

CASE REPORT

Bromfenac 0.09% as adjunct to anti-VEGF for the treatment of macular edema secondary to noninfectious uveitis

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ABSTRACT

Background: Uveitis is a major cause of visual impairment and blindness, and macular edema is the major risk factor. Uveitic macular edema (UME) mechanism is primarily through blood–retinal barrier breakdown driven by inflammatory mediators such as prostaglandins and vascular endothelial growth factor (VEGF). Corticosteroids are the main treatment but can cause significant side effects, leading to the use of alternatives, including topical non-steroidal anti-inflammatory drugs (NSAIDs) and intravitreal anti-VEGF agents. Bromfenac is an Food and Drug Administration-approved NSAID for postoperative inflammation, but its efficacy in UME is not clear. We report a case of UME secondary to non-infectious uveitis managed with topical bromfenac in combination with intravitreal aflibercept.

Case Presentation: A 13-year-old female with a history of chronic intermittent bilateral posterior uveitis presented for follow-up 6 months after stopping biologic treatment and 2 years of stable disease activity. Uncorrected visual acuity was 6/12 in Oculus Uterque (both eyes), and recurrent macular edema was found in the Oculus Dexter (right eye) (OD) with central foveal thickness (CFT) of 718 μm . The patient was started on bromfenac 0.09% twice daily and received a single intravitreal anti-VEGF injection. At 1-week follow-up, the CFT decreased to 419 μm . At 4-week follow-up, the CFT decreased to 318 μm OD, and there was significant improvement of the macular edema.

Conclusion: Bromfenac 0.09% as an adjunctive to anti-VEGF injection may be an effective treatment for macular edema secondary to non-infectious uveitis.

Keywords: Case report, bromfenac, macular edema, uveitis, anti-VEGF.

Introduction

Uveitis, an inflammation of the middle layer of the eye, is a prevalent cause of blindness, particularly among working-age individuals and in low- to middle-income countries [1]. Approximately 35% of patients with uveitis experience visual impairment, contributing to about 10% of visual impairment in the Western world. Macular edema is the primary risk factor, responsible for 29% of blindness and 41% of visual impairment, and while it is often associated with panuveitis, it can complicate other forms of uveitis [2].

Uveitic macular edema (UME) is characterized by the breakdown of the blood-retinal barrier and fluid leakage through the retinal pigment epithelium, with factors such as prostaglandins and vascular endothelial growth factor (VEGF) playing a role [3].

Corticosteroids are the main treatment for UME but can have significant side effects, leading to the exploration of alternative therapies [1]. These include nonsteroidal

immunomodulators, non-steroidal anti-inflammatory drugs (NSAIDs), systemic acetazolamide, and anti-VEGF injections.

Topical NSAIDs, in particular, are noteworthy for their ability to inhibit prostaglandin production and are used to prevent postoperative cystoid macular edema (CME) after cataract surgery [4]. Bromfenac 0.09%, approved

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55 by the Food and Drug Administration (FDA) for
56 postoperative inflammation, shows promise for treating
57 pseudophakic CME and has a synergistic effect with
58 intraocular triamcinolone, though its impact on UME
59 alone is limited [5].

60 Intravitreal injection of bevacizumab (IVB) as well as
61 intravitreal triamcinolone acetate are well tolerated
62 and are associated with short-term improvement in visual
63 acuity (VA) and decreased optical coherence tomography
64 (OCT) retinal thickness in a considerable proportion
65 of patients with uveitic CME resistant to conventional
66 therapy [6].

67 We report a case of UME secondary to non-infectious
68 uveitis treated with bromfenac sodium ophthalmic
69 solution in adjunct with an intravitreal injection of
70 aflibercept.

71 Case Presentation

72 A 13-year-old female with a history of intermittent
73 isolated bilateral posterior uveitis associated with bilateral
74 macular edema 3 years ago presented for follow-up. She
75 had been treated with a combination of oral prednisolone,
76 azathioprine, and biweekly adalimumab injections.
77 The macular edema in the right eye had resolved with
78 no history of receiving intravitreal injections, while in
79 the left eye persisted, and 2 mg aflibercept intravitreal
80 injections had been administered. Consequently, a
81 complete resolution of the macular edema had been
82 achieved bilaterally. Prednisolone and azathioprine had
83 been slowly tapered and discontinued, and adalimumab
84 injections had been discontinued 6 months prior to the
85 presentation, and the patient had been stable with no
86 disease activity for 2 years.

87 Ophthalmological examination showed an uncorrected
88 VA of 6/12 Oculus Uterque (both eyes), intraocular
89 pressure was 10 mmHg Oculus Dexter (right eye) and 11
90 mmHg OS with a normal anterior segment. Fundoscopic
91 examination showed a recurrence of the macular edema
92 in the right eye. OCT confirmed the diagnosis of macular
93 edema in the right eye with central foveal thickness
94 (CFT) of 718 μm (Figure 1a).

95 Following OCT confirmation, the patient was started on
96 topical bromfenac 0.09% twice daily and received a 2

mg aflibercept intravitreal injection. At 1-week follow-
up, the CFT decreased to 424 μm (Figure 1b). At 4-week
follow-up, there was a significant improvement in the
macular edema with a CFT of 318 μm (Figure 1c). There
were no reported side effects during the treatment.

Discussion

There is growing evidence supporting the use of NSAIDs
for the prevention and management of pseudophakic
CME. These medications inhibit the COX1 and COX2
enzymes, thereby lowering intraocular levels of
prostaglandins, which are known to disrupt the blood-
retinal barrier. However, research on its effectiveness for
UME remains limited [2,3].

Among the FDA-approved ophthalmic NSAIDs
for managing postoperative inflammation and pain,
bromfenac ophthalmic solution 0.09% may have
advantages due to its high lipophilicity, which allows
for better penetration and sustained drug levels in ocular
tissues, leading to faster inflammation reduction. While
some studies suggest bromfenac efficacy is comparable
to that of other NSAIDs, others indicate it may be
superior in preventing and managing pseudophakic
macular edema [7,8].

In a comparative study of bromfenac alone versus
bromfenac combined with IVB or triamcinolone for UME
treatment, bromfenac alone was ineffective. However, it
demonstrated a synergistic effect when combined with
intravitreal triamcinolone in reducing macular thickness
[6]. In our case report, bromfenac 0.09% combined
with a single anti-VEGF intravitreal injection showed
significant improvement in the macular edema at 4 weeks
of follow-up.

Conclusion

Bromfenac 0.09% as an adjunctive to anti-VEGF
intravitreal injection may be an effective treatment
for UME in refractory patients. Larger studies, such
as randomized controlled trials, are needed to test the
efficacy.

Acknowledgment

Nil.



Figure 1. OCT showing improvement in macular edema: (a) baseline, (b) 1-week follow-up, and (c) 4-week follow-up.

137	List of Abbreviations	
138	VEGF	Vascular Endothelial Growth Factor
139	FDA	Food and Drug Administration
140	OU	Oculus Uterque (both eyes)
141	OD	Oculus Dexter (right eye)
142	OS	Oculus Sinister (left eye)
143	NSAIDs	Non-Steroidal Anti-Inflammatory Drugs
144	CFT	Central Foveal Thickness
145	CME	Cystoid Macular Edema
146	OCT	Optical Coherence Tomography
147	IVB	Intravitreal Bevacizumab
148	VA	Visual Acuity
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160	an anonymous case report.	
161	Key learning points	
162	• UME remains a major cause of visual impairment in uveitis	
163	patients and may recur even after a prolonged period	
164	of disease stability, highlighting the need for long-term	
165	monitoring and management.	
166	• Topical NSAIDs such as bromfenac may provide a	
167	synergistic effect when combined with intravitreal	
168	therapies in recurrent UME while minimizing systemic	
169	immunosuppressive burden.	
170	• Bromfenac 0.09% as an adjunct to intravitreal anti-VEGF	
171	may be an effective treatment in refractory UME.	
172	• Further randomized controlled studies are required	
173	to establish the efficacy of bromfenac 0.09% in the	
174	management of UME.	
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