

## Little Approaches Can Save the Little Eyes

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### Abstract

While sitting in the pediatric ophthalmology screening clinic in Alexandria General Ophthalmology Hospital there are some simple approaches that can be adopted to help in reaching a proper diagnosis and treatment without missing important life and sight threatening diseases that can affect the pediatric age group.

**Keywords:** *Pediatric; Penlight; Leukocoria; Retinoblastoma; Systematic; Approach*

### Introduction

Children and their ophthalmic problems differ greatly from the patients and ocular conditions encountered in adult ophthalmology (they are not merely small adults).

Each developmental level in children requires a different approach for the examination, but with proper preparation and a positive attitude, the ophthalmologist can find the examination of pediatric patients to be both enjoyable and rewarding [1].

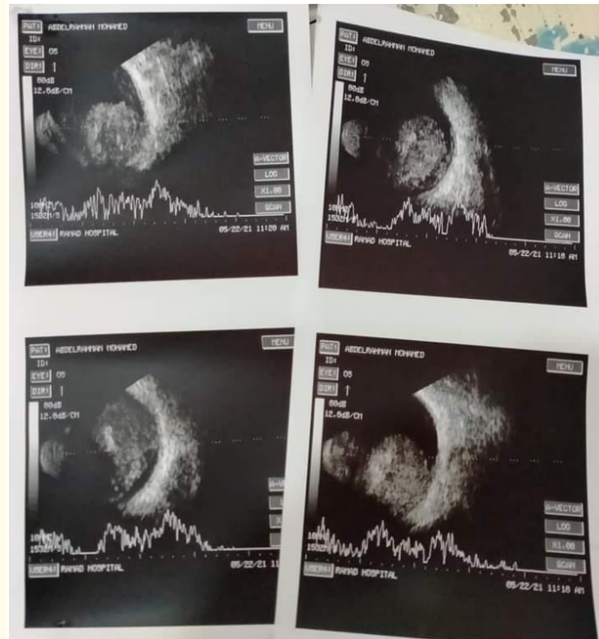
### Case 1: The penlight saved the baby

A 2.5 years child came to the screening clinic of paediatric ophthalmology. His mother complained of change in the colour of her child's pupil in one eye. The resident used only the penlight which showed him left leukocoria (Figure 1).



**Figure 1:** Lt. leukocoria.

And by using B scan and A scan ultrasound we found: A large unilateral dome shaped mass with intra-lesional calcifications (Figure 2).



**Figure 2:** A large unilateral dome shaped mass with intra-lesional calcifications.

It is a case of unilateral endophytic retinoblastoma. He was referred to Children's Cancer Hospital 57357. He was followed up in every step of treatment and he returned back after enucleation with prosthesis. This child's life was saved by a penlight

**Case 2: Be systematic**

12 years old child complaining of Rt decreased vision that was not noticed except recently.

He was offered an auto-refractometer examination and cycloplegic refraction was done but only auto-refractometer was done post-cycloplegia with No fundus exam and he was referred for subjective refraction after 2 days.

The resident noticed that he had anisometropia

Rt - -2.0 180

Lt - -0.5 180

BCVA is OD OS

3/60 6/6

Another child the penlight showed us Rt.leukocoria. But After B scan U/S persistent fetal vasculature was found (Figure 3 and 4).



**Figure 3**



**Figure 4: PFV.**

She refused to believe that it is merely amblyopia and she referred him back again for dilated fundus examination. The finding was optic nerve pit (Figure 5).

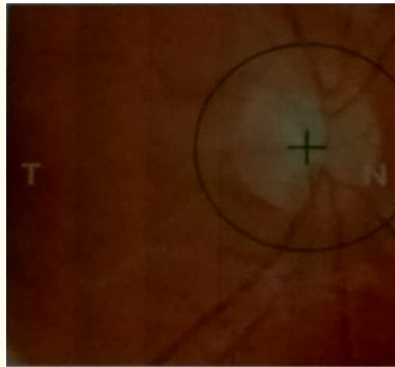


Figure 5: Optic nerve pit.

Optic nerve pit (optic hole) represents herniation of dysplastic retina into a collagen-lined pocket extending posteriorly, often into the subarachnoid space, through a defect in the lamina cribrosa. It is typically unilateral. There is an association with serous macular detachments in the second and third decades of life [2]. Serous detachment of the macula develops in 25% - 75% of cases, possibly related to liquefied vitreous entering the subretinal space through communication between the optic pit and the macula [3].

This child was in his 2<sup>nd</sup> decade of life and with decreased vision to 3/60, OCT on the macula showed serous macular detachment (Figure 6).

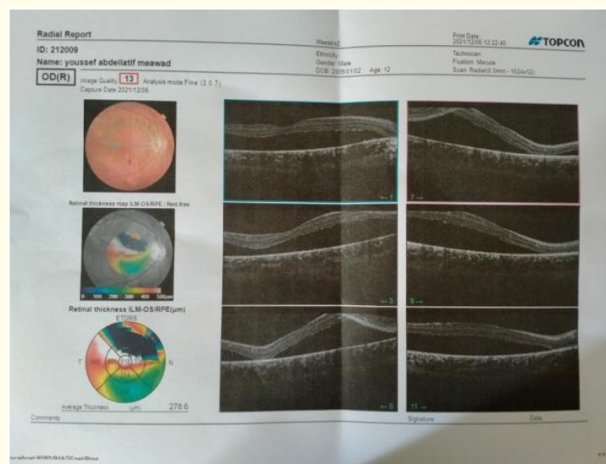


Figure 6: OCT on the macula showed serous macular detachment.

**Case 3: Make a link with other specialities**

4 months old child, his mother sought advice for right upperlid reddish mass which increased in size. On examination we found a strawberry nevus with almost occluded visual axis (Figure 7) So immediate intervention was mandatory.



**Figure 7:** A strawberry nevus with almost occluded visual axis.

Propranolol, a nonselective  $\beta$ -adrenergic blocking agent, induces involution of most hemangiomas. The risks of systemic treatment with  $\beta$ -blockers in infants include bradycardia, hypotension, hypoglycemia, and bronchospasm, but the medication is usually well tolerated [4].

Oral propranolol was decided but how to determine the dose with close monitoring?

He was referred to a pediatrician and after one month most of the tumor has decreased in size figure 8 and the child was saved from amblyopia.



**Figure 8:** After one month most of the tumor has decreased in size.

**Cases 4: open the child’s eyes even if he can’t**

A 3 months old baby was having lacrimation OU and closed eyelids, photophobia (Figure 9 and 10) You might think he is having mucopurulent conjunctivitis or congenital nasolacrimal duct obstruction.



**Figure 9:** Lacrimation OU and closed eyelids, photophobia.



**Figure 10:** After opening the child’s eye lid enlarged corneal diameter and oedema occurred. So he was suspicious of congenital glaucoma.

In infants, Primary congenital glaucoma presents with the classic triad of epiphora, photophobia, and blepharospasm. Until about 4 years of age, elevated IOP causes the cornea to stretch, leading to increased corneal diameter and enlargement of the globe [5].

Another 8 years old child was having Xeroderma pigmentosum with closed eyelids (Figure 11).



**Figure 11:** Xeroderma pigmentosum with closed eyelids.

Ophthalmic manifestations include photophobia, tearing, blepharospasm, and signs and symptoms of keratoconjunctivitis sicca. The conjunctiva is dry and inflamed with telangiectasia and hyperpigmentation.

Pingueculae and pterygia often occur. Corneal complications include exposure keratitis, ulceration, neovascularization, scarring, and even perforation. Keratoconus and gelatinous droplike corneal dystrophy have also been reported [6].

On opening of his eyelids we find Corneal Neovascularization and symblepharon figure 12.



**Figure 12:** Corneal Neovascularization and symblepharon.

### Cases 5: Your child is not so young to predict his visual acuity

A 7 months child with nystagmus. Fundus examination and refraction were normal. So we should try to detect his visual acuity.

Preferential looking tests: In these tests, the child’s response to a visual stimulus is observed to assess visual acuity. Teller Acuity Cards II (Stereo Optical, Inc, Chicago, IL), the LEA Grating Acuity Test (Good- Lite Com pany, Elgin, IL), and Patti Stripes Square Wave Grating Paddles (Precision Vision, Woodstock, IL) mea sure grating acuity, a form of resolution acuity, demonstrated by the subject’s ability to detect patterns composed of uniformly spaced black and white stripes on a gray background. Grating acuity can be measured as early as infancy.

Movement of the eyes toward the stripes.

Indicates that the child can see them. Seeing narrower stripes denotes better vision [7].

We used Lea Gratings and the child occurred to be having good visual function and diagnosed as having congenital motor nystagmus (Figure 13).



Figure 13: Lea Gratings.

With the increased demand in Alexandria General Ophthalmology Hospital for having ophthalmic reports for proving visual handicap, detecting the exact visual acuity in young children became mandatory.

Various optotypes are available for recognition visual acuity testing in preliterate children as LEA symbols (Figure 14).



Figure 14: LEA Symbols.



### Conclusion

Examining children especially in screening clinics where there is a large number of children needed to be examined in a short period can be a challenging experience that needs an attentive clinician who can adopt simple approaches to help him diagnose and manage these children or there will be missing of quite a lot of serious pediatric cases.

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