Intravitreal aflibercept for management of subfoveal choroidal neovascularization secondary to angioid streaks

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In this study, we reported the clinical results of switching from ranibizumab to aflibercept for the treatment of an insufficient responder with choroidal neovascularization (CNV) secondary to angioid streaks (AS). A 39-year-old female patient with CNV secondary to AS had bilateral persistent intraretinal and subretinal fluid on the optical coherence tomography despite prior intravitreal 0.5 mg ranibizumab injections. The therapy was switched to intravitreal injection of aflibercept. The patient received a loading dose of three intravitreal 2 mg aflibercept injections at 4-week intervals for both eyes. Morphological and functional effects were observed as early as 1-week after the first injection. After the third aflibercept injection, her visual acuity improved, intraretinal and subretinal fluid resolved, and central macular thickness reduced in both eyes. This is an early, but encouraging and promising result indicating that aflibercept might be a good alternative management for CNV secondary to AS that is insufficiently responding to prior ranibizumab injections.

Key words: Aflibercept, angioid streaks, choroidal neovascularization

Angioid streaks (AS) are linear breaks that are thought to occur due to the cracks in the abnormally calcified and fragile Bruch’s membrane. Choroidal neovascularization (CNV) developed in between these cracks is the most challenging and serious complication of the disease.

Natural course of CNV secondary to AS is poor and sight threatening especially when it disturbs the macular anatomy and function. Various managements have been proposed to improve or at least stabilize the visual acuity and restore macular anatomic architecture. Among these, intravitreal injection of anti-vascular endothelial growth factors (VEGF) bevacizumab and ranibizumab were reported to have the most favorable outcomes in long-term studies.[1-5] In the majority of cases, it was demonstrated that activity disease reduced, but repeated injections were often needed to maintain the results.

Aflibercept is a new molecule that binds all of the VEGF forms with a high affinity. Its’ efficacy in the neovascular age-related macular degeneration (AMD) is reported in several studies.[6] It is also indicated that a significant proportion of exudative AMD cases with persistent fluid despite ranibizumab and/or bevacizumab treatment, respond to aflibercept.[7] In this study, we reported the clinical results of switching from ranibizumab to another anti-VEGF, aflibercept, for the treatment of CNV secondary to AS.

Case Report

A 39-year-old female patient with subfoveal CNV secondary to AS had received 7 intravitreal 0.5 mg ranibizumab injections in her right, and 5 intravitreal 0.5 mg ranibizumab injections in her left eye. One month after the last ranibizumab injections, her best-corrected visual acuity (BCVA) was 20/200 in her right eye and counting fingers (CF) at 1 m in the left eye. Fundus examination revealed exudates radially located around the macula and subretinal fluid at the fovea in the right eye [Fig. 1a]. In the left eye, there was a disciform scar with retinal pigment epithelium hypertrophy covering the macula and subretinal hemorrhages at the posterior pole [Fig. 1b]. Fluorescein angiography revealed a subfoveal classic CNV with an active leakage and hyperfluorescence in the right eye and a staining disciform scarring in the macula of the left eye. On the optical coherence tomography, she had persistent macular edema and subretinal fluid in the right eye with a central foveal thickness (CFT) of 386 μm [Fig. 1c]; intraretinal fluid in the left eye with a CFT of 212 μm [Fig. 1d], despite prior ranibizumab injections. She was accepted as an insufficient responder to ranibizumab, and therapy was switched to aflibercept.

Aflibercept 2.0 mg was administered as three consecutive monthly injections. Both morphological and functional effects were observed in the right and left eyes as early as 1-week after the first aflibercept injections. One month after the third aflibercept injections, her BCVA was 20/40, CFT was 274 μm in the right eye; BCVA was CF at 5 m, and CFT was 188 μm in the left eye. Subretinal and intraretinal fluid reduced considerably in the right eye [Fig. 2a and c], subretinal hemorrhages and intraretinal fluid disappeared in the left eye [Fig. 2b and d].

Discussion

In AS various managements, such as laser photocoagulation, transpupillary thermotherapy and photodynamic therapy (PDT),

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In some studies with the reason of the favorable results with aflibercept might be related to binding not only all isomers of the VEGF-A family but also VEGF-B and placental growth factor. But it is not enough to say that it is better than the others because of the absence of studies comparing anti-VEGF drugs in treatment naive patients with CNV secondary to AS.

This case illustrates the efficacy of intravitreal aflibercept therapy for persistent retinal fluid due to subfoveal CNV in AS that is insufficient responder to ranibizumab. It also demonstrates switching anti-VEGF agents may also have favorable outcomes in such refractory cases. This is an early, but also encouraging and promising result of intravitreal aflibercept that may be a good alternative management for CNV secondary to AS. Further prospective studies on larger number of patients with a longer follow-up should help to establish the real therapeutic effect of this agent.

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Conflicts of interest
There are no conflicts of interest.

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A case of spontaneously resolved primary congenital glaucoma

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Primary congenital glaucoma usually presents as enlarged and hazy cornea at birth or early childhood. The diagnosis is based on a thorough clinical examination under anesthesia. Most cases require surgical intervention as the definitive treatment. In very rare instances, primary congenital glaucoma may arrest and resolve spontaneously. We describe a case of spontaneously arrested and resolved primary congenital glaucoma in a 37-year-old male presenting with large cornea, Haab’s striae, and normal intraocular pressure in one eye. Such a case has not been previously described from the Indian subcontinent.

Key words: Arrested congenital glaucoma, congenital glaucoma, glaucoma, megalocornea, primary congenital glaucoma

Primary congenital glaucoma is a rare cause of childhood blindness.\[1\] The disease is usually manifested at birth or early childhood (before 3 years of age). Only a few cases of spontaneously resolved primary congenital have been reported previously.\[2‑6\] Herein, we report a rare case of spontaneously arrested primary congenital diagnosed in an adult.

Case Report

A 37-year-old male visited our center for a routine eye examination. His chief complaint was decreased vision in the right eye for which he was using spectacles. He gave a history of a larger right eye since early childhood.

On examination, his best corrected visual acuity was 6/9 (+1.00Dx160) OD and 6/6 OS. The intraocular pressures on Goldman applanation tonometer were 11 mmHg OD and 13 mmHg OS. The right eye cornea was larger with a diameter of 13.5 mm when compared with 11.75 mm for the left eye [Fig. 1]. Anterior segment examination revealed the presence of Haab’s striae in the nasal half of the right eye cornea, which was otherwise clear [Fig. 2]. Gonioscopy revealed prominent iris processes in the right eye [Fig. 3]. The anterior segment examination of the left eye was normal. The cup disc ratio was 0.3 for the right eye optic disc and 0.2 for the left eye optic disc. The posterior segment examination was normal. Anterior segment optical coherence tomography was done which also demonstrated the Haab’s striae [Fig. 4]. The central corneal thickness was thinner in the right eye at 449 microns, than 500 microns in the left eye. Visual field testing [Fig. 5] and optical coherence tomography - retinal nerve fiber layer [Fig. 6] demonstrated defects in the right eye. On further examination of history, the patient revealed that the color of the right eye was initially whitish in early childhood.