Posterior Vitreous Detachment (PVD)

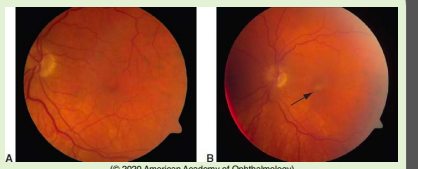
Symptoms
- photopsias (flashing lights)
- multiple floaters
- curtain or cloud across the visual field

Management
- translucent ring of fibroglial tissue ("Weiss" or "Vogt" ring)
  - slit-lamp biomicroscopy with 3-mirror lens or indirect contact lens
  - indirect ophthalmoscopy with scleral depression
  - patients with symptoms of PVD should be examined promptly
- Examination
- thin, hyperreflective line bounding the posterior vitreous
  - B-scan ultrasonography
  - OCT
- new retinal breaks may occur
- re-examine in 2–4 weeks

Vitreous structure
- composition
  - collagen
  - hyaluronan
  - vitreous base can be shaved but not peeled
- attachments
  - vitreous base
    - strongest attachment
      - after PVD, vitreous remains attached at vitreous base
    - approximately 2 mm anterior and 4 mm posterior to the ora
  - margin of the optic nerve head
  - macula
  - major vessels
  - chorioretinal scars
  - margins of lattice degeneration

Predisposing factors
- aging
  - <10% before age 50 years
  - 63% after age 70 years
- aphakia
- pseudophakia with open posterior capsule
- inflammatory disease (vitritis)
- trauma
- vitreous hemorrhage
- axial myopia

Pathogenesis & Course
- vitreous aging
  - liquifaction
  - synchysis
    - viscous hyaluronan accumulates in lacunae
      - surrounded by displaced collagen fibers
  - syneresis
    - collapse
    - electrostatic attraction and crosslinking of adjacent collagen fibers in the absence of hyaluronan
- course of age-related PVD
  - insidious and slowly progressive
  - starts as localized detachment over perifovea
    - posterior perifoveal vitreous detachment
  - remains subclinical/ asymptomatic for years
    - partial PVD
  - separation from optic nerve head causes symptoms associated with appearance of a Weiss ring
    - complete PVD



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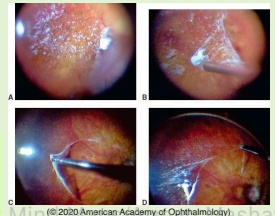
- vitreous remnants may have a role in
  - posterior vitreoschisis
  - epiretinal membrane formation
  - macular hole formation
  - tractional detachments in patients with pathologic myopia
  - macular edema in patients with diabetes mellitus
- remnants of vitreous often remain on internal limiting membrane
  - can be highlighted during vitreous surgery by applying triamcinolone



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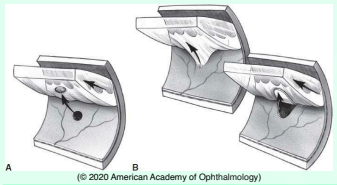
Complications
- retinal break
  - at posterior edge of vitreous base
  - 7%–18% overall
  - risk factors for retinal break after PVD
    - aphakia
    - myopia
    - fellow-eye history or retinal break/RD
    - Stickler syndrome
    - family history of retinal detachment
  - 7%–12% retinal break without vitreous hemorrhage
  - 50%–70% retinal break with vitreous hemorrhage
    - vitreous hemorrhage at initial examination for PVD
  - after diagnosis of PVD
    - increase in number of floaters
    - development of visual field loss
  - patients with retinal tear are 7 x more likely to present with vitreous pigment



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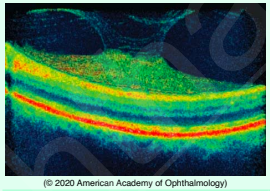
- vitreomacular traction syndrome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- macular hole formation
- large vitreous hemorrhage
  - bilateral ocular patching
  - x few days
    - bed rest
    - head elevated 45° or more
  - follow-up closely
    - funduscopy
    - B-scan ultrasonography
      - to find flap tears
      - to detect RD
      - to rule out other fundus lesions
  - consider early vitrectomy

Ophthalmology Mind Map by Mahmoud Mashayekhi, MD