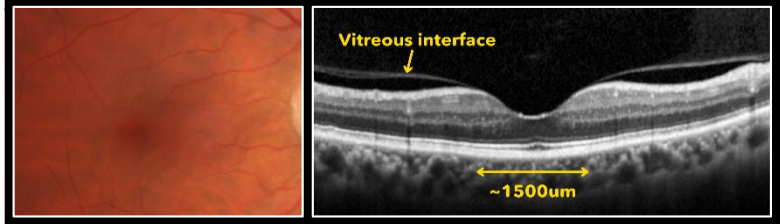
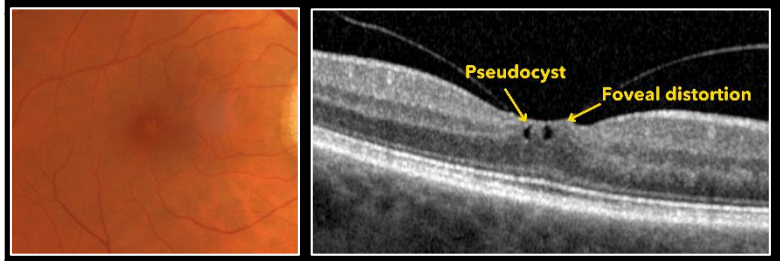
Centre for Eye Health

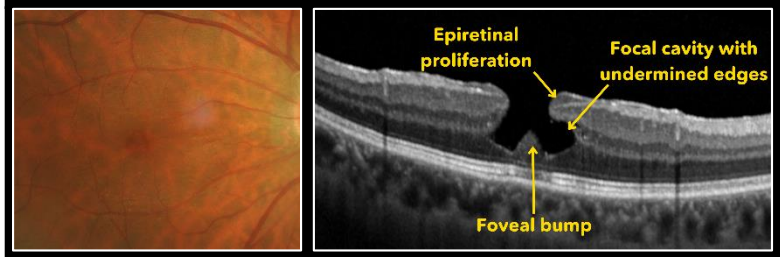
CHAIR-SIDE REFERENCE: VITREOMACULAR INTERFACE ANOMALIES

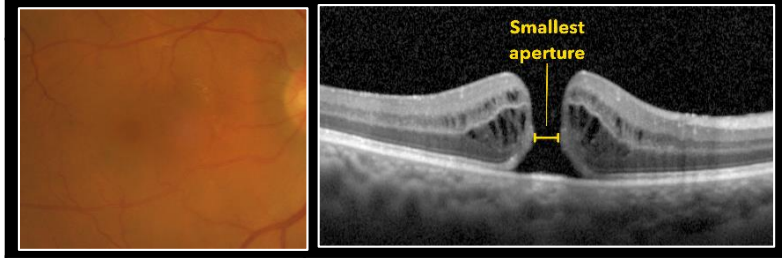
Posterior vitreous detachment (PVD) is a gradual, typically age-related separation of the posterior vitreous from the inner retinal surface. As the vitreous contracts and liquifies, it detaches from the mid-peripheral retina, progressing to then detach from the perifoveal, foveal and peripapillary regions sequentially. When vitreous liquefaction occurs before vitreoretinal separation, localised traction may occur, leading to anomalous PVD with potential complications at the macula.

Retinal photo	Optical coherence tomography (OCT)	Description
Vitreomacular Adhesion (VMA)		• Vitreous adhesion to central macula with no evidence of retinal morphologic changes. Normal finding in natural course of PVD. • **Classification**: Based on size of adhesion. Focal adhesion ≤1500um, Broad adhesion >1500um. • **Fundus appearance:** Unremarkable. • **OCT:** Attachment of the vitreous cortex within a 3mm radius of fovea centre with perifoveal vitreous detachment but no detectable distortion in foveal architecture. *Review routinely*
Vitreomacular Traction (VMT)		• Vitreous traction on the central macula causing anatomical distortion of foveal surface and/or intra-retinal abnormalities. Part of anomalous PVD progression. • **Classification:** Based on size of adhesion. Focal adhesion ≤1500um, Broad adhesion >1500um. • **Fundus appearance**: May have a yellow discolouration of the central macula. • **OCT:** Attachment of the vitreous cortex within a 3mm radius of fovea centre with perifoveal vitreous detachment & associated foveal abnormalities. • **Complications**: Can involve intra-retinal/structural changes: foveal distortion, elevation, schisis, pseudocyst formation, elevation of the retina from the RPE or outer foveal microdefect (see below). *Consider referral if associated with symptoms/reduced VA /history of FTMH in the fellow eye (increased risk)*
Lamellar Macular Hole (LMH)		• Partial thickness foveal defect caused by anomalous PVD with partial avulsion of foveal tissue. Possible degenerative mechanism has also been speculated. • Other non-PVD causes include MacTel, partial closure of full-thickness macula hole, cystoid macula oedema (non-primary). • **Fundus appearance**: Darker, reddish round lesion at the fovea. • **OCT**: Irregular foveal contour, focal cavity with undermined edges (assists in differentiating from ERM foveoschisis (below). Signs suggestive of retinal tissue loss (pseudo-operculum, thinning at/around the fovea). • May also show epiretinal proliferation (thick, iso-reflective, non-contractile material), foveal bump or EZ disruption. *Consider referral if associated with symptoms/vision reduction*
Full-Thickness Macular Hole (FTMH)		• Full-thickness foveal break which can be idiopathic or due to anomalous PVD (primary FTMH) • Other aetiologies include trauma, myopia, Iatrogenic, neuro-degenerative (e.g. MacTel) • **Classification**: Based on size (narrowest aperture) and presence or absence of vitreomacular traction: Small: ≤250um, Medium: 250um-400um, Large: >400um • **Fundus appearance**: Appears as a round red lesion at central macula • **OCT:** Interruption of all neural retinal layers from internal limiting membrane (ILM) up to (not including) the RPE • Edges of the macular hole are typically rounded and pulled anteriorly, often containing pseudocysts *Prompt referral: Surgical outcome is better with shorter duration of symptoms, smaller hole size and pre-op VA.*









Centre for Eye Health

CHAIR-SIDE REFERENCE: VITREOMACULAR INTERFACE ANOMALIES

Retinal photo	Optical coherence tomography (OCT)	Description
Epiretinal Membrane (ERM)		• A fibrocellular contractile proliferation over the internal limiting membrane (ILM), of unclear aetiology. • Can occur at any stage of vitreous separation (referred to as idiopathic ERM) or secondary to trauma, past surgery, chronic ocular disease. • **Fundus appearance:** A sheen or abnormal reflectivity or wrinkling of the macular surface • **OCT**: Thin distinct hyper reflective layer above ILM. • **Complications**: Can cause tractional stress on underlying retina so may be associated with wrinkling of retinal surface, loss of foveal pit, retinal thickening and pseudocystic spaces. *Consider referral if associated with symptoms/vision reduction*
Epiretinal Membrane (ERM) Foveoschisis		• Schisis at the fovea due to contractile epiretinal membrane (previously known as tractional lamellar hole). • Caused by mechanical displacement of retinal layers secondary to tractional force from the epiretinal membrane. • **Fundus appearance**: Roundish, slightly darker central lesion in the fovea. • **OCT:** Foveoschisis at the level of Henle fibre layer (splitting in outer nuclear and plexiform layers). • Presence of contractile epiretinal membrane (differentiating from lamellar macula hole, see previous page). • **Associated signs**: Include microcystoid spaces in inner nuclear layer, retinal thickening and retinal wrinkling. *Consider referral if associated with symptoms/vision reduction*
Macular Pseudohole		• Caused by mechanical displacement of retina towards the foveal centre via centripetal tangential traction. • **Fundus appearance**: Discrete, red, round or oval lesion in the fovea. Appearance is similar to full thickness hole but without full thickness defect or signs of retinal tissue loss. No loss of foveal tissue. • **OCT:** Presence of ERM with central opening sparing the fovea and associated surrounding retinal thickening. Has a verticalised/steepened foveal profile. • **Associated signs**: May include microcystoid spaces and near normal foveal thickness. *Consider referral if associated with symptoms/vision reduction*
Outer foveal microdefects (OFMD)		• Current naming controversy: also includes macular microhole and foveal red spot syndrome. • Common aetiologies include VMT, previous VMT or adhesion. Other aetiologies include phototoxicity, blunt trauma, chronic macula oedema, spontaneous closure of full thickness macular hole, MacTel2. • **Fundus appearance**: A small reddish foveal lesion with a small focal discontinuity within the outer retina. • **OCT:** Focal discontinuity of RPE, photoreceptors and/or external limiting membrane. • **Associated sign**s: May include irregular foveal pit, symptoms of PVD, overlying vitreoretinal traction/adhesion. *Review routinely*