

You've Got a Lot of Nerve!

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HARPER'S POINT EYE ASSOCIATES
APRIL 28, 2019

Course Objectives


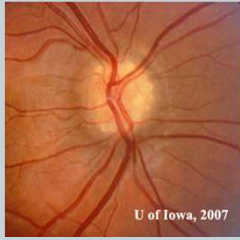
- Review techniques to discern if an optic nerve is truly swollen.
- Review technology available to confirm optic nerve head drusen.
- Review pathophysiology and management of pseudopapilledema and papilledema.

Financial Disclosure

- None

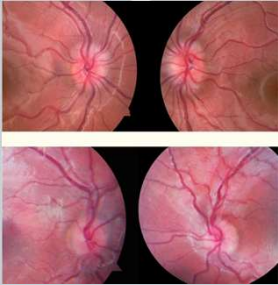
Evaluating the Optic Nerve

- Elevated Appearance OU
 - "Lumpy-bumpy"

U of Iowa, 2007

Swollen...or not?

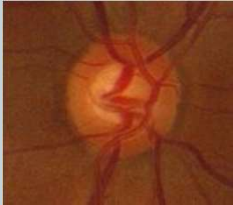


Optic Nerve Head Drusen¹

- Deposits
- Bilateral
- 0.5-2.4% of adults
 - Females
 - Caucasians⁸
- Familial⁸

Table 1
 Ocular disorders reported in association with optic disc drusen
 Acquired myelinated nerve fibers¹⁰
 Adhans-Klüver syndrome¹¹
 Aneurysm of the ophthalmic artery¹²
 Astrocytic hamartoma¹³
 Best's vitelliform macular dystrophy¹⁴
 P-thalassemia¹⁵
 Birdshot chorioretinopathy and Cushing-Rice syndrome¹⁶
 Combined hamartoma of the retina and retinal pigment epithelium¹⁷
 Congenital night blindness¹⁸
 Familial macular dystrophy¹⁹
 Glaucoma²⁰⁻²²
 Optic atrophy^{23,24}
 Idiopathic intracranial hypertension^{25, 26, 27, 28, 29, 30, 31, 32, 33}
 Idiopathic paravascular telangiectasia³⁴
 Joubert syndrome³⁵
 Morning glory disc anomaly³⁶
 Optic tervial telangiectasia³⁷
 Optic nerve transection³⁸
 Peripapillary central serous chorioretinopathy³⁹
 Pigmented paravascular retinohaminal atrophy (PPRCA)⁴⁰
 Pseudoxanthoma elasticum and angiod streaks^{41, 42, 43, 44, 45, 46, 47, 48}
 Retinitis pigmentosa⁴⁹
 Scott-Layton-Lindner-Osterlind Syndrome (SLOS)^{50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100}
 Thal optic disc¹⁰¹
 Vitelliform macular dystrophy and avellera (TMD) syndrome¹⁰²
 VACTERL association¹⁰³

Evaluating the Optic Nerve



http://www.ophthology.com/Case_Study/Case_Study_2014060101.htm

Distinct...or Indistinct?²

- Optic disc drusen
- Malinsertion (oblique) →
- Tilted Disc Syndrome ↙
- Optic nerve hypoplasia

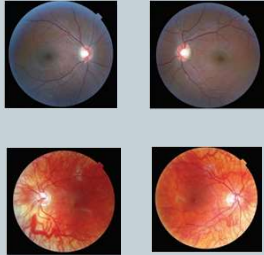
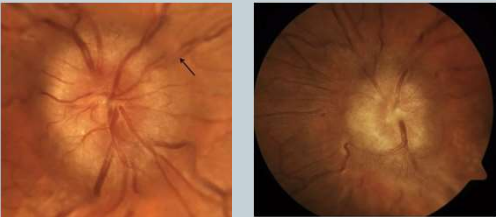


Image courtesy of [unreadable]

Evaluating the Optic Nerve

- Vessel Obscuration



Other Signs

- Peripapillary hemorrhages
- Patton's lines
- Venous engorgement
- Spontaneous venous pulse
- Opacification of RNFL

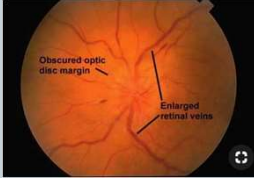



Image courtesy of [unreadable]

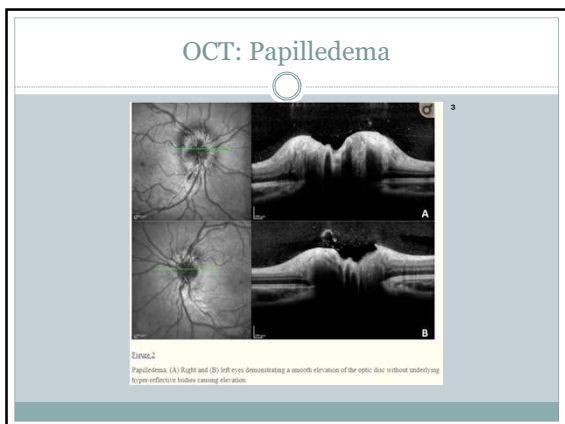
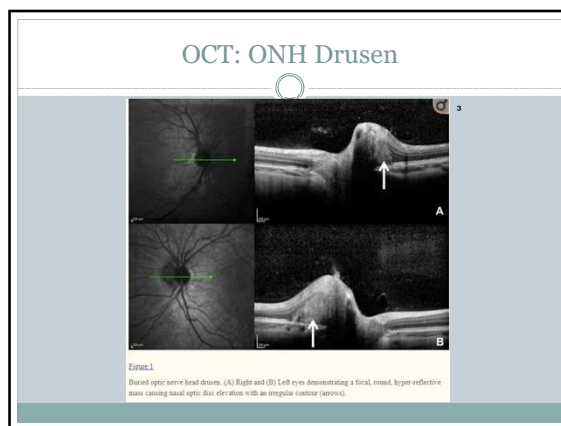
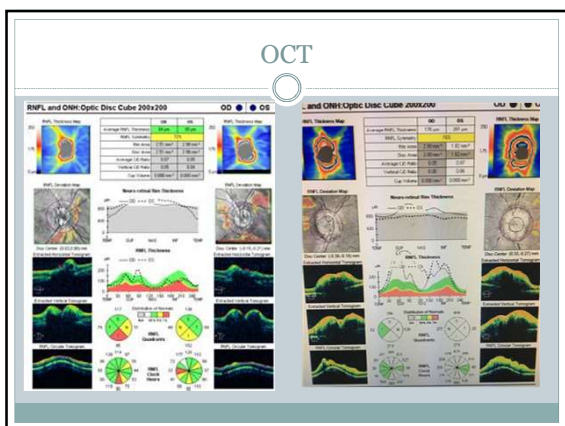
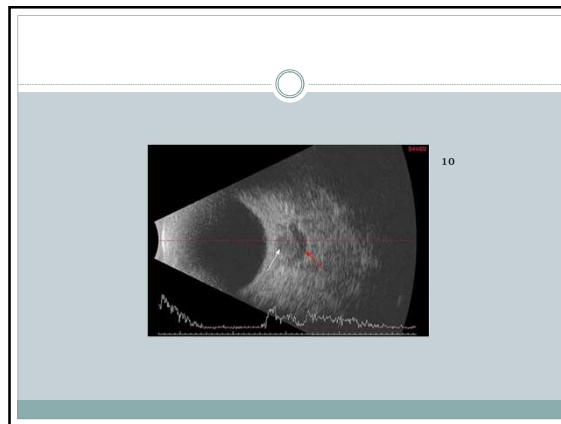
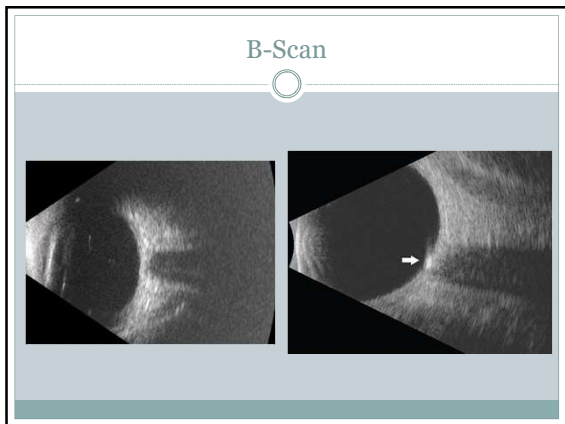
Symptoms

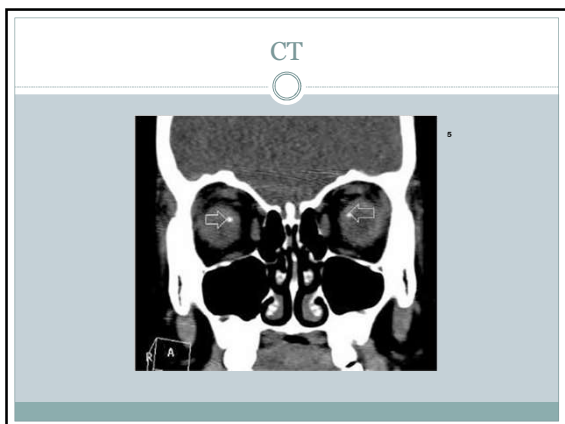
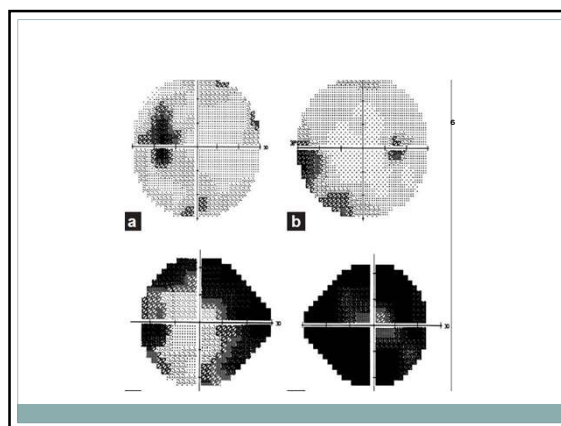
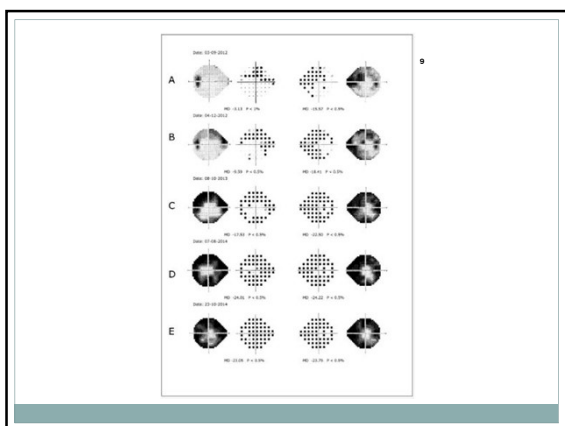
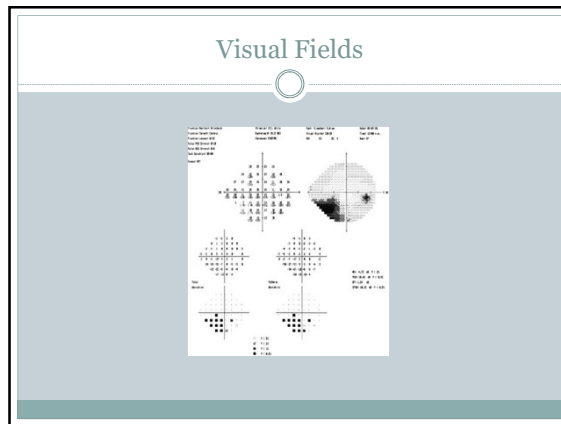
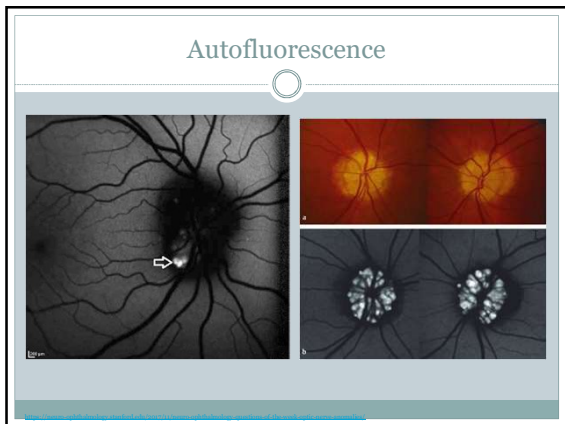
- Ask patient direct questions about history
- Asymptomatic w/ ONH drusen
- Patient Characteristics
- Headaches?
- Diplopia?

Work-Up

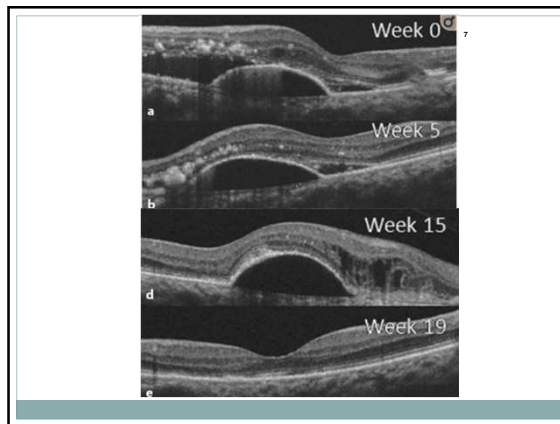
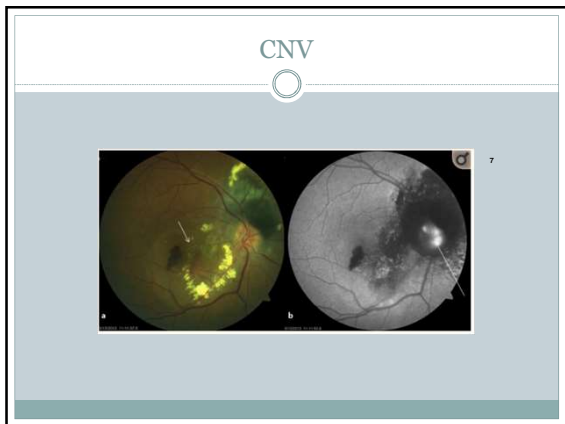
- Entrance testing
VAs, EOMs
- Fundus Examination
- If elevation severe, BP
- B-scan







- ### Patient Education
- Anatomical
 - Visual field loss
 - Choroidal Neovascularization (CNV)
 - Importance of monitoring



Management

- B-scan confirmation and asymptomatic
- B-scan confirmation and symptomatic

Bilateral swollen nerves

- VA
- BP
- ER
- MRI
- rule out tumor

- Communication w/ PCP
- Insurance coverage/Prior authorization

Papilledema

- MRI negative
- ↓
- Lumbar puncture
- ↓

Papilledema: swelling of the optic nerve *secondary to raised cerebrospinal fluid pressure*

Idiopathic Intracranial Hypertension

- Acetazolamide
- Weight loss
- Shunt
- Visual fields

Treatment of Idiopathic Intracranial Hypertension 11

<p style="font-size: x-small; color: red;">No Visual Loss</p> <p style="font-size: x-small;">Low sodium diet 10% weight loss consider Acetazolamide</p>	<p style="font-size: x-small; color: red;">Mild Visual Loss</p> <p style="font-size: x-small;">Low sodium diet 10% weight loss Acetazolamide</p>	<p style="font-size: x-small; color: red;">Severe Visual Loss</p> <p style="font-size: x-small;">Low sodium diet 10% weight loss Acetazolamide ONSF – visual loss and frontal headache Shunt – other headache</p>
<p style="font-size: x-small;">↔ ↔ ↔</p>		
<p style="font-size: x-small;">↓</p>		
<p style="font-size: x-small;">optic nerve sheath fenestration or CSF Shunt</p>		
<p style="font-size: x-small;">↓</p>		
<p style="font-size: x-small;">24 hour blood pressure monitoring and sleep study for sleep apnea</p>		

15yo WM

- **CC:** no complaints
- **MHx:** traumatic birth, anxiety, ADHD
- **OHx:** myopic astigmatism
- **Meds:** unknown breathing medication, nasal spray, unknown ADHD meds
- **BCVA:** 20/20 OD, OS
- **EOMs:** FROM (-) diplopia
- **Pupils:** PERRL, (-)APD
- **IOP:** 18, 18mmHg

15yo WM

- **SLEx:** unremarkable
- **Fundus:** mildly indistinct disc margins, mild elevation superiorly OD>OS

15WM



19yo WF

- **CC:** needs stronger glasses, squinting more
- **MHx:** unremarkable
- **OHx:** myopic astigmatism
- **Meds:** none
- **BCVA:** 20/20 OD, OS
- **EOMs:** FROM (-) diplopia
- **Pupils:** PERRL, (-)APD
- **IOP:** 20, 21 mmHg

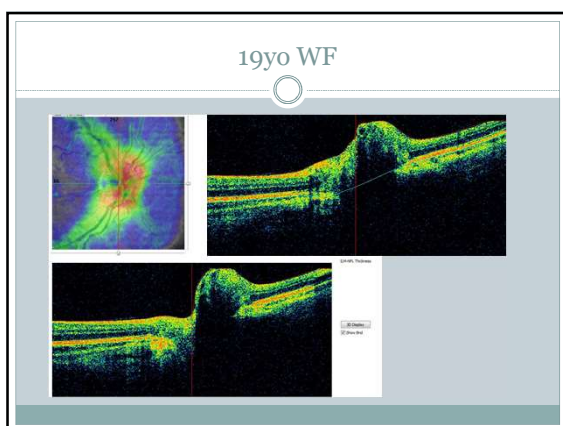
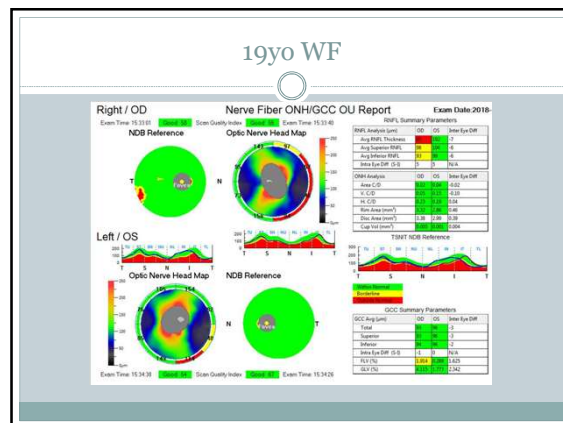
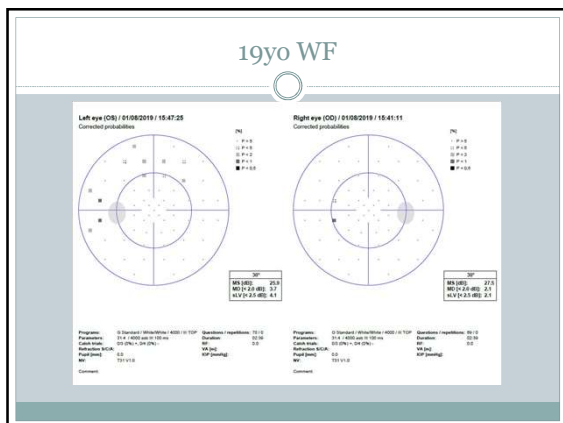
19yo WF

- **SLEx:** unremarkable
- **Fundus:**



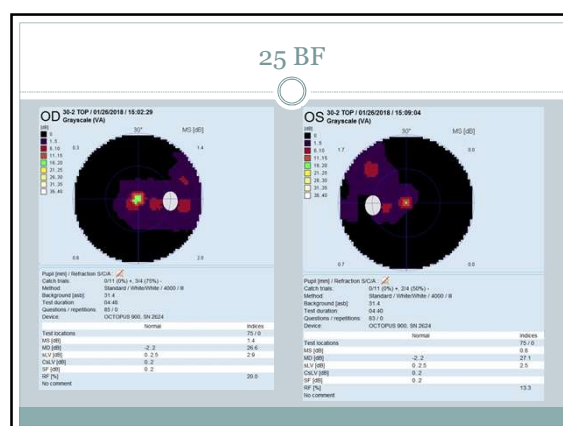
19yo WF

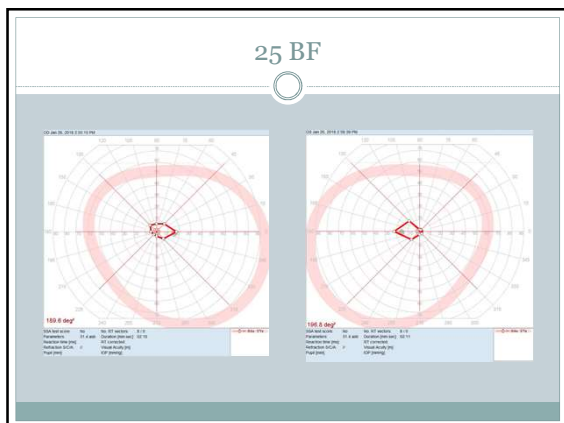




- ### 25 BF
- **CC:** applying for disability
 - **MHx:** pseudotumor cerebri
 - **OHx:** papilledema followed by neurology
 - **Meds:** None
 - **BCVA:** 20/400 OD, 20/400 OS
 - **EOMs:** FROM (-) diplopia
 - **Pupils:** PERRL, (-)APD
 - **IOP:** 22mmHg od, 20mmHg OS

- ### 25 BF
- **SLEx:** unremarkable
 - **Fundus:** 3+ ONH pallor OD, OS





References

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