High myopia has traditionally been regarded at a refractive error > -6.00DS or axial length > 26mm. The definition of “pathologic myopia” has varied throughout the literature however the most recent definition proposed by Ohno-Matsui et al. (2017) refers to eyes with visual impairment secondary to changes caused by high myopia and those eyes with myopic complications that risk causing visual impairment in the future. The majority of pathological changes are related to increased axial length and posterior staphyloma. This chairside reference depicts the posterior pole changes associated with pathologic myopia and its ocular complications using multi-modal imaging techniques. For peripheral myopic changes, please refer to the Centre’s Chairside reference on peripheral retinal lesions.

All management recommendations below are based on the assumption that other coexisting pathology requiring more urgent follow-up is not present.

### PATHOLOGIC MYOPIA

<table>
<thead>
<tr>
<th>Optomap image</th>
<th>Fundus Autofluorescence</th>
<th>Optical coherence tomography (OCT)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Staphyloma</strong></td>
<td></td>
<td></td>
<td>A posterior protrusion of the globe in highly myopic eyes that is accompanied by a stretching of the posterior fundus. Present in up to 90% those with high myopia and prevalence increases with age. Clinical appearance: tessellated fundus and/or pallor in a horizontal elliptical shape, typically extending from the nasal side of the disc towards the macula. Seen on OCT as a posterior bowing of the sclera, choroid and retinal layers.</td>
</tr>
<tr>
<td><strong>Myopic Crescent (Myopic Conus)</strong></td>
<td></td>
<td></td>
<td>Sharply defined concentric area adjacent to the optic disc where the sclera is visible. Premature termination of the RPE-choriocapillaris complex.</td>
</tr>
<tr>
<td><strong>Dome Shaped Macula</strong></td>
<td></td>
<td></td>
<td>Convex elevation of the macula within an area of posterior staphyloma. Most easily seen on vertical OCT line scans. Associated with reduction in vision and metamorphopsia. Absence of CNV but can be associated with subretinal fluid.</td>
</tr>
</tbody>
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### PATHOLOGIC MYOPIA

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| Lacquer Cracks | ![Lacquer Cracks](image1) | ![Lacquer Cracks](image2) | • Ruptures in Bruch’s membrane in which small haemorrhages may occur.  
• Caused by stretching of ocular tissue due to axial elongation, but not correlated to axial length.  
• Appear as a yellow-white line in eyes with pathological myopia.  
• Strong association with myopic CNV (29.4%) which forms along the cracks.  
**Annual dilated examination**  
**Amsler grid monitoring** |
| Myopic Choroidal Neovascularisation (CNV) | ![CNV](image3) | ![CNV](image4) | • Funduscopically appears as an area of grey discolouration, sometimes with a pigmented border.  
• Associated with decreased vision, metamorphopsia and central scotoma if located within the macula.  
• Type 2 CNV appears on OCT as a hyper-reflective lesion above the level of the RPE with intra-retinal or sub-retinal fluid (appears as hypo-reflective spaces).  
• Referral for fluorescein angiography may aid diagnosis.  
**Prompt referral to ophthalmology.** |
| Foster-Fuch’s Spot | ![Foster-Fuch’s Spot](image5) | ![Foster-Fuch’s Spot](image6) | • A raised round or oval-shaped pigmented lesion.  
• Arise secondary to regressed myopic choroidal neovascularisation which causes a proliferation of the RPE.  
**Referral to ophthalmology for further investigation.** |
| Peripapillary Intrachoroidal Cavitation | ![Peripapillary Intrachoroidal Cavitation](image7) | ![Peripapillary Intrachoroidal Cavitation](image8) | • Well-defined circular orange-yellow peripapillary lesion usually seen at the inferior border of the disc in an eye with pathological myopia but which can surround the entire optic disc.  
• OCT shows an outwardly bowed sclera with an associated hypo-reflective intrachoroidal space.  
• Can be associated with a glaucoma-like visual field defect  
**Annual dilated examination** |
# Pathologic Myopia

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| **Myopic Macular Schisis** | - Separation of intraretinal layers, typically outer layers.  
- Typically no visual symptoms at onset.  
- Slowly progressive with a strong association with macular hole formation and retinal detachment within 2 years if left untreated.  
- Associations with axial length >31mm, chorioretinal atrophy and vitreoretinal interface disorders.  
  
Referral to ophthalmology for consideration of treatment. |
| **Myopic Macular Hole** | - Due to tractional forces secondary to vitreomacular adhesion.  
- Risk of hole formation is higher if an ERM is seen on OCT exerting horizontal or oblique tractional force.  
- Absence of PVD and foveal sparing by schisis are associated with increased stability.  
- Treatment involves vitrectomy, internal limiting membrane (ILM) peeling and silicone oil tamponade.  
- Prognosis is poor with axial length >30mm and/or hypo-AF at the fovea.  
  
Referral to ophthalmology for treatment. |
| **Macular Detachment** | - Separation of the sensory retina from the RPE  
- Associations with axial length >31mm, chorioretinal atrophy and vitreoretinal interface disorders.  
- If confined to the fovea, referred to as foveoschisis  
  
Referral to ophthalmology for consideration of treatment. |
| **Tractional ILM detachment and Retinoschisis** | - ILM Detachment (yellow arrow) has a similar appearance to an epiretinal membrane, except that there are “pillars” or columns that bridge the gap between the membrane and the retinal surface.  
- Strong association with myopic foveoschisis.  
- Retinoschisis (blue arrows) most commonly occurs in the outer and inner plexiform layers.  
  
Referral to ophthalmology if evidence of progression. |
# Chair-side Reference: High Myopia

## PATHOLOGIC MYOPIA

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| **Diffuse Chorioretinal Atrophy** | ![Image](image1) | ![Image](image2) | • Yellowish-white appearance to the posterior pole, starting at the optic disc and macula and spreading to involve the entire staphyloma.  
• 3.7% of eyes with diffuse chorioretinal atrophy have been shown to develop myopic CNV (Ohno-Matsui, 2003). |
| ![Image](image3) | ![Image](image4) | |

Annual dilated examination

## TRACTIONAL VASCULAR CHANGES IN HIGH MYOPIA

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| **Vascular Microfolds** | ![Image](image5) | ![Image](image6) | • Using OCT, these can be detected in up to 44% of those with pathological myopia.  
• In eye with both paravascular cysts and vascular microfolds, the incidence of retinoschisis at the vessels is much higher than if cysts alone are present. |
| ![Image](image7) | FAF not available | |

Annual dilated examination

| **Paravascular Cysts** | ![Image](image8) | ![Image](image9) | • Detected in 50% of high myopes when examined with OCT.  
• Small hollow spaces seen on OCT, usually adjacent to large retinal vessels.  
• Increased occurrence with age, axial length, degree of myopia and presence of posterior staphyloma.  
• Rupture of the cysts cause paravascular lamellar holes. |
| ![Image](image10) | FAF not available | |