Abstract
Vitreomacular traction (VMT) is defined as partial posterior vitreous detachment with persistent macular attachment and subsequent foveal distortion, as visualized through macular optical coherence tomography. We report a rare case of bilateral simultaneous VMT.

I. Case History
• 65 year old African American male
• Presenting for follow-up examination for glaucoma testing including OCT of the RNFL and GCC.
  • No other visual complaints
  • Identified as a glaucoma suspect in 2004; no other ocular history.
  • Medical history significant for non-insulin dependent type II diabetes mellitus, hypertension, hypercholesterolemia
  • Medications: Metformin, Enalapril, Crestor
  • Strong family history of open angle glaucoma including mother, brother, and sister.

II. Pertinent findings
• BCVA: 20/20 OD, 20/25 OS
• IOP: 19mmHg OU (Goldmann @ 14:51)
• C/D: 0.75V/0.65V OD, 0.8V/0.7H OS
• Macula: flat, even pigment
• OCT retinal analysis: Bilateral loss of normal foveal architecture with cystic changes in the outer plexiform layer. Residual adhesion between the posterior hyaloid and internal limiting membrane is apparent. Modest increase in full-retinal thickness at the centre of the macula.

III. Differential diagnosis
• Vitreomacular Adhesion (VMA)
• Vitreomacular Traction (VMT)
• Tractional Diabetic Macular Edema (DME)

IV. Diagnosis and discussion
• Most definitive diagnosis: focal isolated VMT
  • Clear partial posterior vitreous detachment with focal attachment at the macula resulting in distortion of the foveal contour.
  • Adhesion extent can be measured with the OCT caliper function.
  • Distortion of the foveal pit with separation of the retinal layers at the level of the outer plexiform layer.
  • Tractional Diabetic Macular Edema: Ruled out due to absence of co-existing diabetic retinopathy or other signs of DME.
    • Furthermore, tractional DME generally has different morphology with OCT. The intraretinal fluid and separation extends beyond the area of vitreoretinal attachment in tractional DME.\cite{1,2}
  • Inconsistent diagnostic criteria has resulted in both a lack of prevalence studies, and also in large discrepancies in the prevalence studies published. The prevalence of bilateral,
simultaneous vitreomacular traction is unknown, although there are some reported cases in the literature³⁴.

- The International Vitreomacular Traction Study Group recently devised a grading rubric using OCT to describe disorders of the vitreoretinal interface⁵.
- Classification of partial posterior vitreous detachment is defined by the structure as determined with OCT, and is based on a series of 3 dichotomous characteristics:
  1. The amount of remaining foveolar attachment: greater than 1500 µm is broad, less than or equal to 1500 µm is focal. This is measured using the caliper function on the OCT image analysis software.
  2. Preservation of normal foveal anatomy: preserved is vitreomacular adhesion, distorted is vitreomacular traction. Distortion can include loss of the foveal pit, intraretinal structure change, and/or elevation. Additionally, there must not be full-thickness interruption of the retinal layers, as this would represent a full-thickness macular hole (FTMH).
  3. Presence of other retinal pathology: if present, concurrent, if not isolated.

V. Treatment, management

- Close observation is recommended in asymptomatic cases with good best corrected visual acuity⁶. There is also no indication of macular hole (full thickness or lamellar) development or formation based on macular appearance with OCT at this juncture.
- The patient described in this case will be monitored closely with ophthalmoscopy and serial OCT studies for development of an epiretinal membrane, cystoid macular edema, and/or progression to macular hole.
- The patient was educated regarding his increased risk of developing DME.
- It is proposed that the role of VMT in the development of DME is a combination of increased vascular permeability from local factors, namely VEGF, secreted by vitreal cortical cells and mechanical stress caused by the anteroposterior force on the retina by the vitreous⁷⁹.
- To date, there are no comprehensive evidence-based guidelines for the management of VMT. Current opinion recommends observation for 2-3 months, as spontaneous resolution has been observed in 10-11% of cases¹⁰. Surgical or medical intervention is should be considered if complete posterior vitreous detachment is not observed and the patient remains symptomatic⁶.
- Subsequent management strategies:
  - Pars Plana Vitrectomy: Aims to cause completion of the PVD and relieve the anteroposterior tractional force allowing the retinal layers to resume the normal architecture.
    - Indicated for symptomatic cases with significant vision loss, concurrent epiretinal membrane, or full thickness macular hole¹¹.
  - Ocriplasmin (Jetrea):
    - Proteolytic enzyme that accelerates the release of the posterior hyaloid from the internal limiting membrane by lysing the extracellular proteins responsible for vitreoretinal attachment¹².
    - Indicated in cases of symptomatic, isolated vitreomacular traction or a FTMH with an aperture less than 400 µm⁶.
Early data suggest better outcomes with surgical treatment than intravitreal injection if there is concurrent retinopathy.

Development of clear, OCT-based diagnostic criteria for VMA and VMT by the International Vitreomacular Traction Study Group creates a foundation to study the prevalence of VMT, risk of comorbidity, and efficacy of interventions for the various subtypes of abnormal vitreomacular adhesions.

Bibliography:

VI. Conclusion
• Bilateral simultaneous VMT is a rarely reported condition in the literature.
• There is an association between vitreomacular traction and diabetic macular edema. Although the specific pathophysiology of the relationship has not been determined, it is suspected to be a combination of local signaling factors and mechanical strain on the retinal vasculature.
• The recent international vitreomacular traction classification scheme specifically defines VMT based on visualization of the posterior hyaloid-retinal interaction with spectral domain OCT.
• Standardized diagnostic criteria will facilitate the clinical study of vitreomacular traction.
• The management strategies are continually evolving with new surgical techniques and instrumentation improving the safety and efficacy of pars plana vitrectomy, and the development of novel pharmacologic interventions such as intravitreal ocriplasmin injection.
• Further study of the prevalence of unilateral and bilateral VMT, and potential of increased risk of complications in patients with bilateral simultaneous VMT, will be useful to establish evidence-based guidelines for the management of VMT.