Ultra-Widefield Fluorescein Angiography Prompted and Guided Treatment for Uveitis

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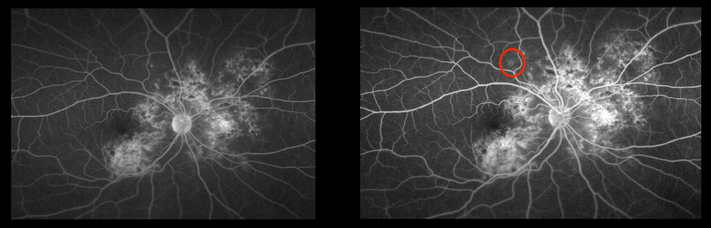
Introduction:

- Uveitis is the most common form of inflammatory eye disease[1] and is responsible for 30,000 cases of legal blindness annually[2].
- Fluorescein angiography is beneficial in evaluating patient's with uveitis particularly white dots syndromes and those involving the retinal vasculature such as sarcoidosis and, retinal vasculitis[3-6].
- Vision loss from uveitis can arise from recurrent or chronic inflammation and aggressive control of this inflammation is critical to preventing this vision loss[7].
- Ultra-widefield angiography with the Optos P200MA (Optos Inc., Dunfermline, Scotland) provides the ability to capture a widefield (200°), high resolution (3000 x 3000 pixels) image[8].
- Additionally, this device allows simultaneous capture of both posterior and peripheral retinal images.

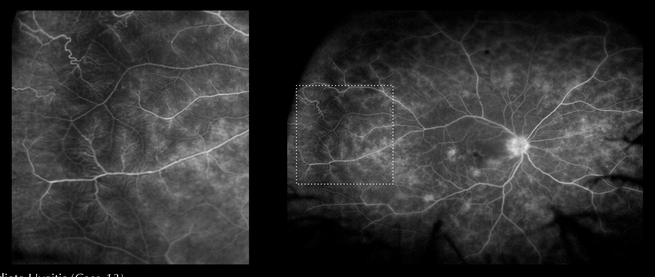
Methods:

- A retrospective review of the medical records and fluorescein angiographic images of patients with a diagnosis of uveitis that underwent imaging with the Optos P200MA over a six month period.
- Standard fluorescein angiographic techniques and image acquisition consisted of early phase (15-45 seconds) images of the eye of primary interest and images of the fellow eye at 45-60 seconds if available. Mid phase images were obtained between 1 and 3 minutes in each eye. Late phase images were obtained at 5 and 10 minutes in both eyes. The highest quality image from each phase was analyzed.
- Review of medical records was performed to determine if clinical decision making was altered based on information available from the ultra-widefield angiogram.

Number	AGE	Diagnosis	Primary Finding	Alter Treatment?	How did the findings alter treatment?	Location of Pathology
1	51	Sarcoid	Nonperfusion	No	--	Anterior to Equator
2	48	Intermediate Uveitis	Vasculitis	Yes	Extent and Activity Level of Disease	Diffuse
3	30	MEWDS	RPE Lesions	No	--	Posterior to Equator
4	33	Serpiginous Choroiditis	Choroiditis	Yes	Active Lesion Outside of Arcades	Posterior to Equator
5	59	Toxoplasmosis	Choroiditis	No	--	Anterior to Equator
6	60	Multifocal Choroiditis	Choroiditis	No	--	Posterior to Equator
7	30	Intermediate Uveitis	Vasculitis	Yes	Extent and Activity Level of Disease	Anterior to Equator
8	9	Sarcoid	Vasculitis	Yes	Extent and Activity Level of Disease	Anterior to Equator
9	23	Acute Retinal Necrosis	Vasculitis	Yes	Extent and Activity Level of Disease	Diffuse
10	17	APMPPE	RPE Lesions	No	--	Anterior to Equator
11	38	Toxoplasmosis	Choroiditis	Yes	Fellow Eye Involvement	Diffuse
12	23	Multifocal Choroiditis	Choroiditis	No	--	Posterior to Equator
13	38	Intermediate Uveitis	Vasculitis	Yes	Extent and Activity Level of Disease	Anterior to Equator



Serpiginous Choroiditis *(Case 4)*
The first photo (left image) is taken one month after initiating treatment for new onset serpiginous choroiditis. The image on the right shows an active area of choroiditis that presented during the tapering of steroid therapy at 2 months after presentation. This finding prompted an increase in steriod therapy with no exacerbation of the disease. *(Both images taken at 5 minutes)*



Intermediate Uveitis *(Case 13)*
Peripheral retinal vascular changes and extensive retinal vascular leakage present on angiography. The patient was asymptomatic in this eye and had no evidence of vitreous or anterior chamber reaction. Signs of peripheral retinal vascular involvement were limited and underestimated on clinical exam. *(Late phase image taken at 5 minutes)*

Results:

- A total of 13 patients with a diagnosis of uveitis were imaged over the initial 6 month period with ultra-widefield angiography.
- In 6 of 13 cases, the primary location of pathology was anterior to the equator.
- Ultra-widefield angiography revealed evidence of active inflammatory disease in 4 of 13 patients that were felt to have no clinical evidence of inflammatory eye disease.
- Treatment decisions were altered in 54% (7 of 13) cases based primarily on the findings of the ultrawide angle angiogram.
- Most changes in treatment (5 of 7) were based on the presence of more extensive and more active inflammatory disease than anticipated on clinical examination.

Conclusion:

- Peripheral angiographic findings are important in the management of patients with uveitis.
- Ultra-widefield angiography allows for a more complete evaluation of uveitic patients and can show disease activity that is more extensive than clinically apparent. These findings can lead to more aggressive and potentially more efficacious treatment.

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Disclosures:
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