Centre for Eye Health

CHAIR-SIDE REFERENCE: PIGMENTED POSTERIOR LESIONS

PIGMENTED LESIONS OF THE CHOROID

Optomap/Retinal Photo	Fundus Autofluorescence	OCT	Description
Choroidal Naevus			• Common, benign lesion with up to a 1% lifetime risk of malignant transformation. • **Fundus appearance**: flat lesion with detectable borders, round/oval in shape. Typically <2mm thick and <5mm in diameter, located posterior to the equator. • **FAF:** appearance variable. Naevi have low intrinsic AF, however associated changes such as RPE hyperplasia (hypo-AF) impact the lesion's FAF properties. • **OCT**: Flat or slightly elevated, pigmented naevus appears as a highly reflective band with shadowing on the deeper structures and nonpigmented naevus has a homogenous appearance with medium reflectivity and no shadowing. There is choriocapillaris thinning overlying the naevus. • **Associated signs**: drusen, subretinal fluid (SRF), photoreceptor loss or attenuation, RPE atrophy/hyperplasia, RPE detachment and/or an RPE trough. *Documentation and routine review required.*
Choroidal Melanoma			• Most common primary malignant intraocular neoplasm in adults. • **Fundus appearance**: Solitary raised mass > 2mm thick, often with associated sub-retinal fluid (SRF) and lipofuscin (orange pigment). • **FAF**: Lipofuscin appears hyper-AF while RPE changes can appear hypo-AF. • **OCT:** SRF is a significant risk-factor for malignancy (Shields et al.) • **B-scan**: Typically mushroom/dome-shaped, indicating extension through Bruch's membrane. The lesion is acoustically hollow. • **Associated signs:** SRF, sub-retinal haemorrhage, sentinel vessels, choroidal folds, retinal detachment or inflammation *Prompt referral to an Ophthalmologist is required.*
Choroidal Metastasis	FAF not available		• Choroid is the most common ocular site for metastatic spread, especially for breast and lung cancer. • **Fundus appearance**: Ill-defined, mildly elevated, yellow lesions often with overlying pigmentary changes. Multifocal and/or bilateral in 25% of cases. • **FAF:** Often associated with areas of hyper-AF. • **OCT**: An irregular (lumpy-bumpy) anterior tumour surface, photoreceptor elongation, presence of subretinal fluid often with "speckles" visible within the area of fluid; and thinning of the overlying choriocapillaris. • **B-scan:** Flat/slightly raised lesion typically with inhomogeneous reflectivity *Prompt referral to an Ophthalmologist is required.*

A systematic approach to assessment of choroidal lesions involving careful consideration of its imaging characteristics may be helpful when forming a diagnosis. A useful mnemonic was developed by Shields and associates to explore risk factors for choroidal naevus transformation into melanoma. https://pubmed.ncbi.nlm.nih.gov/30844944/

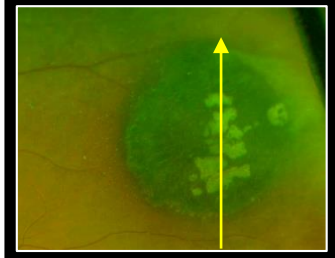
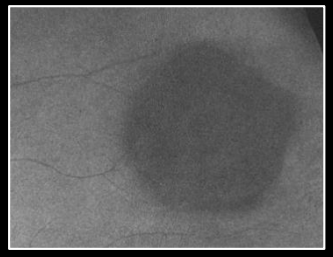
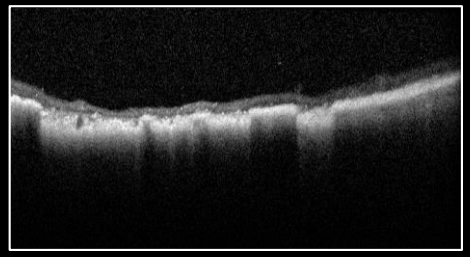
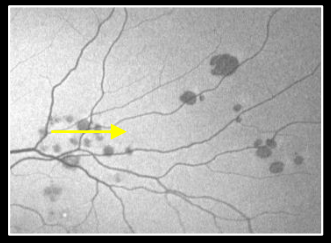
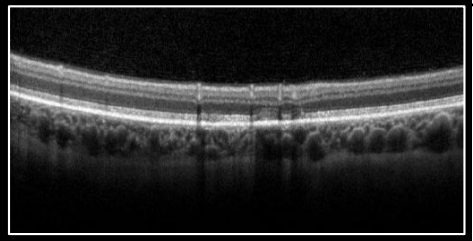
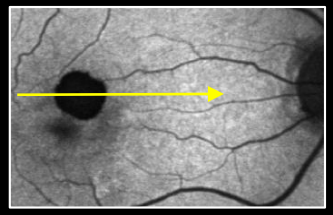
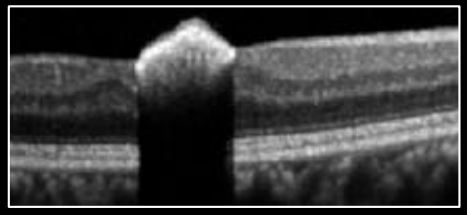
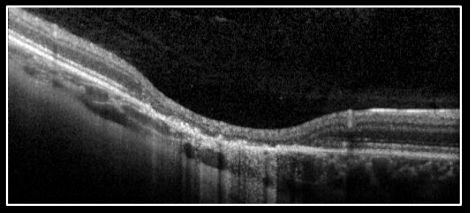
***T**o **F**ind **S**mall **O**cular **M**elanoma **D**oing **Im**aging*

- Thickness>2mm
- Subretinal Fluid
- Symptoms
- Orange pigment (lipofuscin)
- Melanoma hollow with ultrasound
- Diameter greater than 5mm

Centre for Eye Health

CHAIR-SIDE REFERENCE: PIGMENTED POSTERIOR LESIONS

PIGMENTED LESIONS OF THE RPE

Optomap /retinal photo	Fundus Autofluorescence	OCT	Description
Congenital hypertrophy of the RPE (CHRPE)			• Benign lesion, typically unilateral and asymptomatic. • **Fundus appearance**: Round, flat, heavily pigmented, often have atrophied window-like defects (lacunae) and/or a marginal halo with overlying vessel sheathing and attenuation. • **FAF**: RPE hypertrophy causes hypo-AF, lacunae appear hyper-AF. • **OCT:** Hyper-reflectivity and increased thickness of RPE with posterior shadowing. Lacunae is associated with RPE thinning/atrophy . • **Visual field**: Relative scotoma in youth and absolute scotoma in adulthood. • **Natural history**: slow progressive enlargement or alterations in pigmentation. Progression to RPE adenoma (benign) or adeno-carcinoma (malignant) is rare - suggested by nodular appearance, exudation or unusual vascularisation. *Documentation and routine review required.*
			
Congenital Grouped Pigmentation of the RPE ("Bear Tracks")			• Groups of benign CHRPE-like lesions resembling animal footprints. • **Fundus appearance**: Multiple small, flat, black lesions clustered in a single quadrant and increasing in size towards the periphery. • **FAF**: Lesions are typically hypo-autofluorescent. • **OCT**: often shows no obvious abnormalities or retinal thinning over lesions. • No associated systemic conditions. *Documentation and routine review required.*
			
Congenital Simple Hamartoma of the RPE (CSHRPE)			• Rare congenital tumour, typically at the macula. Minimal effect on VA. • **Fundus appearance**: Small, nodular, darkly pigmented, typically benign lesion within the macula. May be associated with feeder vessels or overlying traction. • **FAF:** Uniform hypo-AF lesion. • **OCT:** Well demarcated, highly reflective, slightly elevated lesion with posterior shadowing. • No associated systemic conditions *Documentation and routine review required*
			
Pigmented Ocular Fundus Lesions (POFL) of Familial Adenomatous Polyposis (FAP)			• Pigmented fundus lesions resembling CHRPE, prevalent in FAP, asymptomatic • **Fundus appearance**: Pisciform shaped lesions often surrounded by a hypo-pigmented halo. Commonly found around the equator. • **FAF**: typically hypo-AF. • **OCT**: Attenuation of the outer retinal layers with thickened RPE. • **Systemic association**: Multiple, bilateral lesions are associated with FAP, a condition that untreated leads to malignant carcinoma of the colon (fatal). *Referral for FAP workup is required.*
	FAF not available		

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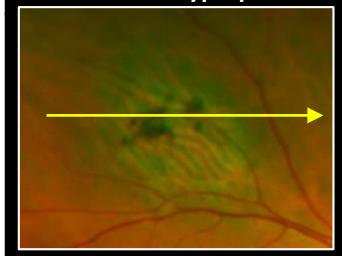
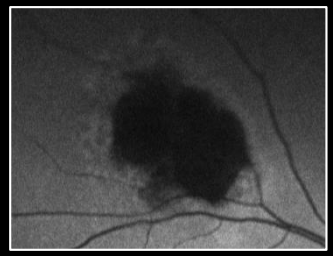
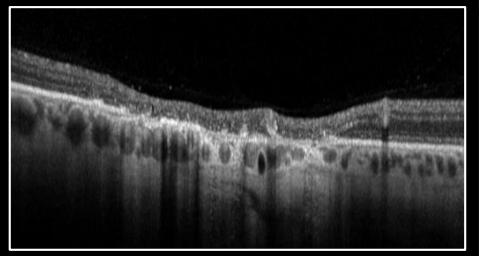
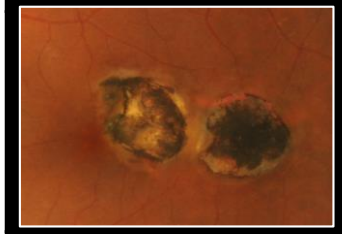
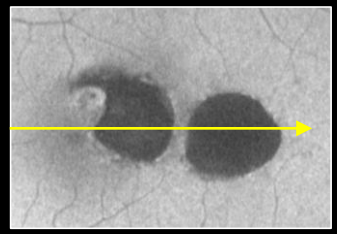
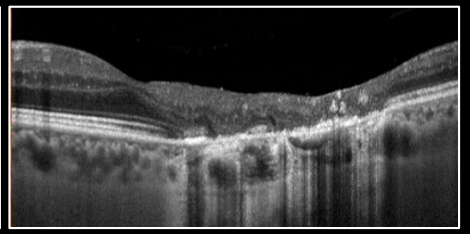
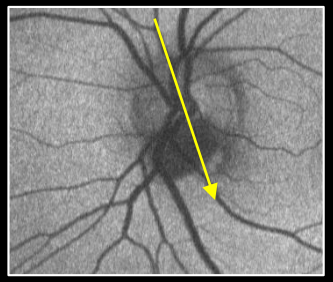
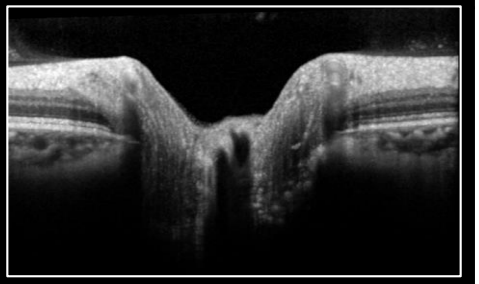
CHAIR-SIDE REFERENCE: PIGMENTED POSTERIOR LESIONS

Optomap/retinal photo	Fundus Autofluorescence	OCT	Description
Reactive RPE hyperplasia			• Intraretinal pigmented spicules or localised subretinal mass developed secondary to intraocular inflammation, trauma, haemorrhage or retinal detachment. • **Fundus appearance:** Irregularly shaped, minimally elevated, well demarcated areas of pigment clumping that show minimal change over time. • **FAF**: Lesions show hypo-AF. • **OCT:** Hyper-reflective thickening of the RPE. *Documentation and routine review required.* *Management of the underlying cause*
			
PIGMENTED LESIONS OF THE RETINA AND CHOROID			
Chorioretinal scarring associated with toxoplasmosis			• Inactive toxoplasmosis scars, often involve the macula • **Fundus appearance:** atrophic chorio-retinal scar surrounded by a pigmented border and well demarcated from the surrounding retina • **FAF:** Hypo-AF associated with areas of scarring (atrophy). • **OCT**: Loss of the RPE and outer retinal layers in areas of scarring. Hyper-reflectivity of associated pigment on OCT. *Documentation and routine review required*
			
Melanocytoma of the optic nerve			• Neoplasm involving the optic nerve and adjacent choroid/retina • **Fundus appearance:** Unilateral, small (<2mm diameter, <1mm thick) . Choroidal component resembles a choroidal naevus. Retinal component is typically black with feathery margins. • **FAF:** Pigmented areas show hypo-AF. • **OCT**: Non-homogeneous internal structure with hyper-reflective dots and posterior shadowing. • **Complications**: Include optic nerve head oedema, retinal oedema, retinal haemorrhages, retinal exudates and/or subretinal fluid. 1-2% of cases progress to malignancy. *Documentation and routine review required*
			

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This reference is based on the current literature and evidence at the time of writing. This reference is designed a guide to aid diagnosis and management decisions however individual cases must be assessed in the context of all available clinical data.

For individual diagnosis or management advice, please make a CFEH telehealth appointment and one of our senior staff optometrists can assist. Consultations are at no charge, thanks to the generous support of Guide Dogs NSW/ACT.