

# Ultra-Widefield fluorescein angiography of patients with biopsy proven sarcoidosis and uveitis.

The Retina Society

Cole Eye Institute

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S U P P O R T E D B Y

**Research to Prevent Blindness**



# Financial Disclosures

- Thomas Mendel, Kimberly Baynes, Arthi Venkat, Careen Lowder, Daniel Martin – none
- Sumit Sharma - Zeiss, C, Santen, C, Novartis, C, Clearside, C, Regeneron, C, Bausch and Lomb, C, RegenerexBio, C, Eyepoint, C, Gilead, C
- Sunil Srivastava – Allegran: C, Genentech, C, Alimera, C, Eyepoint, C, Bausch and Lomb, C, Clearside, C, Regeneron, C

# Summary

- On widefield angiography, biopsy-proven sarcoidosis patients display a wide array of findings.
- 101 sarcoid patients were evaluated with 79 having biopsy-proven sarcoidosis.
- Biopsy-proven patients demonstrated retinal patterns of focal or diffuse leakage, as commonly understood.
- However other biopsy-proven patients demonstrate profound nonperfusion or occult choroidal lesions.
- The treating clinician should bear in mind this diversity of presentation when considering workup and treatment of uveitis patients.

# Purpose

- Although sarcoidosis is thought to have a distinctive profile on posterior imaging, patients often do not have confirmatory biopsies.
- This paper identifies common ultra-widefield FA patterns in those with positive biopsies in order to assist the workup of uveitis patients based on the FA.

# Methods

- Retrospective IRB approved study of 101 patients
- 79 patients were identified with biopsy proven positive sarcoidosis
- 24 of these patients were found to have widefield retinal imaging suggestive of posterior segment involvement
- These patients were categorized
  - (1) diffuse leakage (greater than one quadrant)
  - (2) focal leakage (focal leakage less than or equal to one quadrant)
  - (3) non- perfusion
  - (4) choroidal lesions (unremarkable fluorescein angiogram as well as distinctive punched out hypocyanescent spots on indocyanine green testing)
- Optic nerve hyperfluorescence was also evaluated

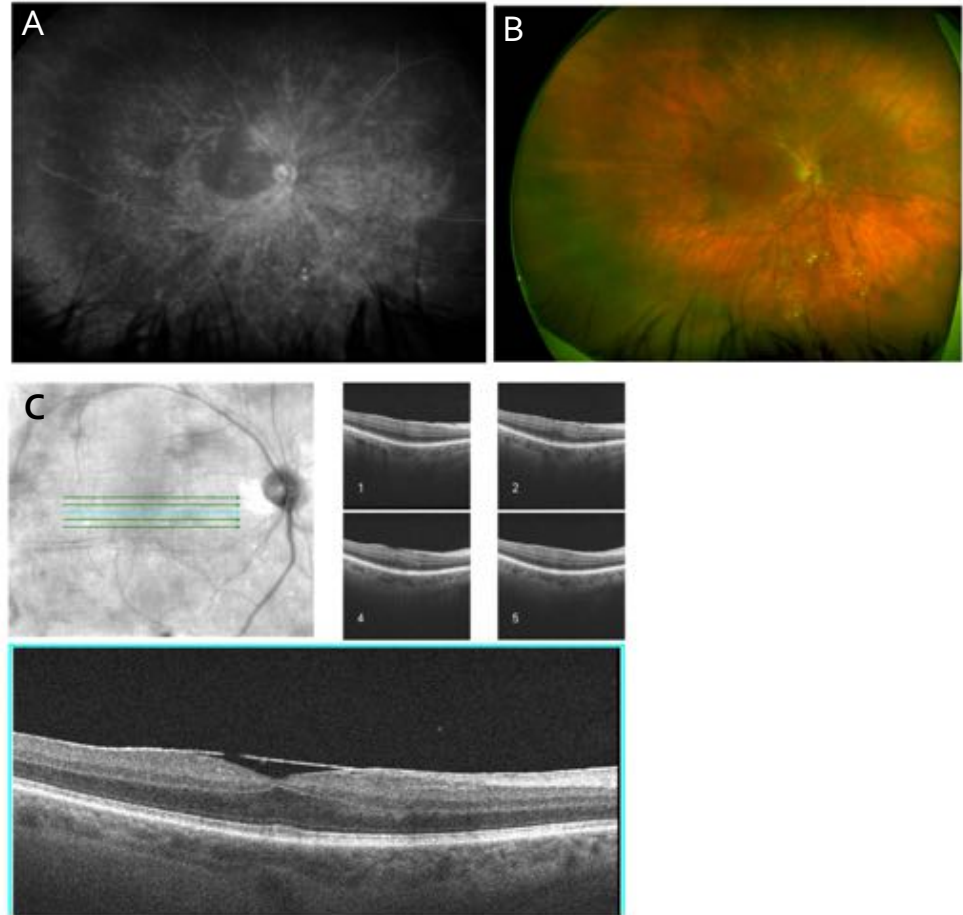
# Results

<b>Fluorescein Angiographic Appearance</b>	<b>Patient Count</b>	<b>%</b>
Diffuse Leakage	5	20.8
Focal Leakage	13	54.2
Retinal Non-perfusion	3	12.5
Choroidal Lesions	3	12.5

- 8 patients (32%) had a hyperfluorescent optic nerve, including all 5 of the diffuse leakage patients.
- 22 patients (88%) were undergoing treatment with prednisone or immunomodulatory systemic therapy.

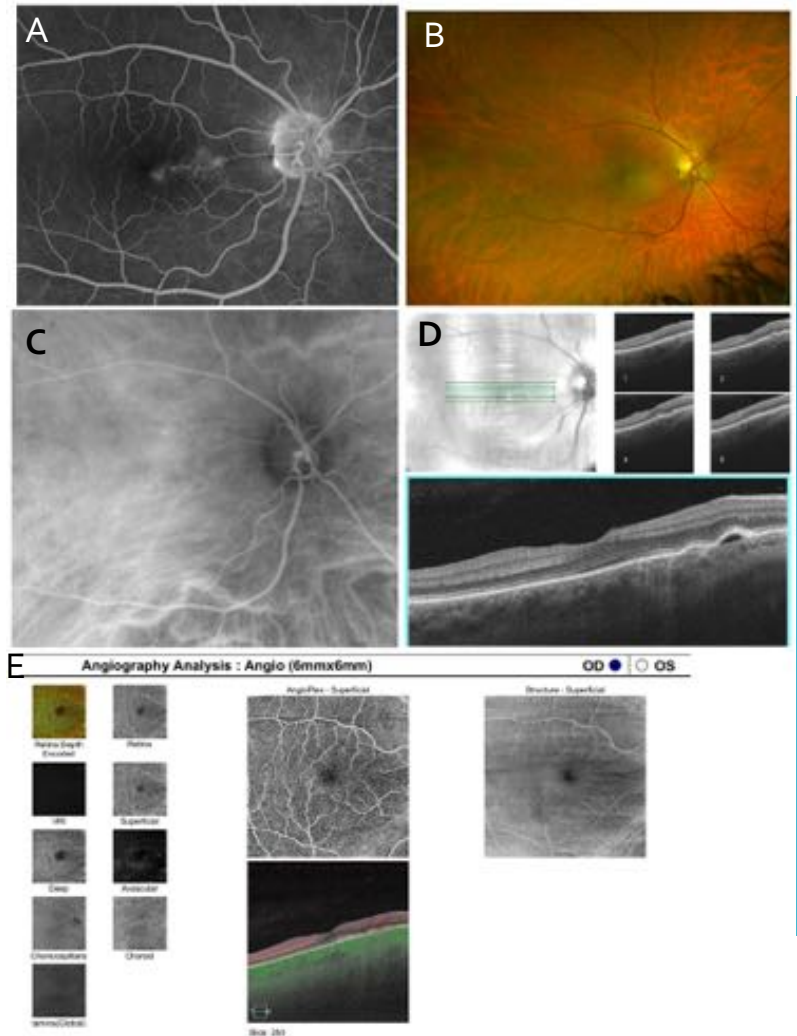
# Results – Diffuse Leakage

- (A) FA demonstrates diffuse leakage throughout retina, with predilection for perivenular phlebitis.
- (B) Fundus photography with mild attenuation of retinal vessels and inferior exudates.
- (C) OCT demonstrating epiretinal membrane across the fovea.



# Results – Focal Leakage

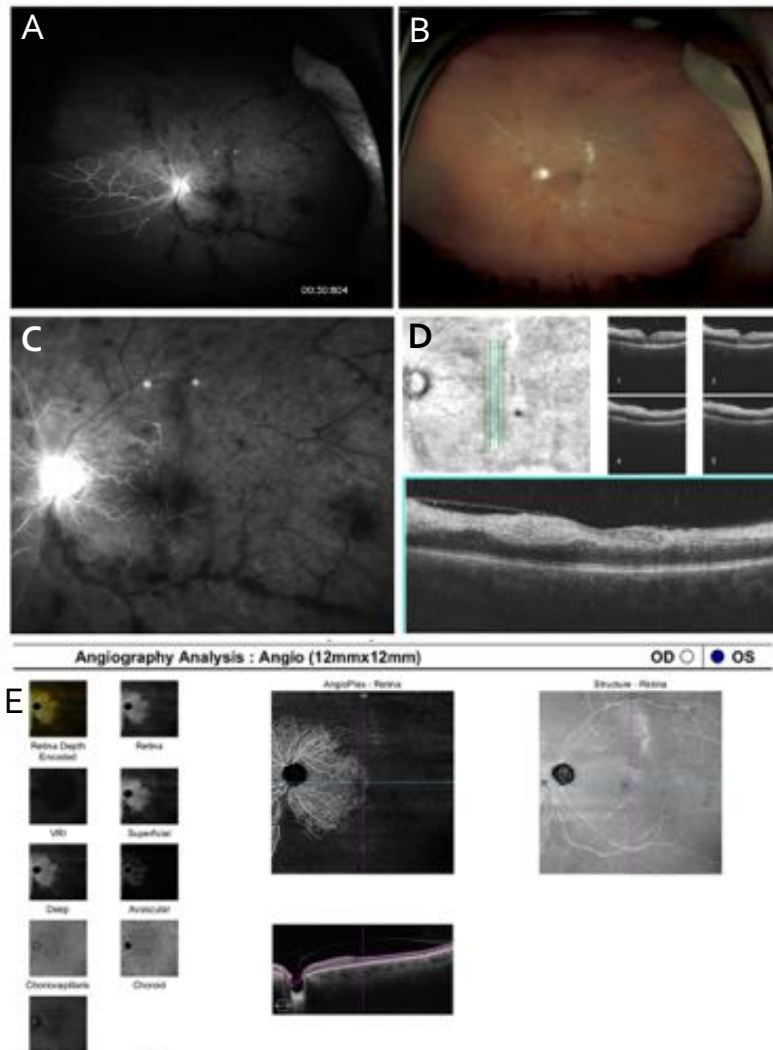
- (A) FA demonstrates focal leakage in the right papillomacular bundle.
- (B) Fundus photography with unremarkable fundus appearance.
- (C) ICG does not reveal significant choroidal pathology in the area of leakage.
- (D) OCT features a small pigment epithelial detachment and otherwise attached retina.
- (E) OCTA demonstrating no flow voids in the parafoveal retinal vasculature. There is a small triangular area of flow void in the choriocapillaris slab.





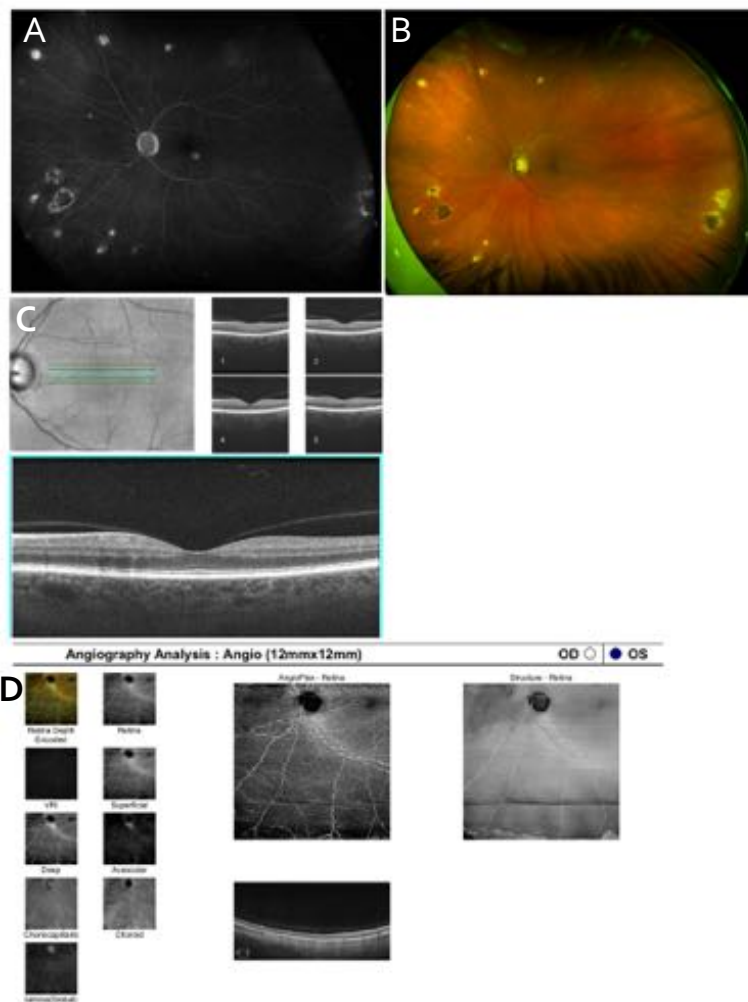
# Results – Nonperfusion

- (A) FA demonstrates nonperfusion to majority of retina.
- (B) Fundus photograph demonstrating profound vascular attenuation.
- (C) FA with attention paid to the macula, demonstrating very narrow area of perfusion surrounding the optic nerve.
- (D) OCT with signs of ischemia and atrophy of inner retina with loss of organization of outer retina, as well as ERM.
- (E) OCTA demonstrating significant flow voids throughout the macula.



# Results – Choroidal Lesions

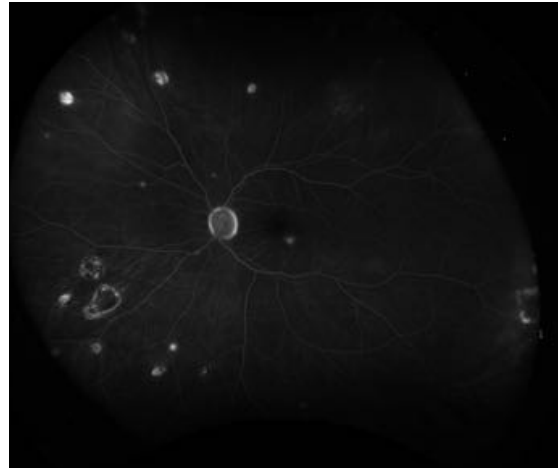
- (A) FA demonstrates minimal retinal vessel leakage, but hyperfluorescent staining of punched out lesions in the retina.
- (B) Fundus photograph presenting discrete punched out chorioretinal lesions with pigment mottling.
- (C) OCT of healthy appearing macula and fovea without intraretinal fluid.
- (D) OCTA centered inferiorly demonstrates flow voids in the choriocapillaris slab.



Which is the patient with sarcoid?



All of these patients have biopsy proven sarcoidosis.



# Conclusions

- Biopsy-proven sarcoidosis patients display a wide array of findings.
- On UWFA, this can be either focal or diffuse leakage, as commonly considered.
- But sarcoid patients can also present with profound nonperfusion or occult choroidal lesions.
- The treating clinician should bear in mind this diversity of presentation when considering workup and treatment of uveitis patients.