

Adherent Leukoma Associated with Measles: A Low Vision Case Report

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Abstract— Objective: To assess if the patient has a low vision condition and to give proper management to the patient who has adherent leukoma associated with measles. **Method:** The patient was referred back by an ophthalmologist to the optometrist for low vision assessment and management. The demographic profile was taken along with case history taking. Subjective examinations were performed like the distance visual acuity test, subjective refraction, binocular vision test, visual field test, contrast sensitivity test, near vision test, and color vision test. After that, objective examinations like fixation, and retinoscopy was performed. **Result and discussion:** In the subjective refraction, the left eye had -20.00Dsph with a visual acuity of 20/70⁻¹. Near visual acuity in the right eye was all 8M at 9cm without, with old and with new prescription. Near visual acuity on the left eye and both eyes were 3.2M at 11cm without prescription, 1.6M at 40cm with old prescription, and 2M at 40cm with new prescription. Slit lamp examination revealed corneal opacity in the right eye. Corneal Opacity is disorder of cornea in which it appears white or clouded because of the scarring of the cornea. One of the types of corneal opacity is adherent leukoma.

Conclusion: The best corrected visual acuity of the patient was 20/70 which concludes that she has a low vision condition. Penetrating keratoplasty was not the perfect management for this case, but a soft contact lens only.

Keywords: measles, Corneal Opacity, adherent leukoma, low vision

I. INTRODUCTION

Measles is highly contagious airborne virus which can spread by coughing or sneezing to those unvaccinated. The common symptoms of it are cough, runny nose, watery and red eyes, but the first one is usually a high fever [1]. After the first symptom arises, a tiny spots inside the mouth called koplik spots may appear after 2 to 3 days and a red rash breaks out on the face throughout the body after 3 to 5 days [2]. Serious complications can occur like diarrhea, pneumonia and inflammations of the brain

and eye disorders that may lead to blindness [3-4]. The higher risks of complications are infants under the age of 1, immune-compromised children and adults especially pregnant woman. The common effect of the measles virus to the eyes is the corneal damage which becomes cloudy or hazy. Infected children can also have measles keratitis which they have excessive tearing and excessive sensitivity to light. It can also affect the retina, blood vessels and optic nerve. Due to scarring or swelling of the retina, patients may loss his or her vision. [4]

The layers of the cornea should be transparent so that the cornea itself would look transparent as a whole. The lamellae of the cornea are highly interwoven with corneal fibrils inside [5]. If there is a scarring of the cornea, corneal opacity happens. Corneal opacity is a disorder of cornea in which it appears white or clouded. This stops light from entering through the cornea going to the retina [6]. As a result, images can be distorted that leads to blurry of vision. Patient could experience reduced or loss of vision, pain, redness, photophobia and certain areas of eyes appearing cloudy or milky [7]. The causes of corneal opacity are infection, injury, or swelling of the eyes. There are several risk factors of it such as vitamin A deficiency, measles result in scarring or infection of eye, eye injury like chemical agents and foreign bodies, pink eye or inclusion conjunctivitis, wearing contact lenses overnight, cold sores [8].

There are types of corneal opacity according to the density. One is Nebula which is faint opacity (fog or moist) which is hardly seen and should use a slit lamp for the detection. It is due to superficial scars involving Bowman's Layer & Superficial Stroma. It covers pupillary area and interferes more with vision. It causes blurring of vision and irregular astigmatism. Second is macula described as stain or spot which is caused by scarring of about half of the corneal stroma. Third is the leukoma or adherent leukoma which is a dense white opacity of the cornea due to scarring of more than half of corneal stroma. It results after perforation of cornea within incarceration of iris [9-10].

The treatments for corneal opacity depend on the cause of the scar. Contact lenses can be given for very mild corneal opacities. Some needs phototherapeutic keratectomy, optical iridectomy and penetrating keratoplasty for denser opacities [11].

Low vision is a condition caused by ocular disease in which best corrected visual acuity is 20/70 or poorer even if with glasses or contact lenses or after treatment or visual field is less than 10 degrees from point of fixation. Common causes of low vision are macular degeneration, diabetic retinopathy, retinitis, pigmentosa, cataract, glaucoma, retinal detachment, retinopathy of prematurity [12].

II. MATERIALS AND METHODS

A. Procedure

An ophthalmologist referred back the patient to the optometrist. First, demographic profile of the patient like the name, age, gender, address, occupation, hobbies, civil status, contact number was taken. After that, case history taking was noted which includes chief complaints, ocular history, general medical history. Next, subjective and objective examinations were performed. Fixation was tested using corneal reflex with a penlight. The distance visual acuity was tested at 20 feet without her prescription and with her old prescription using a television projector. The slit lamp examination was used to examine her external eye. The dynamic retinoscopy was used due to her high refractive error. Subjective refraction was also at 20 feet. Near visual acuity was tested without her old prescription, with old and with new prescription. Diplopia test was used as binocular vision test. Visual field was tested using the confrontation test and ansler grid chart. Contrast sensitivity was tested using CSV-1000 instrument. Color vision was tested using Ishihara cards.

B. Data Analysis

This case report was from an ophthalmologist then was referred back to an optometrist for low vision assessment. Under the supervision of the clinic teacher, the examinations and results were done inside the school. Subjective and Objective assessments were done to the patient.

IV. RESULTS

The subjective and objective assessments done were to diagnose whether the patient really has a low vision condition. A clinic instructor rechecked the findings found.



Figure 1: Slit Lamp Examination of the right eye



Figure 2: Slit Lamp Examination of the left eye

Figure 1 showed slit lamp examination in the right eye had adherent leukoma associated with wmeasles in the nasal part (4 o'clock) on the cornea overlapping a little in the pupil.

The unaided visual acuity of the right eye was light projection, while the left eye was 20/400 and both eyes were also 20/400. The pinhole acuity was improved to 20/250 in the left eye. With her contact lens prescription in use in left eye -18.75Dsph, her visual acuity was 20/70⁻¹. Retinoscopy result showed -18.00Dsph in the left eye with a visual acuity of 20/150. Subjective refraction result showed -20.00Dsph in the left eye with a visual acuity of 20/70⁻¹. Near visual acuity in the right eye was 8M at 9cm without prescription, with old prescription and with new prescription. Near visual acuity on the left eye and both eyes were 3.2M at 11cm without prescription, 1.6M at 40cm with old prescription, and 2M at 40cm with new prescription. She had no binocular vision. Ansler chart test revealed normal finding in the left eye. Confrontation test revealed upper and lower nasal field not seen in the right eye. Contrast sensitivity at 6 meters was 25% for the left eye. Color vision test was normal.

III. DISCUSSION

A 31 year old female low vision patient went to the clinic last September 18, 2018 for an eye check-up. She was a house wife. She was complaining of constant blurry of vision both at far and at near without her contact lens on the left eye. She just

knew her condition last February 2018, but noticed the whitish appearance in her right eye when she was one year old after having measles. She was a soft contact lens wearer since February 2018 and had two pieces of contact lens for her left eye. Her first contact lens was torn and was replaced by another with the same power. She always wears her contact lens during the day and not at night to rest her eyes. Hence, she can hardly see at night. She was diagnosed by an ophthalmologist of having an adherent leukoma associated with measles on her right eye. Keratoplasty was suggested, but her ophthalmologist said there is no assurance in the complete healing. Soft contact lens was prescribed in the left eye with -16.25Dsph for 6 months (conventional contact lens). Plano multicoated spectacle lens was also prescribed for protection from dirt and any objects. The use of flashlight at night was also recommended for her to see and not bump into other things without contact lens.

V. CONCLUSION

The patient has a low vision condition because the best visual acuity was 20/70. The penetrating keratoplasty was not fitted for the management in this case because due to the measles before. The measles should have been prevented by each child having his or her Measles, Mumps, and Rubella (MMR) vaccine during 12 to 15 months with a second dose at 4 years old through 6 years old [13]. If signs of symptoms of measles and other complications like in the eyes are seen, go to the designated doctor to have a checkup.

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