

ULTRA-WIDEFIELD IMAGING GUIDES COATS DISEASE TREATMENT



Fluorescein angiography-guided laser photocoagulation improved a patient's VA from 20/40 to 20/25.

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The advent of ultra-widefield multimodal imaging has significantly improved our understanding and management of peripheral retinal pathology. This is particularly useful in caring for patients with Coats disease.¹⁻⁵ This rare congenital condition is typically characterized by unilateral retinal vessel telangiectasias, light-bulb aneurysms, capillary nonperfusion and leakage in the temporal far periphery, and temporal macular exudation.¹ The case presented here highlights the utility of ultra-widefield multimodal imaging to guide not only the diagnosis of this retinal pathology but also its treatment.

CASE PRESENTATION

A 17-year-old male presented to the retina clinic with blurred vision and VA of 20/40 OS. He had a history of amblyopia in the left eye. The right eye was normal.

The dilated fundus examination and ultra-widefield color fundus photography of the left eye showed exudation in the temporal macula, extensive telangiectatic vessels with terminal bulb-like saccular aneurysmal dilatations in the temporal periphery, and a superotemporal hemorrhage (Figure 1A). Ultra-widefield fundus fluorescein angiography of the left eye showed multiple areas of temporal peripheral leakage and capillary nonperfusion (Figure 1B) consistent with a diagnosis of Coats disease.

The patient was treated with fluorescein angiography-guided laser photocoagulation in two separate sessions. Two months after the first session, ultra-widefield color fundus photography showed resolution of the superotemporal hemorrhage but worsening of exudation in the temporal macula (Figure 2A). Ultra-widefield fundus fluorescein angiography

also showed persistence of multiple areas of leakage and capillary nonperfusion (Figure 2B). This prompted a second session of imaging-guided laser photocoagulation.

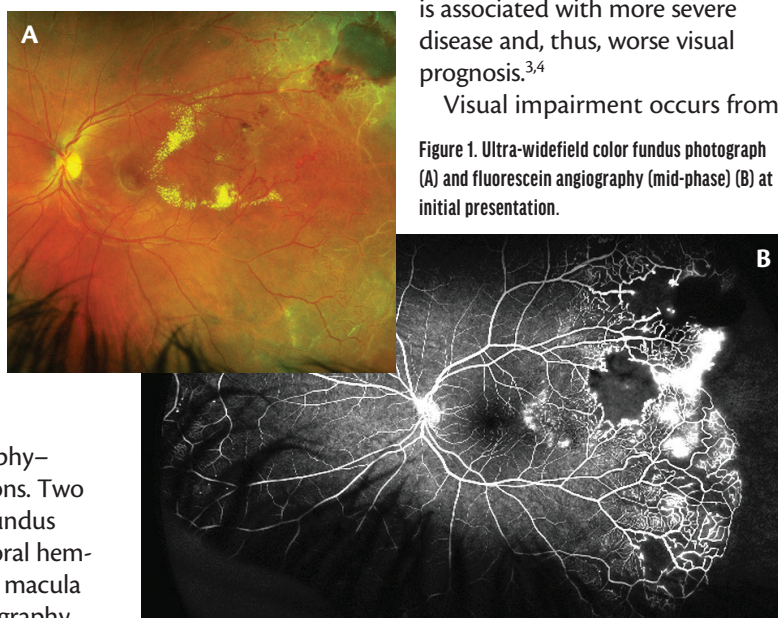
Three months after the second treatment, the patient's VA was 20/25 OS, and ultra-widefield color fundus imaging showed slight improvement in the temporal macular exudation with resolution of temporal aneurysmal dilatations (Figure 3A). Ultra-widefield fluorescein angiography showed considerable decrease in the temporal peripheral capillary nonperfusion and leakage (Figure 3B).

DISCUSSION

Coats disease typically affects young males, with diagnosis at a mean age of 6 years.² Younger age at presentation is associated with more severe disease and, thus, worse visual prognosis.^{3,4}

Visual impairment occurs from

Figure 1. Ultra-widefield color fundus photograph (A) and fluorescein angiography (mid-phase) (B) at initial presentation.



the accumulation of lipid exudates in the macula.¹ Exudation in the macula can be imaged using standard fundus photography and structural OCT. However, the characteristic features of Coats disease, including temporal peripheral retinal vessel telangiectasias and lightbulb aneurysms, can be seen only with ultra-widefield fundus photography. Furthermore, ultra-widefield fluorescein angiography captures the characteristic areas of peripheral temporal capillary nonperfusion and leakage that can help guide treatment with laser photocoagulation. Follow-up imaging with ultra-widefield fundus photography and fluorescein angiography is helpful to determine any changes to the areas of capillary nonperfusion and leakage following treatment.

In this case, after one session of laser photocoagulation,

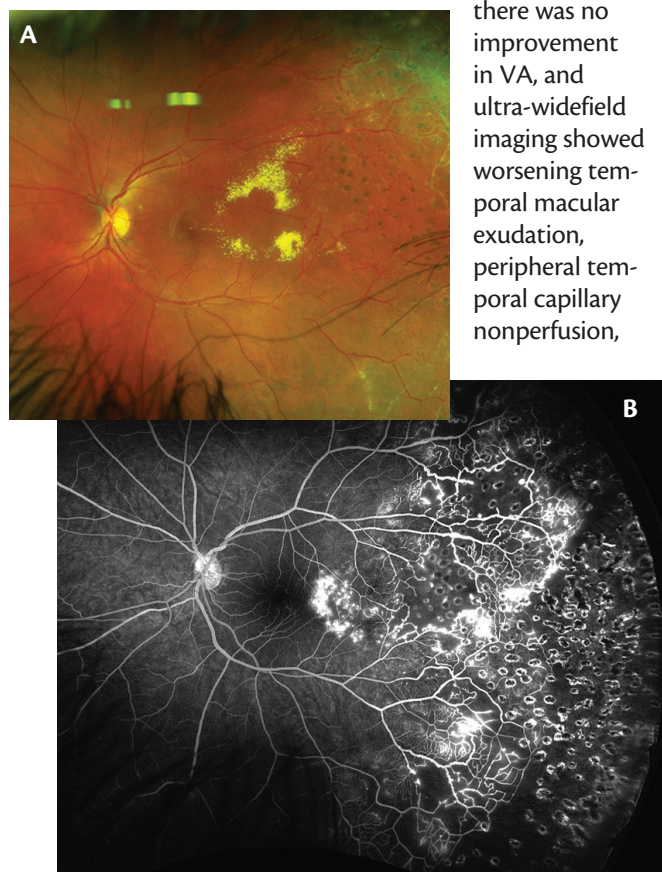


Figure 3. Ultra-widefield color fundus photograph (A) and mid-phase fluorescein angiography (B) 3 months after the second imaging-guided treatment session.

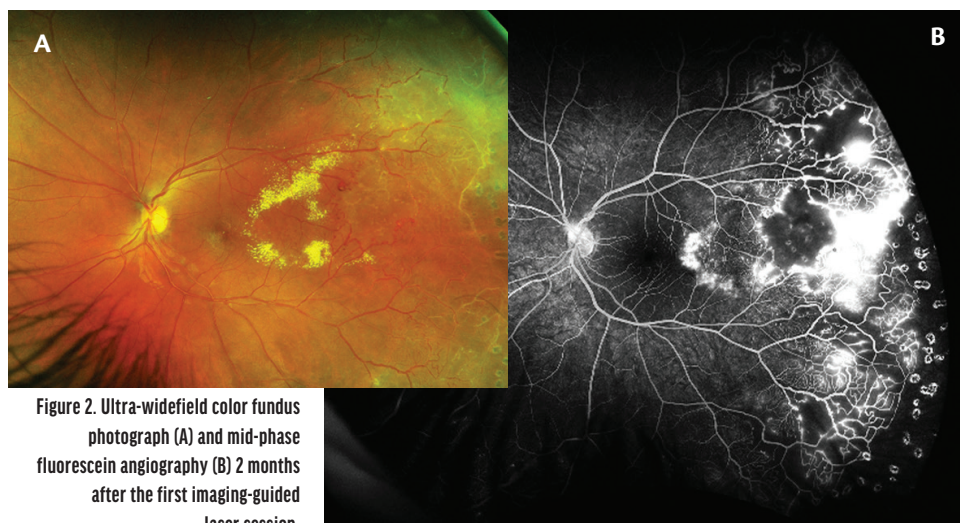


Figure 2. Ultra-widefield color fundus photograph (A) and mid-phase fluorescein angiography (B) 2 months after the first imaging-guided laser session.

there was no improvement in VA, and ultra-widefield imaging showed worsening temporal macular exudation, peripheral temporal capillary nonperfusion,

and leakage. This prompted a second session of imaging-guided laser photocoagulation with consequent improvement in VA.

This case emphasizes the benefit of using ultra-widefield imaging to guide optimal treatment in an adolescent male with Coats disease. Using the ultra-wide field of view, the areas of peripheral nonperfusion and leakage could be discretely identified and treated with laser photocoagulation. ■

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