

CASE REPORT

Choroidal Neovascular Membrane - A Silent killer

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Introduction:

Age-related macular degeneration is the leading cause of irreversible blindness in people 50 years of age or older in the developed world¹. More than 8 million Americans have age-related macular degeneration, and the overall prevalence of advanced age-related macular degeneration is projected to increase by more than 50% by the year 2020².

Normal retinal architecture: The macula is the central, posterior portion of the retina. It contains the densest concentration of photoreceptors within the retina and is responsible for central high-resolution visual acuity, allowing a person to see fine detail, read, and recognize faces³. Posterior to the photoreceptors lies the retinal pigment epithelium. It is part of the blood-ocular barrier and has several functions, including photoreceptor phagocytosis, nutrient transport, and cytokine secretion. Posterior to the

retinal pigment epithelium lies Bruch's membrane, a semipermeable exchange barrier that separates the retinal pigment epithelium from the choroid, which supplies blood to the outer layers of the retina

Changes with age: With age, one change that occurs within the eye is the focal deposition of acellular, polymorphous debris between the retinal pigment epithelium and Bruch's membrane. These focal deposits, called drusen, are observed during fundoscopic examination as pale, yellowish lesions and may be found in both the macula and peripheral retina.

Case Study :

A gentleman of 55 years old presented with the complaints of gradual loss of vision in right eye for the last 3 months. On examination, his best corrected visual acuity in right eye was counting finger and in left eye was 6/6 by Snellen's visual acuity chart. On funduscopy examination, a whitish sub-retinal membrane was noted in the posterior pole in right eye, left eye showed few Drusens at macular area with Retinal Pigment Epithelial defect. OCT macula of right eye shows altered foveal contour with thickening and elevation as well as disruption of RPE-choriocapillary complex in the sub foveal region with macular oedema and FFA (fundus fluorescein angiography) of right eye also shows hyper fluorescent area with surrounding hypo fluorescence in the foveal region - suggestive of Choroidal neovascular membrane.

The patient was diagnosed as a case of Choroidal Neovascular membrane (wet variety of Age related macular degeneration- ARMD) in right eye and Dry ARMD in left eye.

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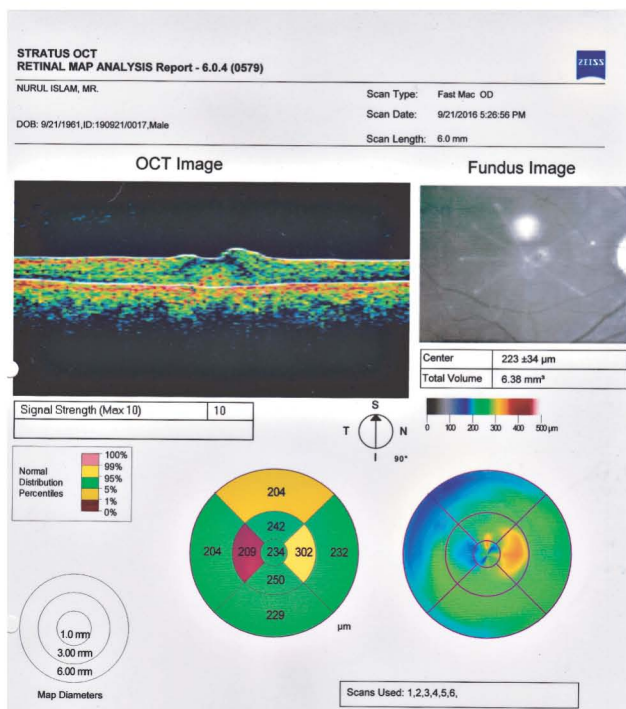


Figure-1: Colour Fundus photography of right eye before treatment

Four injection of intravitreal Bevacizumab was given at monthly interval. One month after four injection showed signs of resolution both clinically and on FFA and OCT. Patient had a best corrected visual acuity in right eye 6/9. So in our experience intravitreal Bevacizumab is useful in the management of choroidal neovascular membrane^{4,5}.

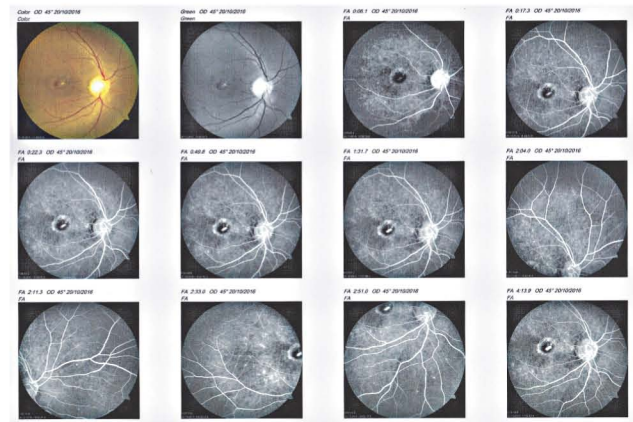


Figure-2: Fundus photography of right eye after treatment

Wet ARMD, Choroidal Neovascular membrane: With this type, the membrane underlying the retina thickens, then breaks. The oxygen supply to the macula is disrupted and the body responds by growing new, abnormal blood vessels. These begin to grow through the breaks of the membrane behind the retina towards the macula, often raising the retina⁶.

To visualize this, imagine the roots of a tree growing and spreading until they crack and grow through a sidewalk. Then imagine rainwater seeping up throughout the cracks. These abnormal blood vessels (the "roots") tend to be very fragile. They often grow and leak or bleed, causing scarring of the macula. This fluid is called exudate and wet AMD is sometimes called exudative macular degeneration.

This damage to the macula results in rapid central vision loss. Once this vision is destroyed, it cannot be restored. However, there are several treatment options for wet AMD which can be very effective if applied early.

Risk Factors: There are many risk factors that contribute to age-related macular degeneration. Studies in large populations show that statistically a person's chance of developing a

disease is increased by risk factors. In your case, it was probably a combination of things. Some of them are completely out of your control, like family history, gender, ethnicity, and of course, age. Other factors relate to your own lifestyle and can be changed.

Everyone with wet AMD started out with dry AMD, even if they didn't notice it. Dry AMD is the early form that includes protein deposits in the retina and perhaps areas of cell death. Scientists theorize that the body recognizes that the dry AMD is disrupting the circulation of the eye and preventing oxygen and nutrients from reaching the retina. In response, a growth factor is triggered which causes blood vessels to grow in the eye. This growth factor is called VEGF (vascular endothelial growth factor) and circulates through the body. VEGF is good when it directs healthy blood vessel growth, such as sending new blood vessels to the part of the heart affected by a heart attack. VEGF is not good when it directs blood vessels to a cancer tumor (feeding the tumor and causing it to grow) - or in the eye

Treatment Options: Fortunately for people with wet macular degeneration, there are several treatment options and more are being developed. These are aimed at sealing off the leaking blood vessels (with a laser and light sensitive drug) and/or preventing the blood vessels from growing back (these last are called anti-angiogenic therapies).

Available anti-VEGF in our country are: Ranibizumab (Lucentis) and Bevacizumab (Avastin)

Repeated treatments are necessary, as often as once a month, but doctors are now finding that treatments can be spaced further apart and still

be effective. Each eye is different, so your doctor will watch carefully how you respond. Our patient responded well with three doses of Inj. Anti-VEGF. There are some patients who may need more treatment. Early diagnosis can prevent severe visual loss by early intervention.

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