

Epiretinal membranes - What are they all about?

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- A. Vitreous degeneration
 - 1. Degeneration is caused by:
 - a) Light passing thru the vitreous
 - b) Aging
 - c) Other factors
 - 2. Synchysis
 - a) Liquefaction
 - 3. Syneresis
 - a) Contraction
- B. Pathophysiology of a PVD (this is the most common cause of ERMs)
 - 1. Increased movement
 - a) Caused by liquefaction of the gel
 - (1) Increased movement will eventually lead to separation of the vitreous cortex for the inner eye surface
 - 2. Separation from inner eye wall
 - a) Partial
 - (1) Initially, it is only partial with little to no symptoms
 - b) Complete
 - (1) Eventually it most will become complete and usually symptomatic
- C. Retinal traction
 - 1. Focal adhesions
 - a) There are tiny areas of increased cortex adhesions all along the inner wall surface of the globe (from the margins of the optic disc and retinal surface (to the posterior margin of the vitreous base)
 - b) Focal traction on a site of increased adhesion can cause breaks in the retinal surface (ILM, RNFL, and ganglion cell layer). Greater adhesions seem to occur in the posterior pole (especially the macular area). (OCT images)
- D. Epiretinal membrane (ERM)
 - 1. Vitreoretinal traction
 - a) Tear in the ILM
 - (1) Usually from PVD but may be due to trauma or vitreous degeneration without PVD formation

- b) Proliferation and migration of glial cells, RPE cells, and other retinal cells through the break in a response of the retina to an opening in the surface. The retina recognizes the break, sends out cells through the break, and lastly the cells organize into a membrane, which seals the break. This can occur in less than 24 hours.
- c) Organization of the surface cells into retinal surface membrane
 - (1) Retinal surface sheen
 - (a) Irregular margins
- d) The membrane has the capability to contract
 - (1) Retinal folds
 - (a) Straie on fundoscopy
 - (b) Irregular margins on fundoscopy
 - (c) No foveal reflection on fundoscopy
 - (d) Slightly thick and very reflective membrane on retinal surface on OCT images
 - (e) Teased retinal surface on OCT images
 - (f) Washboard effect of surface on OCT images (scan line thru a number of retinal folds)
 - (2) Macular distortion
 - (a) Produced by tangential traction of membrane (OCT images)
 - (i) Irregular margins
 - (ii) No foveal reflection
 - (iii) Triangular effect (base on the RPE)
 - (3) Macular hole
 - (a) Produced by tangential traction of membrane or more likely vitreous traction at 45 to 30 degree angle
 - (i) Hole may show total loss of tissue with poor vision (20/60 – 20/200 or worse)
 - (ii) Persistence of neural bridges usually results in fairly good vision

E. Surgical repair is through a surface membrane peel (membranectomy)

1. The membrane alone may be stripped off
2. The membrane and associated ILM may be peeled off (this has been found to lead to better results in closing macular holes)