Editorial



# Discriminators for optic neuropathy and maculopathy

## Editorial

Optic neuropathies and maculopathies are more common causes of visual loss. However, as optic neuropathies and maculopathies can share some common characteristics, the overlapping of the features of these pathologies occur sometimes and this can cause the difficulty in diagnosis and even the important challenges in the management of the underlying exact pathology. The early diagnosis of some neuro-ophthalmological emergencies such as arteritic anterior ischemic optic neuropathy (AION) and optic neuritis is critical. There are several discriminator aspects providing to distinguish between optic neuropathies and maculopathies.[1–9] The comparison of all aspects and discriminators of optic neuropathy and maculopathy was given in Table 1.To apply the highlights and discriminators given in table will facilitate to distinguish the optic nerve disease from macular diseases.

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**Table 1** The comparison of all aspects of optic neuropathy and maculopathy[1–9]

| Feature | Optic nerve disease | Macular disease |
|---|---|---|
| Onset | Variable (often acute, subacute) | Variable |
| Course | Variable (Progressive, transient, or stable) | Mostly slower progression |
| Visual experience | Shading, clouding, graying, darkening | Central blurring, glaring, photophobia, metamorphopsia |
| Ocular pain | Maybe occur in eye movements | No usual |
| Refractive change | No usual | Maybe develop hyperopic shift |
| VA loss | Variable reduction, even to NLP level | Significantly reduction but not to NLP |
| Pupils | RAPD in case of unilateral or asymmetrical ON disease | No RAPD, if severe unilateral retinal involvement is absent |
| CS and brightness | Significantly reduced | Mildly reduced |
| Color vision | Significantly reduced | Mildly reduced |
| VF defect | Variable (Central, centrocecal, altitudinal, blind spot enlargement) | Central scotoma |
| Amsler Grid | Variable scotoma | Central scotoma, metamorphopsia |
| Pulfrich phenomena | Novaluable | Central macular disease (hole, cyst) |
| PSR time | Normal (under 30 sn) | Prolonged recovery time (over 90sn) |
| VER | Abnormal (Large delayed latency and decreased amplitude) | Normal or mildly abnormal (small latency delay) |
| ERG | Normal | Full field ERG is often normal while multifocal ERG is usually abnormal |
| FFA | Late phase disc leakage in optic disc edema, peripapillary filling delay or ischemia in AION | Dependent on cause of maculopathy |
| FAF | Hyperautoflorescence (ON drusen, astrocytic hamartoma) | Variable depend on macular disease |
| SD-OCT | Increasing or decreasing in RNFL thickness (edema or atrophy)<br>Increasing in peripapillary RNFL thickness (myelinated nerve fiber or cotton wool spot)<br>Decreasing macular GCC (optic neuritis) | Vitreo-retinal interface abnormalities<br>Various intra- or sub-retinal/sub-RPE pathologies in macular region<br>Altering macular retina thickness<br>Altering macular choroid thickness<br>Decreasing macular GCC (antimalarial maculopathy) |

VA, visual acuity; NLP, no light perception; RAPD, relative afferent pupillary defect; CS, contrast sensitivity; VF, visual field; PSR, photo-stress recovery; ON, optic nerve; ERG, electroretinogram; FFA, fundus fluorescein angiography; FAF, fundus auto-fluorescence; AION, anterior ischemic optic neuropathy; SD-OCT, spectral domain-optical coherence tomography; RNFL, retinal nerve fiber layer; GCC, ganglion cell complex; VER, visual evoked response; RPE, retina pigment epithelium

 

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## Conflicts of interest

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