Abstract:

Giant Internal Limiting Membrane Tears: Incidence, Clinical Features, and Surgical Utility

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Purpose:

Though seldom discussed, large dehiscences of the internal limiting membrane (ILM) not uncommonly develop in association with epiretinal membrane (ERM). We define a giant ILM tear as a prominent scrolled edge of ILM between an ERM and a zone of ILM dehiscence. We sought to characterize the incidence, clinical characteristics, and optical coherence tomography (OCT) features of giant ILM tears in eyes that underwent surgical ERM peeling.

Methods:

We conducted a retrospective chart review of patients with ERM that underwent surgery by a single vitreoretinal surgeon at the University of Michigan Kellogg Eye Center from 2016 to 2019. Demographic information and clinical data were collected from the electronic medical record. ERMs and giant ILM tears were identified from OCT and near-infrared fundus images. The study was approved by the Institutional Review Board (IRB) of the University of Michigan.

Results:

Giant ILM tears were present in 33.3% (n = 24) of all (n = 72) eyes with an ERM that underwent surgery. Review of patients with a diagnosis code of ERM that did not undergo surgery over the study period found giant ILM tears in 8.0% of eyes. High myopia was more likely to be present in eyes with giant ILM tears than in those without giant ILM tears (29.2 % versus 8.3%, OR = 4.5, 95% CI [1.17-17.47], p = 0.02). OCT features commonly associated with giant ILM tears included retinal nerve fiber layer (RNFL) schisis in 82.6% of eyes, inner retinal dimpling (IRD) in 87.0% of eyes, and paravascular cavitations in 26.1% of eyes. The configuration of the ILM tears strongly suggested that they are caused by contraction of the ERM. In each case (n=19) where Brilliant Blue G was used intraoperatively, ILM staining confirmed the preoperative diagnosis of giant ILM tear and the scrolled ILM was used successfully to initiate membrane peeling.

Conclusions:

Giant ILM tears associated with ERM are seen more frequently in patients with high myopia and in eyes undergoing surgery for the ERM. Surgeons who do not routinely peel ILM at the time of ERM removal may consider doing so when giant ILM tears are present.