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Vancomycin-associated hemorrhagic occlusive retinal vasculitis: a clinical-pathophysiological analysis

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Abstract:

Purpose: To derive novel insights into the pathophysiology of vancomycin-related hemorrhagic occlusive retinal vasculopathy (HORV) through a careful clinicopathologic correlation.

Methods and study design: We retrospectively reviewed the clinical and pathologic course of two consecutive patients who developed HORV. The clinical history, multimodal imaging, ultrasound biomicroscopy (UBM), intraoperative and histological findings are reported.

Results: Both patients presented with decreased vision and eye pain within 1 week following otherwise uncomplicated cataract extraction and were diagnosed with HORV after endophthalmitis was ruled out. Both patients presented with significant ocular discomfort that progressively worsened, and both experienced a dismal visual outcome despite early aggressive medical and surgical therapy. One patient requested enucleation for a blind and painful eye. Upon histologic examination of this eye, the iris and ciliary body appeared to be infarcted with separation of the iris and ciliary epithelia from their adjacent stromal components. These findings were corroborated by UBM of the second patient. Histological examination of the posterior segment demonstrated severe hemorrhagic necrosis of the neurosensory retina and an occlusive non-arteritic vasculopathy of the retina and choroid. The choroid was thickened by prominent non-granulomatous chronic inflammation accompanied by a glomeruloid proliferation of small vessels. The inflammatory infiltrate was almost exclusively confined to the choroid and consisted of predominantly T-cells. There was conspicuous absence of inflammatory cells in the retina and no histologic evidence of leukocytoclastic vasculitis.

Conclusions: HORV is a rare condition that can lead to profound vision loss. Significant ocular pain can be a presenting sign of HORV in cases with severe iris and ciliary body ischemia. Although it has been suggested that HORV is a form of leukocytoclastic retinal vasculitis, the histological findings herein indicate that the pathophysiology is more complex. It is grounded in a necrotizing retinal vasculopathy in the absence of retinal vasculitis, chronic non-granulomatous choroiditis, and an unusual glomeruloid proliferation of endothelial cells in the choroid and elsewhere in the eye.