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# Management of Wet Age-Related Macular Degeneration: A Case Report

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**A B S T R A C T**

**Introduction**: Age-related macular degeneration (AMD) is a progressive neurodegenerative disease of the photoreceptors and retinal pigment epithelium (RPE). It is a leading cause of blindness and visual impairment in the elderly population, despite recent advances in treatment. We reported a case of wet AMD and its management. **Case Presentation**: A 69 years old woman complained of blurred vision, especially in the left eye, which she had experienced since 3 years ago, progressively worsen since the last 3 months. Fundoscopy and OCT examination was done. Fundoscopy found no foveal reflex with a drusen and perifoveal haemorrhage found on left eye. She was diagnosed with wet age-related macular degeneration type II of left eye. She had done intravitreal anti-VEGF injection with local anaesthesia. **Conclusion:** AMD management relies heavily on observation, lifestyle changes, frequent follow-up evaluations, early recognition of visual impairment and detection of CNV. Meanwhile, the current modality for wet AMD therapy is intravitreal anti-VEGF injection to preserve patient's visual acuity and improve quality of life.

## 1. Introduction

Age-related macular degeneration (AMD) is a neurodegenerative disease that affects the photoreceptors and retinal pigment epithelium (RPE). It is characterized by the formation of deposits under the retina or RPE, which can lead to the degeneration of the retina, RPE, and choroid and the growth of abnormal blood vessels in the choroid and/or retina. Despite recent advancements in therapy, AMD remains a prominent cause of blindness and visual impairment among the senior population.[1]

Age-related macular degeneration (AMD) is a condition that involves several causes, including the effects of age, genetic predisposition, and environmental risk factors. Smoking is the most persistent risk factor that may be altered, and nutrition has a substantial influence on the advancement of AMD. [2] The beginning of AMD exhibits interindividual variability, often occurring between the ages of 55 and 60. Visual signs are often either nonexistent or modest in severity. Nevertheless, as the illness advances, visual symptoms can become notably severe, encompassing a reduction in center vision in both eyes.[3]

The incidence of AMD grows annually. As of 2020, AMD is estimated to affect up to 200 million individuals globally. The European Eye Epidemiology Consortium estimates that there are 42,080 instances of early and extensive age-related macular degeneration (AMD) in individuals who are 40 years old. The number of asymptomatic early AMD cases in Germany rose from 5.7 million in 2002 to 7 million in 2017, representing a 23% rise over a span of 15 years. AMD is projected to affect 288 million individuals by 2040. The incidence of early-stage AMD rises by 3.5%

in those aged 55–59 and by 17.7% in individuals aged 85.[4–6] There are two primary categories of AMD, namely neovascular and non-wet AMD. Non-neovascular (dry-AMD) comprises around 80–85% of all cases and is associated with a more favorable visual prognosis.

Neovascular (wet-AMD) impacts the remaining 15-20% of individuals, whereas the majority (80%) experience a bleak prognosis characterized by significant vision deterioration.[7] In the early 2000s, researchers discovered a viable remedy for advanced wet AMD. The therapy for wet AMD involves administering anti-vascular endothelial growth factor (VEGF) by intravitreal injection.[7] The advent of anti-VEGF has introduced novel treatment interventions for individuals with specific posterior segment conditions that were previously unavailable. Dedicated efforts are ongoing to develop and evaluate novel medications for treating retinal disorders.[1] In this research, we have presented and analyzed strategies for managing wet AMD.

## 2. Case presentation

A 69-year-old woman sought treatment at the Retina Outpatient Department of Mohammad Hoesin Central General Hospital. She expressed dissatisfaction with the presence of dark shadows obscuring her left eye. The patient reported experiencing hazy vision, particularly in the left eye, which has persisted for almost three years. At first, the patient reported experiencing a visual distortion where straight lines appeared to curve. Over the past three months, her eyesight has gradually become darker, particularly in the central area. The patient denied observing lightning, flying objects, being covered by a curtain, having red eyes, or experiencing discomfort.

The patient has a documented case of hypertension dating back to 2019. She refuted having any past medical record of diabetes mellitus, using corrective lenses, experiencing eye injuries, smoking, or having any familial history of comparable diseases. The patient appears to be in a normal state. The patient's vital signs were within the usual range. The visual acuity in the right eye is 6/30 ph 6/21, indicating a hazy lens. There are no abnormalities in the optic nerve, cornea, lens, or retina. The examination of the left eye revealed a visual acuity of 1/60 ph (-), a central scotoma, and the presence of a central intraocular lens (Figure 1A). A subsequent ophthalmological check yielded normal results. Fundoscopy showed a diminished foveal reflex in the right eye and an absent foveal reflex in the left eye, with the presence of a drusen and perifoveal hemorrhage in the macula (Figure 1B).

The OCT test showed that there was no pulling on the vitreomacular, no depression in the fovea, cystoid hypo-reflectivity above the retinal pigment epithelium (RPE), and uneven RPE. These findings led to the conclusion that there was a submacular hemorrhage (Figure 1C). The comprehensive laboratory analysis yielded normal results, with the exception of dyslipidemia, characterized by elevated levels of total cholesterol (243 mg/dl), triglycerides (153 mg/dl), LDL (118 mg/dl), and low levels of HDL (35 mg/dl). She was diagnosed with wet age-related macular degeneration type II of left eye, pseudophakia left eye and immature senile cataract right eye. She was treated with intravitreal anti-VEGF injection of the left eye with local anaesthesia, vitamin C 500 mg every 24 hours oral, vitamin E 273 mg every 24 hours oral, zinc 25 mg every 24 hours oral, and luthein 10 mg + zeaxanthin 2 mg every 24 hours oral. The overall prognosis of this patient was good.

Intravitreal anti-VEGF injection on the left eye with local anaesthesia was conducted to treat the patient. The patient was in a supine position. An antiseptic aseptic was done with 10% Povidone iodine. Pantocain eye drops was given. The operating fields are narrowed with sterile drape and installation of eye drape. A measurement of 3.5 mm from the edge of the limbus using the caliper was done (Figure 2a). Subconjunctival lidocaine injection was done (Figure 2b). Patizra injection as much as 0.1 cc intravitreal on the marking that had been made (Figure 2c). A narrowing on the injection wound is carried out so that it was impermeable and given the Betadine cotton (Figure 2d). The eye were covered with sterile gauze and antibiotic ointment.

On postsurgical day 1, it was found visual acuity of the right eye 6/30 ph 6/21, cloudy lens,

NO3NC3C1P1. Left eye's examination found visual acuity was 1/60 ph (-), central scotoma, central IOL present (Figure 5). Fundoscopy found reduced foveal reflex on the right eye and no foveal reflex with a drusen and perifoveal haemorrhage found on left eye's macula. The diagnosis was post intravitreal injection of anti VEGF on the left eye due to wet AMD day one. The patient was given cefixime 100 mg every 12 hours oral, paracetamol 500 mg every 8 hours oral, levofloxacin ED 1 gtt every 4 hours and p-prednisolone ED 1 gtt every 4 hours on left eye.

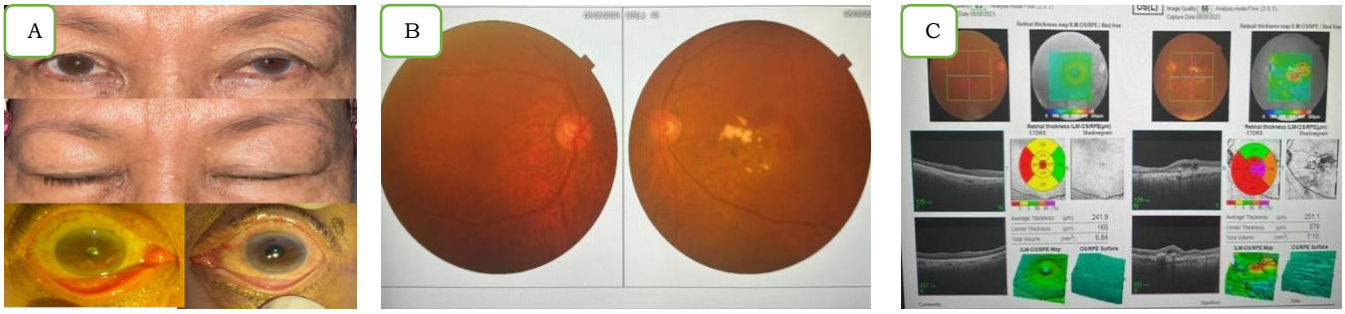


Figure 1. (A) Clinical picture of the patient before treatment; (B)Fundoscopy examination; (C)OCT examination.

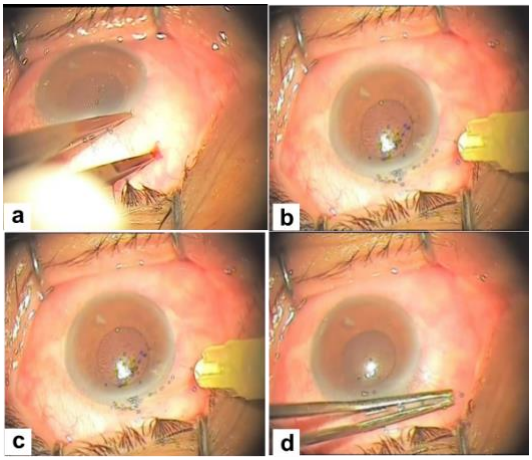


Figure 2. Surgical steps.

The examination post 3rd time intravitreal anti VEGF injection was reported. Right eye's examination found visual acuity was 6/30 ph 6/21, cloudy lens, NO3NC3C1P1. Left eye's examination found visual acuity was 2/60 ph (-), central scotoma, central IOL present (Figure 3A). Fundoscopy found reduced foveal reflex on the right eye and no foveal reflex with a drusen and perifoveal haemorrhage found on left eye's macula (Figure 3B). The OCT examination showed on Figure 3C. The diagnosis was post intravitreal injection of anti VEGF on the left eye due to wet AMD type II + pseudophakia lest eye + immature senile cataract right eye. She was planned for follow-up at vitroretinal outpatient department for another evaluation.

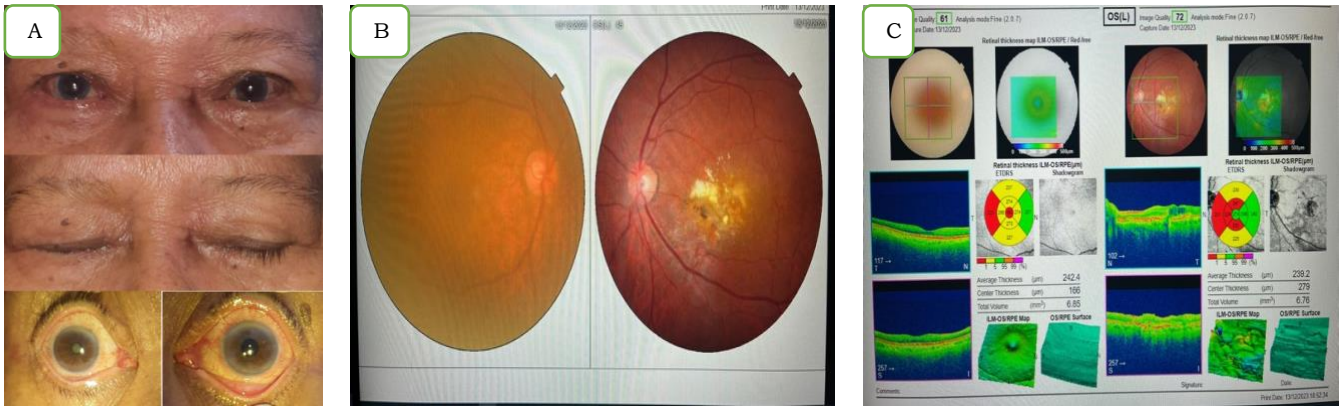


Figure 3. Follow up examination after 3rd time intravitreal anti VEGF injection. (A) Clinical picture of the patient, (B) Fundoscopy examination, (C) OCT examination.

## 3. Discussion

Older age is a predisposing factor for developing AMD. Research has demonstrated that individuals between the ages of 64 and 74 have an 11% increased likelihood of developing AMD.[3,5] The patient had a 14-year history of hypertension. Subsequently, the laboratory test revealed an aberrant lipid profile, characterized by the presence of hypercholesterolemia and hypertension, both of which are risk factors for AMD.

The patient reported experiencing a progressive deterioration in visual acuity, starting with a distortion of straight lines that later developed into a curving pattern. The blurriness observed in the central area of their visual field was a particular concern expressed by the patient. Clinical assessment established the diagnosis of AMD based on age beyond 50 years, reduced visual acuity, and the occurrence of central scotoma and/or metamorphopsia. According to research, AMD seldom elicits complaints. Complaints arise only when there is choroidal neovascularization, or drusen, in the central part of the macula, leading to disruptions in the central visual field and reduced visual acuity.

The Amsler grid examination is a straightforward and precise method to detect the existence of macular impairment. If there is distortion (metamorphopsia) on the Amsler grid test, it means that new blood vessels are forming in the macular region, which is a medical emergency.[2,3,8,9] The Amsler grid assessment was not feasible due to the patient's impaired vision. The gold standard method for assessing choroidal neovascularization is fundus fluorescent angiography (FFA).

FFA can accurately identify the specific characteristics, dimensions, and position of the neovascularization, enabling the appropriate planning of subsequent interventions.[2,3,8,9] Upon inspection of the back part of the eye, there were deposits called drusen located around the central part of the retina, known as the macula, as well as hemorrhage occurring around the area around the central fovea.

An OCT examination detected a hemorrhage located under the macula. This fits with how people with wet age-related macular degeneration (AMD) type 2 show their symptoms. This type of AMD is marked by the presence of abnormal blood vessels under the retina. Exudation or bleeding immediately occurs within the subretinal region, linking this particular form of lesion. There are two types of AMD: wet AMD, which occurs in 10% of cases, and dry AMD, which occurs in 90% of instances. This disease is the primary cause of reduced visual acuity.[1-5]

Polypoidal choroidal vasculopathy is a retinal illness that affects the blood vessels in the choroid. The disease is characterized by the development of polypoidal aneurysms, which may or may not be accompanied by branching of the blood channel network. Typically manifests throughout the middle stage of life. 10 The incidence of AMD is 10% in one eye and 90% in both eyes. Vision was superior to choroidal neovascularization (CNV) associated with AMD. Seven The patient, classified as elderly with impaired eyesight, exhibits a low prevalence of

unilateral polypoidal choroidal vasculopathy, specifically 10%. Therefore, we can rule out the possibility of polypoidal choroidal vasculopathy as a potential diagnosis.

Currently, intravitreal anti-VEGF therapy is the primary treatment option for AMD. Multiple studies have demonstrated that this treatment effectively reduces submacular hemorrhage and macular thickness associated with AMD.[9] In our study, three intravitreal anti-VEGF injections were administered, and then a re-evaluation was carried out, where clinical improvement was seen in her eyesight. The patient received the original dose on a monthly basis for three consecutive months before undergoing re-evaluation. Following a three-injection induction phase administered at monthly intervals, she had careful monitoring on a monthly basis. If the disease reactivates and symptoms of disease activity persist, the healthcare provider administers one or more additional anti-VEGF injections. Doctors administer one or more further anti-VEGF injections once a month, along with continuous clinical examination, to maintain the intravitreal anti-VEGF injection for patients who still have clinical AMD.[10]

## 4. Conclusion

An instance of age-related macular degeneration (AMD) has been documented. AMD is an intricate disease with several pathways implicated in its development, therefore presenting treatment difficulties. The management of this condition significantly depends on careful monitoring, making necessary lifestyle adjustments, doing regular follow-up assessments, promptly identifying visual impairment, and detecting any occurrence of CNV. Currently, the primary method of treating wet AMD is intravitreal anti-VEGF injection. This treatment aims to maintain the patient's visual acuity and enhance their quality of life.

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