



Persistent Hyaloid Artery

Jaclyn's Journey

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Normal Development of Hyaloid Vasculature (1)

- **During the embryonic stages there is a blood supply to form the crystalline lens of the eye.**
- **It branches out of the optic nerve to the back of the lens.**
- **Blood flow usually ceases at 7 months of gestation.**
- **Involution of the vasculature is usually at 36 wks**
- **Before regression, it usually ruptures without hems in the center.**
- **The two ends retract and usually regress completely.**
- **Occasionally hems can occur and lead to Amblyopia.**

What is Persistent Hyaloid Artery? (PHA)

- Persistent Hyaloid Artery occurs when there is a failure of complete apoptosis of the vasculature.
- Persistent Hyperplastic Primary Vitreous (PHPV) is more severe.
- Due to failure of embryologic development of the vitreous beyond the earliest primary stage; different severities. (2)
- Mildest form: Bergmeister's papillae. Appears as a vessel often corkscrew, arising perpendicular out of the optic disc. Usually does not cause visual problems unless there is attachment to the posterior surface of the lens. Mittendorf's Dot is the remnant of the fetal vasculature at its point of attachment on the posterior lens surface.
- PHA may appear like a cataract on retinoscopy and ophthalmoscopy.

References

- **(1) Pathobiology of Human Diseases; Academic Press, Editors Linda M McManus, Richard N Mitchell, 2014. R Hobbs, ME Hartnett, Hyaloid Vasculature: Development, Regression, Structure, and Pathologies**
- **(2) Clinical Pediatric Optometry; Leonard Press, Bruce Moore Butterworth-Heinemann, 1993, pages 156-157**

Jaclyn, a case of Persistent Hyaloid Artery

- **First Examination: June 17, 2017: 8 year old female, selective mute (whispered in mom's ear when outside the house)**
- **In therapy and taking fluoxetine and Prozac for severe anxiety**
- **History: saw 4 pediatric OMDs, 2 different hospitals, Montréal**
- **Original diagnosis: Congenital Cataract OS**
- **OMDs said there is nothing to do for OS, "she has 1 good eye"**
- **1 OMD recommended patching OD 9 hrs per day**
- **1 optometrist recommended patching OD 5 hrs per week**
- **Mom heard of me from a friend, but expected me to give the same answer. She reported VA OS was 20/80 originally**
- **Exam results VA sc OD 20/20, OS 20/50 Lighthouse cards**
- **Refraction: OD plano VA cc: 20/20
OS -0.25-1.00 x 90 20/40**
- **1 Base Down OU brought VA OS to 20/30! Stereo 8/9 (50 sec)**
- **O-scope: OS persistent hyaloid artery with cloudy vitreous**
- **Recommend patching OD 30-60 mins/day with eye-hand activities**

Progress Exams

- Aug 16, Dec 4, 2017, VA same.
- Letter from OMD at Sick Kids' Hospital, Toronto Nov 6, 2017
- "In the left eye the vitreous is hazy with significant amount of pigment cells and altered blood...minimal refractive error...I believe that Jaclyn's left eye does have a hazy vitreous which has been the cause for her reduced vision. Given the history of persistent hyaloid artery it is possible that the hyaloid artery might have bled which has led to a vitreous hemorrhage causing clouding and the reduced vision to 20/80...and can explain why the vision has slowly improved. However, there is residual debris and pigment cells...which are causing the haziness of the vitreous. Considering at present the vision seems to be improving, I would allow for further spontaneous improvement rather than any intervention. Treatment would be a vitrectomy with risks of retinal detachment and cataract."
- Glasses had not been made, mom had wanted this doctor's opinion first.
- Glasses made Dec 4, 2017 (OD pl, OS -0.25 - 1.25 x 90 1^BD OU)

Continued Progress Exams

- Feb 7, 2018, VA Snellen with RX OS 20/25- (-0.25-1.25 x 95, OU 1[^]BD)
- Stereo 9/9 (40 sec)
- May 22, Nov 12, Dec 10, 2018
- OS Persistent Hyaloid artery with cloudy vitreous on all exams
- Traction at macula with Bergmeister's Papillae
- Feb 18, 2020 VA OS cc 20/25+ did "some patching" OD with activities
- Changed Left Rx to -0.50-0.50 x 90 VA 20/25+
- Has a part time shadow at school because of anxiety
- Aug 26, 2020 she says she sees better with glasses
- Starting to talk!
- Mom reports she has school difficulties
- Dx: Dysgraphia, difficulty writing, organizing her thoughts to write
- Dx: ADD (no ADD meds)
- Enjoys reading
- Oct 13, 2020 Visual Perceptual Motor Evaluation

Visual Perceptual Motor Evaluation Results Age 11+

- Draw a person: simple form
- Alphabet: writes "s" for "x"
- Wold Visual Motor: posture of arm and body better with tilted surface
- Davis Visual Scan: 10 years old
- Groffman Visual Tracing: all correct
- Digits: Forward (auditory) 6, Backwards (visualization) 3
- Monroe 3 Visual Memory Test: 6 years old
- YLF Diagonal Differentiation Test: (squares with lines in different orientations, must circle all like the sample diagonal) all over page
- MVPT (up to 9): missed 1 visual memory, 1 visual closure
- Keystone Skills: within normal ranges
- Recommendations: Use pencil grip, slanted work surface, VT
- VT targets: visualization, visual memory, visual processing speed, monocular and binocular hand-eye coordination activities

Vision Therapy and Last Exam

- Seen June 25, July 19, Nov 22, 2021
- Asked to do 30 mins of home VT daily
- Supposed to come 1x/ month
- Went to summer camp, had religious holidays in the Fall
- Exam Sept 23, 2021
- VA cc OD 20/20, **OS 20/20!**
- Mom and she are thrilled.
- Sent me an orchid in the Fall, chocolates in the Spring to “thank you for what you did for my family.”
- Still doing her home exercises
- A case of parent really advocating for her child.

Take aways

- Don't be afraid to take on something you haven't treated before.
- Just because someone else says there is nothing to do to help, you don't have to listen, even if it is 5 Ophthalmologists and 1 OD.
- Do be ready to offer a parent to help their child, but don't make promises.
- Do tell parents they have to be completely on board and do their share of what you ask them to do.
- I always tell parents, " I can't promise you (she) will get to 20/20, but I can promise you I will give it my best efforts.
- Thank You!
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