Rapid Response Of Treatment Resistant Polypoidal Choroidal Vasculopathy To Aflibercept Treatment

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ABSTRACT:
Background: Polypoidal choroidal vasculopathy (PCV) is a disorder characterized by multiple, recurrent hemorrhagic exudative pigmented epithelium detachments and shows resistance to anti-photodynamic therapy (PDT) and anti-vascular endothelial growth factor (VEGF) treatment. In this case report, a rapid response to aflibercept treatment is presented.

Case report: An anti-VEGF resistant PCV case showed rapid response to switching from bevacizumab to aflibercept in his right eye, and to primary treatment in left eye.

Conclusion: Aflibercept can be more effective than other anti-VEGF agents and PDT in the treatment of PCV. Monthly aflibercept injection may be required rather than bimonthly regimen in resistant PCV cases.

KEY WORDS: Polypoidal choroidal vasculopathy, aflibercept

OCT view of left eye showed no pathology except for a tiny pigmented epithelium irregularity. (Fig 1A and 1B) Fundus fluorescein angiography (FFA) showed right late hyperfluorescence due to leakage in the right eye.

Fig. 1A, 1B: Baseline OCT views of right and left eye.
Monthly intra-vitreal bevacizumab (IVB) injections were planned for the right eye. After three injections, minimal improvement was observed in the right eye with no BCVA change. However, a sudden large serous PED occurred in the left eye with a significant BCVA decrease to 2/10. OCT and FFA images are shown in figure 3A, 3B.

Atypical progression with sudden PED without AMD findings such as drusens in the left eye, multiple treatment resistant PEDs in the right eye, FFA and OCT findings brought the diagnosis to PCV, but this could not be confirmed with indocyanine green angiography (ICG) because of the iodine allergy.

The treatment was switched to bilaterally aflibercept injections. In the right eye, sub-retinal fluid was completely resolved and the PEDs were shrunken on the tenth day of first aflibercept injection (Fig 4A, 4B). After three aflibercept injections left eye revealed a significant PED shrink (Fig 5A, 5B) and BCVA reached to 7/10 in both eyes. Right eye got stable with a BCVA 6/10 with five injections and no need thereafter. Left eye showed a more resistant response and aflibercept treatment is going on to maintain stability with a BCVA of 6/10 while this report is being prepared. An attempt switching to bimonthly regimen failed because of PED dimension increase in left eye.
from inner choroid under the lower PED and this OCT finding is defined as the ‘double layer sign’ (Fig 1A).

Treatment options are anti-VEGF therapy or PDT. Extrafoveal PCV lesions can be alternatively treated with argon laser photocoagulation. Some reports suggest that PCV has a better response to PDT than AMD [4-6] whereas a multicenter randomized controlled trial (LAPTOP study) reported that intravitreal ranibizumab (IVR) has a better visual improvement than PDT in PCV patients [7]. According to a multicenter randomized controlled trial (EVEREST study), all of the treatment options including PDT, IVR and combination therapy (PDT + IVR) resulted in improvements in VA in eyes with PCV [8]. In addition, PDT and combination therapy was more successful in complete polyp regression (70%) than IVR (30%). Some recent studies report that intavretinal aflibercept injection (IAI) is more effective than PDT and IVR and can be an option for resistant cases [9].

Although we could not confirm the diagnosis with ICGA because of iodine allergy, the clinical course, OCT and FFA findings strongly suggested the diagnosis of PCV in the presenting case. A sudden PED occurred in the left eye without prior findings, while the right eye was showing a resistant nature to monthly IVBs. Switching to bilateral IAIs resulted in immediate improvement in BCVA and PED dimensions of both eyes, and the stabilization of this improvement was achieved in six months. Aflibercept seems more effective than other treatment options in such treatment resistant disorders as PCV and PED. This might be due to anti-plasental growth factor effect and stronger affinity of aflibercept to VEGF. Also, aflibercept may have a better efficacy under the RPE than other anti-VEGF agents Left eye’s PED was much higher than right eye’s and more resistant to IAI. An attempt switching to bimonthly regimen failed because of PED dimension increase in left eye. More frequent injections may achieve more resolution of big PEDs which can be a subject of a future randomized controlled trial.

REFERENCES


