# الاتجاهات الحديثة فى تصوير المشيمية وطبقة ظهارة الخلايا الصبغية الشبكية

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# Recent trends in choroidal & RPE imaging

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Marwa Sami Sharaf

# List of Abbreviations

| | |
|---|---|
| AMN | Acute macular neuroretinopathy |
| APMPPE | Acute posterior multifocal placoid pigment epitheliopathy |
| ARCA | Age related choroidal atrophy |
| ARMD | Age related macular degeneration |
| CHRPE | Congenital hypertrophy of retinal pigment epithelium |
| CNV | Choroidal neovasatarization |
| CSCR | Central Serous Chorioretinopathy |
| EDI-OCT | Enhanced depth imaging optical coherence tomography |
| FFA | Fundus Fluorescein Angiography |
| FAF | Fundus Autofluorescence |
| GA | Geographic atrophy |
| ICG | Indocyanine Green |
| ICGA | Indocyanine Green Angiography |
| IS/OS | Inner segment/outer segment |
| LF | Lipofuscin |
| NIA | Near Infrared Autofluorescence |
| OCT | Optical coherence tomography |
| PED | Pigment epithelial detachment |
| PPCT | Peripapillary choroidal thickness |
| RPE | Retinal pigment epithelium |
| SD-OCT | Spectral domain optical coherence tomography |

| | |
|---|---|
| ***SLD*** | ***Super-luminescent diode*** |
| ***SLO*** | ***Scanning Laser Ophthalmoloscope*** |
| ***SS-OCT*** | ***Swept source optical coherence tomography*** |
| ***TD-OCT*** | ***Time Domain Optical coherence tomography*** |
| ***US*** | ***Ultrasound*** |

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# *Introduction*

Due to the choroid's chief functions of supplying metabolic support to the RPE and outer retina and the prelaminar portion of the optic nerve, and because it contains melanocytes that absorb excess light and prevents damage to surrounding structures, it may play a role in the pathophysiology of many vision threatening retinal diseases such as Age-related macular degeneration (ARMD), central serous chorioretinopathy (CSC), choroidal detachments as well as RPE detachments and tumours (***Gupta et al., 2014).***

Fundus imaging has become an integral part of ophthalmology practice. The improvements in our ability to view and document the posterior pole of the eye has increased our knowledge of ocular anatomy, sharpened our detection of pathological processes, increased our understanding of disease progression, enhanced our analysis of treatment efficacy, and broadened our research initiatives (***Friberg et al., 1987).***

However, the normal pigmentation of the choroid and overlying RPE usually impedes full-thickness visualization of the choroid by ophthalmoscopy, fundus photography or the conventional OCT. So, the choroid and the retinal pigment epithelium are not easily accessed on

clinical examination, although they are involved in fundamental physiological functions, as well as affected by a number of pathological conditions (***Ferrara et al., 2010).***

Today, many techniques for choroidal and RPE imaging exist. For example, intravenous dyes (fluorescein and indocyanine green) can be used with optical filters to highlight the choroid circulation and to delineate pathological changes in these tissues ***(Holz and Spaide , 2010)*.**
In addition, optical coherence tomography uses principles of interferometry to create cross-sectional analysis of the choroid and RPE **(*Puliafito et al., 1995)*.**
Another modality, scanning lasers use a raster pattern to reproduce fundus anatomy ***(Holz and Spaide , 2010).***
Also, Fundus autfluorescence is a great technique for the ophthalmologists to visualize these remote tissues (***Grey et al., 2011).***
And finally, ultrasonography, can be used to detect choroidal lesions using sound waves at specific frequencies (***Byrne and Green, 2002).***
The diversity of these techniques provides the ophthalmologist with a large inventory tools that can be used individually or in combination to enhance the evaluation, diagnosis, and treatment of choroid and/or RPE pathology (***Hewick et al., 2004).***

# Aim of work

To review the recent trends in different imaging techniques used for choroid and RPE imaging with advantages of each, uses & its limitation.