  OS: 6/7

- **Anterior Segment**
  Unremarkable

- **Posterior Segment**
  Chronic-appearing optic disc elevation OU
OCT Optic Nerve at 2 weeks
Further Testing

• MRI brain and orbits, with and without contrast, was performed and was unremarkable
Diagnosis & Management

- **Acute Angle Closure OU, secondary to Topamax**
  Resolved, IOP WNL
  D/C Simbrinza gtts

- **Acute Anterior Uveitis OU, secondary to Topamax**
  Resolved
  Taper and D/C prednisolone acetate gtts

- **Blurred Vision OD**
  Refractive Error: myopia, astigmatism

- **Disc edema OU**
  Unknown etiology
  MRI unremarkable
  Repeat diagnostic testing:
    OCT optic nerve
25 Days

- Patient still complains of blurred vision OD
- No longer using Simbrinza or prednisolone acetate gtts
25 Days

- **Visual Acuity (UCVA)**
  OD: 20/40+, pinholes to 20/25-
  OS: 20/25-, pinholes to 20/25+

- **Manifest Refraction**
  OD: -0.50 +0.75 x 105, corrects to 20/20
  OS: plano

- **IOP**
  OD: 12
  OS: 12

- **Anterior Segment**
  Unremarkable

- **Posterior Segment**
  Chronic-appearing optic disc elevation, resolving
OCT Optic Nerve at 25 days
OCT Macula at 25 days

Macula Thickness: Macular Cube 512x128

Overlay: ILM - RPE Transparency 50%
2 Months

- Patient still complains of blurred vision OD
2 Months

• Visual Acuity (UCVA)
  OD: 20/40+, pinholes to 20/30+
  OS: 20/20

• Manifest Refraction
  OD: -1.50 +1.50 x 100, corrects to 20/20-
  OS: plano

• IOP
  OD: 10
  OS: 10

• Anterior Segment
  Unremarkable

• Posterior Segment
  Optic disc elevation resolved OU
OCT Optic Nerve at 2 months
OCT Macula at 2 months
Visual Field Testing at 6 months

OD
Visual Field Testing at 6 months

### Data for OS

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<th>Date</th>
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</tbody>
</table>

- **Fovea:** 32 dB
- **VFI:** 90%
- **FL:** 1/10
- **FN:** 6%
- **FP:** 3%

- **Fovea:** 36 dB
- **VFI:** 94%
- **FL:** 0/15
- **FN:** 0%
- **FP:** 0%
OCT Optic Nerve at 9 months
Visual Field Testing at 9 months
Visual Field Testing at 9 months

OS
Diagnoses

• Acute Angle Closure OU, secondary to Topamax
• Acute Anterior Uveitis OU, secondary to Topamax
• Optic Disc Edema OU
• Upon resolution, Optic Atrophy OU, which has progressively worsened over 9 months
• Persistent Visual Field Defects OU, which have slightly improved and stabilized over 9 months
• Persistent Myopia and Astigmatism OD
Discussion

• Acute bilateral angle closure is a well-documented adverse effect related to Topamax (as well as other sulfa-derivative drugs)\(^1,2\)
• Mechanism: Ciliochoroidal effusion syndrome
  – Ciliary body swelling causes anterior rotation of the ciliary body-lens-iris diaphragm, and occlusion of the AC angle
  – Likely inflammatory component as cases of uveitis and vitritis have been reported
  – Usually occurs days to weeks after drug administration
  – Prevalence: 3 per 100,000 (more common in females)
• Also induces myopia
  – due to anterior lens position, or possibly lens thickening with zonular relaxation
• Paradoxical Effect: cycloplegia allows resolution of the angle occlusion by relaxing the ciliary body
• Resolves with discontinuation of Topamax
Discussion

• Optic Disc Edema has NOT been previously reported in association with Topamax, nor Phentermine
• Cases of visual field defects and pigmentary retinopathy have been reported, usually in patients taking higher doses over longer periods of time\(^2\)
• VFD occurred in between 1:100 and 1:1000 cases during manufacturer’s clinical trials (the nature of these defects was not reported)\(^2\)
• A Turkish study (2011) revealed statistically significant changes in RNFL thickness using OCT\(^4\)
  – Baseline was 100.56 ± 15.36 µm
  – Increased to 110.2 ± 8.41 µm at 30 days \((p = 0.01)\), and 111.03 ± 14.59 µm at 90 days \((p = 0.004)\)
Discussion

Reported adverse ocular effects associated with Topamax administration:

• Acute bilateral angle closure
• Choroidal effusion syndrome
• Uveitis
• Macular striae
• Pigmentary retinopathy
• Visual field defects
• Myopia
• Neuroophthalmologic manifestations (palinopsia, Alice in Wonderland syndrome)
• Optic Disc Edema?
Recommendations

In evaluation of a patient with concurrent blurred vision and history of Topamax administration, consider the following as important parts of the initial examination:

- SLE
- IOP measurement
- Gonioscopy
- DFE
- Refraction
- Visual field testing
- OCT optic nerve?
References


Thank You!

*Special thanks to Dr. Robert Peets, DO*

Questions?