The Fundoscopic Exam in Clinical Practice

Jed Grant
University of the Pacific, jgrant@pacific.edu

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Fun with the Fundus-Clinical Ophthalmoscopy

Jed Grant, MPAS, PA-C
University of the Pacific PA Program
Sacramento, CA

Objectives

- Participants in this session will learn:
  1. To use effective ophthalmoscopic examination techniques
  2. To describe the proper use of the Panoptic ophthalmoscope
  3. To identify benign and concerning funduscopic findings

Why bother?

http://johnexleyoptician.co.uk/
https://www.flickr.com/photos/nationaleyeinstitute/7543918842
http://www.eyeglassguide.com/my-visit/vision-testing/ophthalmoscope.aspx
Why bother?

- Routine physical exam
  - PE of the eye yields more useful information per unit area than any other organ in the body
  - Bi-directional window
- Vision complaint
- High risk disease
  - Asymptomatic patient with BP of 190/110
  - Hgb A1c of 8

Eye exam

- Visual acuity is the vital sign of the eye
- Lids/orbital margins
- EOM
- Sclera/conjunctiva
- Cornea
- Pupil
- Lens
- FUNDUS

Fundoscopic Exam Tools

- Retinal camera
  - $10-30k+
- Panoptic Ophthalmoscope
  - $600
- Coaxial Ophthalmoscope
  - $300
Coaxial Funduscopic examination

- Dark room if possible, or use mydriatic drops
  - Mydriasis is time consuming (~15-30 min) and lasts several hours
- Give the patient something to look at or focus on
  - RRR or LLL for coaxial ophthalmoscope
- Use medium aperture, set focusing wheel to 0, consider polarizing filter, light to brightest setting
  - May adjust for your own vision or as needed for patient comfort
- Remove your glasses if you wear them
- Stand on the side being examined and keep one finger on the focusing wheel
- Wedge scope against your cheek with hand and then head/hand/scope should move as one unit.

- Start about 15 inches away and 15 degrees lateral from the line of sight looking at the patient’s eye to obtain the red reflex
  - Note any opacities/interruptions in the reflex
- Follow the red reflex in along the 15 degree angle until you see a retinal structure come into focus or you are very close
  - If you are at the lashes and nothing is in focus, rotate the focus wheel until you find a focused image
- Look at the disc
- Look around the retina
- Look at the macula

Is the Panoptic Better?

- Depends on your age?
- Benefits
  - One study showing panoptic is superior to coaxial ophthalmoscopy in the ED setting.
  - Much better field of view, can record images
  - Not so close to patient, can use either hand
- Problems
  - Fragile and expensive
  - Fulcrum is farther from the eye

**PanOptic Funduscopic Examination**

- Collapsible cup towards the patient, remove spectacles
- Can use either hand to hold scope
- Focus on an object 15 feet away
- Correct for your refraction
- Have patient focus on distant object
- Start 6 inches away and 15 degrees temporal and find red reflex
- Rest non-dominant hand on patient forehead (optional)
- Follow red reflex in until cup contacts brow. Compress cup ½ way
- Use focus wheel as needed.
- Have patient look around to examine retina, and at the light to examine macula.

**PanOptic iExaminer**

- iExaminer connects iPhone to the panoptic to record the exam via an app.
- Three images may be saved from the video
- HIPAA compliant

**PanOptic**

- This video was recorded by my student on himself with the PanOptic iExaminer connected to a computer with the iPhone cord.
- He could see via the computer with the non-examined eye and operated the PanOptic and iExaminer blindly.
### PanOptic

- Red free filter on PanOptic
- Makes vasculature easier to see
- Easier to see small hemorrhages

### WA RetinaVue 100

- Simplified operation
  - Many tasks automated
- Images retina
- Connected to network of ophthalmologists who interpret photo
- Downloads to EMR
- Costs 2/3 less than comparable retina cameras

### Describing the Location of Retinal Lesions

- Optic disc is the unit of measure
- Location is like a clock
- IE the macula is two disc diameters from the disc at 9 o’clock.
Glaucoma

Note the bending of vessels

- HARD EXUDATE

- COTTON-WOOL PATCH

- Coccor: flare and hemorrhage of vessels
Optic Disc Drusen

Nevus

Emboli
Papilledema

Hemorrhages

Glaucoma
RETINA ROUNDUP!!

• Get your phone and go to Kahoot.it
• Enter the number, then the pattern.
• GET READY!
• We will discuss each answer as we go.

Bye Bye! Be seein ya!

SOURCES

• Bickley LS. Bates’ Guide to Physical Examination and History Taking. 11th Ed. LWW. Ch 7. P228-232
• Images credited on slides.
• https://create.kahoot.it/#quiz/b55af237-e8fc-41f5-a1aa-baa8474b1590