
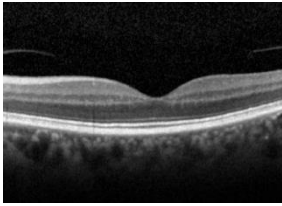
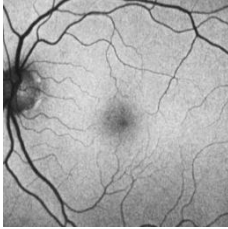
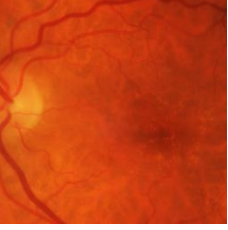
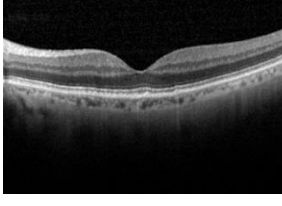

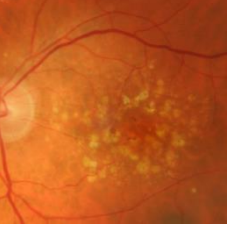
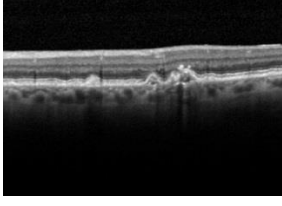

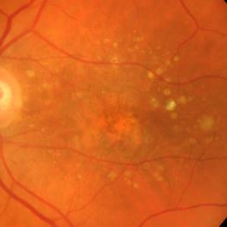
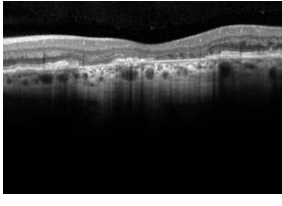
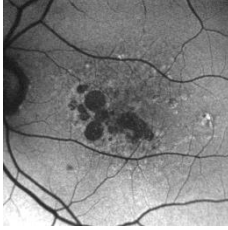
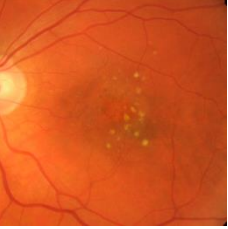
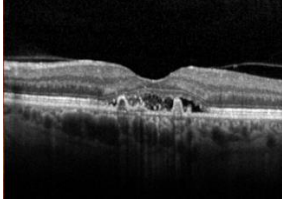

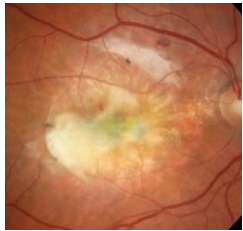
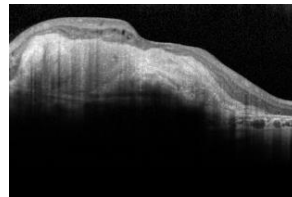


AMD related phenotype and distinguishing clinical features	Optical coherence tomography (OCT)	Fundus autofluorescence (FAF)
Normal aging changes		
 <ul style="list-style-type: none"> • Drupelets ($\leq 63\mu\text{m}$ diameter) only • Should not show any characteristics of early, intermediate or advanced AMD 	 <ul style="list-style-type: none"> • Drupelets appear as just detectable discrete irregularities or elevations of the RPE with variable internal reflectivity • Some drupelets may be too small for OCT to resolve 	 <ul style="list-style-type: none"> • Drupelets may localise with punctate spots of normal, hyper- or hypo-fluorescence • FAF may also appear normal with the central macula showing diffuse, homogeneous autofluorescence and a gradual reduction in signal approaching the fovea
Early AMD		
 <ul style="list-style-type: none"> • Medium drusen (between 63 and $125\mu\text{m}$ in diameter) • Should not have any of the characteristics of intermediate or advanced AMD • May present with a different stage of AMD in the fellow eye 	 <ul style="list-style-type: none"> • Medium drusen typically appear as discrete elevations of the RPE with variable internal reflectivity (similar to small drusen) 	 <ul style="list-style-type: none"> • Similar to drupelets, medium drusen may display a variable normal, hyper- or hypo-fluorescence pattern • A range of patterns may be observed in early and intermediate AMD including: normal, minimal change, focal increased, patchy, linear, lacelike, reticular, speckled, focal confluent, focal plaque-like or scattered
Intermediate AMD		
 <ul style="list-style-type: none"> • Large drusen ($>125\mu\text{m}$ in diameter) and/or pigmentary abnormalities (hyper- or hypopigmentary changes associated with at least medium sized drusen) • No characteristics of late AMD 	 <ul style="list-style-type: none"> • Large drusen may appear as dome shaped, occasionally confluent, elevations of the RPE, with a visible underlying BM • May be associated with overlying disruption of the ISE and ELM, thinning of the ONL and/or enhanced visibility of HFL • Increased reflectivity of underlying choroidal vessels due to focal RPE depigmentation • Hyper-pigmentary changes may be seen as discrete hyper-reflective foci (in the ONL or attached to drusen) with posterior shadowing 	 <ul style="list-style-type: none"> • May reveal any of the patterns described under early AMD • Predominantly reveals spots or punctate changes of hyper-fluorescence • Less commonly, spots of hypo-fluorescence and lines of hyper-fluorescence may also be observed • Patchy, linear and reticular FAF patterns are associated with a higher risk of conversion to neovascular AMD
Advanced AMD (Geographic atrophy)		
 <ul style="list-style-type: none"> • Any sharply delineated round or oval hypopigmented areas at least $175\mu\text{m}$ in diameter that feature apparent absence of the RPE and increased visibility of choroidal vessels • Areas may coalesce to form a ring type configuration, eventually involving the fovea • May be preceded by calcification of large drusen • Typically also displays phenotypes of other AMD stages 	 <ul style="list-style-type: none"> • Loss of RPE causes sharply demarcated areas of increased signal penetration into the choroid • Associated outer retinal atrophy is seen as thinning or loss of the ONL, ELM and ISe zone, which may extend or taper beyond the margins of the GA lesions themselves 	 <ul style="list-style-type: none"> • Single or multiple areas of well-demarcated marked hypo-fluorescence • Foveal sparing is characterised by irregular hypo-fluorescence at the residual foveal island (such as in this example) or a symmetrical and gradual reduction in FAF approaching the fovea • The “diffuse trickling” pattern in this image is associated with a significantly higher rate of progression • FAF may enable better detection of discrete/small areas of GA compared to other modalities
Advanced AMD (Neovascular AMD)		
 <ul style="list-style-type: none"> • May be characterised by any of: RPE detachment(s), neurosensory retinal detachment, subretinal or sub-RPE neovascular membrane(s), epiretinal, intraretinal, subretinal or sub-pigment epithelial scar/gliar tissue or fibrin like deposits (excluding idiopathic epiretinal membrane), subretinal haemorrhages and/or hard exudates • Neovascular lesions may appear subtle, green-grey or pink-yellow often complicated by the secondary signs above 	 <ul style="list-style-type: none"> • PEDs present as broad elevations of the RPE band anterior to BM. • Fibrovascular PEDs show medium internal reflectivity • Serous PEDs are well demarcated, dome shaped and smooth with internal homogeneous hyporeflexivity • Haemorrhagic PEDs may also occur and are further described under polypoidal choroidal vasculopathy • Sub-RPE, subretinal or intra-retinal fluid may be present and indicative of AMD related choroidal neovascularisation (confirmed using FA) 	 <ul style="list-style-type: none"> • FAF changes corresponding with areas of choroidal neovascularisation may be characterised by its inherent features as follows: • Subretinal fluid corresponds with increased FAF in approximately 56.5% of cases • Haemorrhages, exudate and fibrovascular membranes are also likely to cause hypo-autofluorescence patterns • Can also present with normal or near normal FAF imaging results

Advanced AMD (Neovascular AMD)



- End-stage presentations of neovascular AMD are characterised by regression of the vascular component and an increase in the fibrous component, and may appear as a disciform scar



- Well-demarcated, highly hyper-reflective lesions associated with loss and dysplasia of the overlying retinal layers

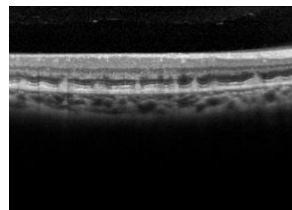
FAF not available

- Disciform scarring consistently demonstrates uneven hypo-autofluorescence of the lesion, surrounded by marked hyper-autofluorescence

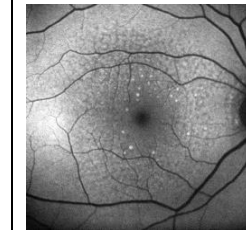
Reticular macular disease



- Indistinct, interlacing, yellow-white, round or oval lesions ranging from 125 - 250µm in diameter
- Most visible in red-free or blue light



- Reticular pseudodrusen may colocalise with subretinal drusenoid deposits which appear as conical deposits above the RPE

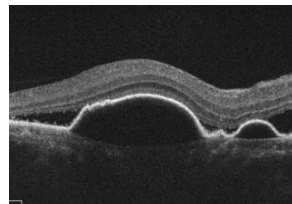


- Appear as low contrast hypo-fluorescent, circular, networked deposits
- Individual lesions may also have a "target-like" appearance (iso-fluorescent core and surrounding hypo-fluorescent halo)

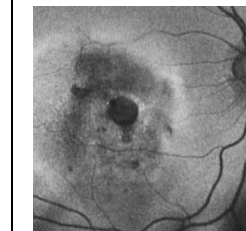
Polypoidal choroidal vasculopathy / Posterior uveal bleeding syndrome



- Multiple and recurrent serous and haemorrhagic RPE detachments
- Orange-red subretinal nodules
- Spontaneous, recurrent subretinal/vitreous haemorrhage
- Drusen are atypical
- Minimal fibrous scarring Typically presents as a serosanguineous maculopathy in middle-aged (50-65years) African or Asian women
- Often bilateral but asymmetric

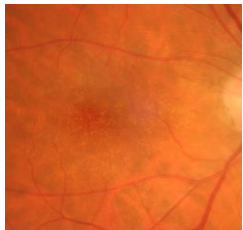


- Haemorrhagic pigment epithelial detachment (PED) appears as a hyper-reflective elevation of the RPE line with no reflectivity within or under the PED (the large, central PED pictured)
- In contrast, a reflective line representing BM /choriocapillaris can be observed beneath the fluid of a serous PED (smaller PED pictured).

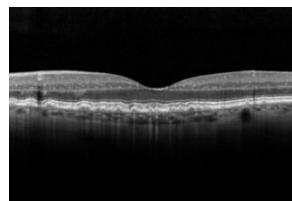


- Confluent hypo-fluorescence at the sites of polypoidal lesions and granular hypo-fluorescence at the branching choroidal vascular networks

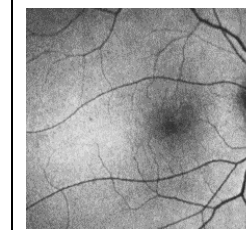
Cuticular drusen



- Numerous, densely packed, relatively uniform, small drusen, better seen using FA, described as a "starry-sky" pattern
- 50 to 75µm in diameter



- Blunted triangular appearance with a saw tooth pattern

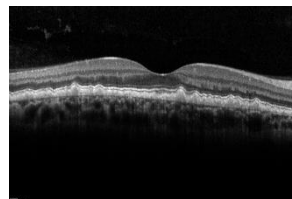


- May reveal numerous hypo-fluorescent "dots"

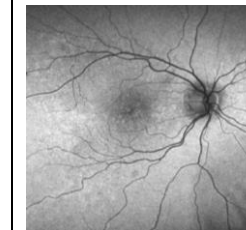
Familial dominant drusen / Doyme's honeycomb dystrophy / Malattia leventinese



- Numerous drusen that extend beyond the vascular arcades and often nasal to the optic disc
- Age of presentation is typically between 20-30 years (younger than of typical AMD)
- Bilateral and relatively symmetrical



- Drusen characteristics are similar to those seen in AMD
- Larger, round drusen are typified by confluence and more diffuse deposition between the RPE and BM



- Reveals marked hyper-fluorescence of large drusen
- Smaller radially distributed drusen appear more faint