Images in Clinical Tropical Medicine

Malarial Retinopathy in Cerebral Malaria

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A 2.5-year-old Malawian child was admitted in coma and fitting with *Plasmodium falciparum* infection. He was treated with intravenous quinine, anti-convulsants, and transfused for severe anemia. Ophthalmoscopy revealed discolored retinal vessels within zones of whitening of the retina (Figure 1A). Malarial retinopathy is common in African children with cerebral malaria in whom it has diagnostic and prognostic value. One of its specific manifestations is whitening of retinal vessels. The fluorescein angiogram demonstrates that these vessels are occluded (Figure 1B). The resultant area of retinal non-perfusion corresponds to the area of retinal whitening.

Erythrocytes parasitized by *P. falciparum* cytoadhere to vascular endothelium and each other, sequestering in the microvasculature of the brain, retina, and other organs. Sequestration appears to occlude retinal vessels, and small vessels in the brain at histologic examination. The resultant zones of retinal non-perfusion were unusually large in this child involving much of the peripheral retina. The whitening of the normally transparent retina is thought to be a result of oncotic cellular swelling induced by hypoxia. He remained in coma for 72 hours. A left-sided weakness resolved before discharge with a full recovery and no apparent ill-effects on vision.

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**Figure 1.** Panel A is a fundus photograph of the peripheral retina of a child with cerebral malaria showing whitened blood vessels within a zone of whitening of the retina. Panel B is the corresponding fluorescein angiogram demonstrating occlusion of the white blood vessels and resulting ischemia of the retina. This figure appears in color at www.ajtmh.org.

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