OPHTHALMIC HOSPITALIST INTEREST GROUP

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OPHTHALMIC HOSPITALIST INTEREST GROUP NEWSLETTER

Donna Kim, MD | Maggie Hymowitz, MD

Announcements

Join the Community!

Read about portable fundus camera recs, inpatient admissions for ophthalmology, ophthalmic hospitalist job openings and more!

AAO/OHIG Online Community!

OHIG Topic Wishlist

Have a topic or clinical case that you'd like to feature in a future OHIG newsletter? We welcome your ideas and expertise. Feel free to email ohig@ohig.org

Welcome New Members!

Thanks for joining OHIG! Please verify your information on the OHIG website.

Image Source

Articles

Tying Up Loose Ends: Discharging Patients With Unresolved Medical Issues, JAMA, 2007

An article which shows the frequency with which hospital physicians recommend outpatient work ups to address patients' unresolved medical problems.

Upward of 100 Pateints with Undiagosed Diseases Find Answers, Stanford Medicine News Center, 2018

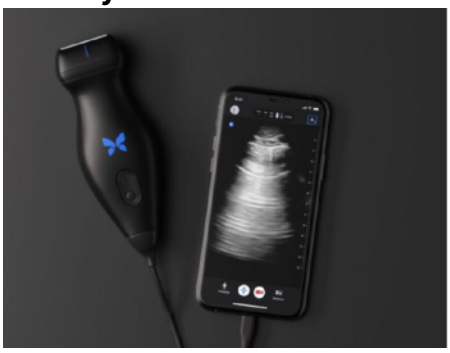
An article about Stanford University's Undiagnosed Disease Network created by the NIH which includes a multidisciplinary network to diagnose previously unknown ailments.

Value of Medical History in Ophthalmology: A Study of Diagnostic Accuracy, JCO, 2018

A study demonstrating the value of patient history and chief complaint to accurately diagnose patient pathology without requiring an exam or imaging for neuro-ophthalmology clinic.

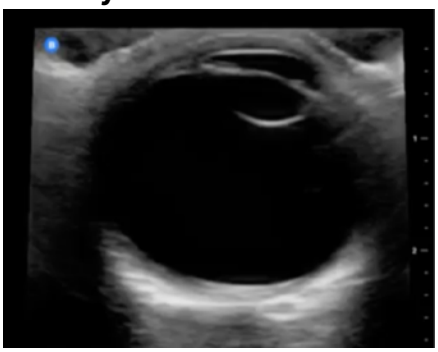
PEARLS

ButterflyIQ Handheld B-scan US



Check out this compact portable B-scan US probe that can plug into your smart phone The Butterfly unit now been approved for ophthalmic use. Click here

ButterflyIQ Video



Facebook Video: Click here

ButterflyIQ at ARVO iovs investigative ophthalmology & visual science

An ARVO abstract comparing Butterfly IQ vs Conventional Ophthalmic Ultrasonic Imaging. Click here

CONSULT ROUNDS

You receive a page about a 61 y.o. Russian female with new onset vision changes who is admitted urgently to the medicine service for diabetic ketoacidosis (DKA).

The patient is somewhat confused but able to answer questions. She reports that up until yesterday she had normal vision and was able to drive. Her last eye exam was about 2-3 years ago which was reportedly unremarkable.

On exam, her vision is bare LP OU. There is a minimal pupil reaction OU without definitive APD. Eye motility is full. External and anterior segment exam by penlight is quiet. IOP is 9/7 mm by tonopen. A dilated fundus exam shows background diabetic retinopathy in both eyes with small macular hemorrhages with no obvious NVE/NVD or VH. Her optic nerves appears normal. There is intact retinal arterial pulsation with gentle pressure on the globes indicating some degree of ocular perfusion. There was no sign of CRAO in either eye.

Systemic work up is notable for a blood sugar readings over 450. Arterial blood gas shows an extremely low pH of 6.7 (normal is 7.3-7.5). pCO_2 is 17. BP is initially quite low at 88/53. She is felt to be in sepsis with an elevated white count of 38.9. A non-contrast head CT is normal.

An MRI brain is requested but unable to be obtained due to the patient's medical instability. She has no evidence of methanol or ethylene glycol ingestion. Despite initial correction of her blood sugar and blood pH over the first 24 hours, she develops acute renal failure and other systemic complications.

During her hospital admission the patient indicates to her family that her vision is improving and she is able to now able to see their faces. The patient unfortunately continues to decline from complications of sepsis and ultimately dies on hospital day #3.

What is your differential diagnosis for this patient?

A differential includes:

1. Bilateral Occipital CVA
This was felt to be unlikely given the negative head CT but could have been a stroke in evolution. Minimal pupil reaction was also more indicative of a probable dysfunction of the anterior visual pathway of some sort.

2. Posterior Reversible Ischemic Encephalopathy Syndrome (PRES)
Can be associated with notable bilateral visual impairment in settings involving fluctuations in blood pressure, renal failure, neurologic impairments, and DKA. This diagnosis was felt to be a possibility which an MRI would have clarified. We had a discussion with the primary medicine teaming about this possibility and whether or not such a diagnosis would acutely change management. They indicated that it would not. Therefore, an urgent MRI of the brain was deferred but would have been pursued if the patient had survived.

3. Bilateral Posterior Ischemic Optic Neuropathy (PION)
This diagnosis is of reasonable suspicion given the known episodes of severe hypotension on initial admission and bilateral visual presentation. We ultimately could not rule this out because of her demise.

4. DKA Related Reversible Blindness
An unusual diagnosis but there are published reports in the literature about patients who experience sudden onset reversible blindness due to DKA. The exact mechanism is not fully understood but postulated to be due to uncoupling of retinal electrical transmission in a severe acidic environment in DKA. The patient's minimal pupillary reactions and subjective visual improvement certainly raise suspicion for this underlying rare but plausible diagnosis. The patient sadly died from complications of her sepsis therefore we were unable to confirm if she would have continued to recover vision.

5. Other Ddx
Other possibilities included bilateral central artery or ophthalmic artery occlusions (which can be difficult to clinically diagnosis on immediate presentation given a potential lack of fundus findings), pituitary apoplexy, bilateral optic neuritis, toxic optic neuropathy, but given the overall clinical scenario a diagnosis of DKA related blindness was still under suspicion given her extremely low blood pH. FA/OCT or ERG testing would have been very interesting to obtain but not available or practical in this clinical setting.

Case Considerations:
Vision loss in the inpatient hospital setting can pose diagnostic challenges due to limitations of a bedside examination and medical instability of patients which may preclude additional diagnostic work up or imaging.

That being said, "mystery diagnoses" encountered in the hospital setting can be a wonderful opportunity to review the literature and think outside the box when it comes to putting all the pieces together.

DKA Related Reversible Blindness is a lesser known clinical entity that is certainly relevant for the hospital consult setting. It is helpful for ophthalmologists to be aware of this condition. We encourage you to check out the featured articles below to learn more. Have you come across any potential cases of DKA related severe vision loss on your consults?

We would like to extend a special thank OHIG member ***Dr. Mitchell Wolin*** *for sharing this interesting and thought provoking case.*

Dr. Mitchell Wolin
Center for Advanced Eye Care
Greenville, SC

Consult Rounds References:

1. Bockus et al, Reversible Blindness as Presenting Manifestation of Severe DKA, AMJS, 2019.
2. Oun et al, Reversible Blindness Secondary to Severe DKA, K R Coll Physicians, 2018
3. Asad et al, Reversible Blindness Associated with Diabetic Ketoacidosis: A Rare Combination, J of Investigative Medicine, 2016.
4. Sato et al, Transient Total Blindness Associated with Alcoholic Ketoacidosis, Acute Med Surge, 2021.

Unresolved Diagnosis Consult Survey

Question 1: How often do you come across cases in the hospital/ER which ultimately receive no definitive diagnosis from ophthalmology?
A) Never
B) Rarely
C) Few times a month
D) Few times a year
E) All the time

Question 2: What has limited your ability to make a definitive diagnosis on inpatient/ER consults? Check all that apply.
A) Complex case
B) Lack of available diagnostic imaging such as OCT/FA/ERG/VEP
C) Patient is too ill for MRI/CT imaging
D) Goals of care limit further work up or additional exams
E) Patient volume too high, must defer additional diagnostic work up to outpatient setting
F) Other, please comment

Submit your responses on the AAO/OHIG Online Community:
https://aao.mobilize.io/main/groups/47315/lounge