

# Age-Related Macular Degeneration (AMD) and Polypoidal Choroidal Vasculopathy (PCV) Quick Reference

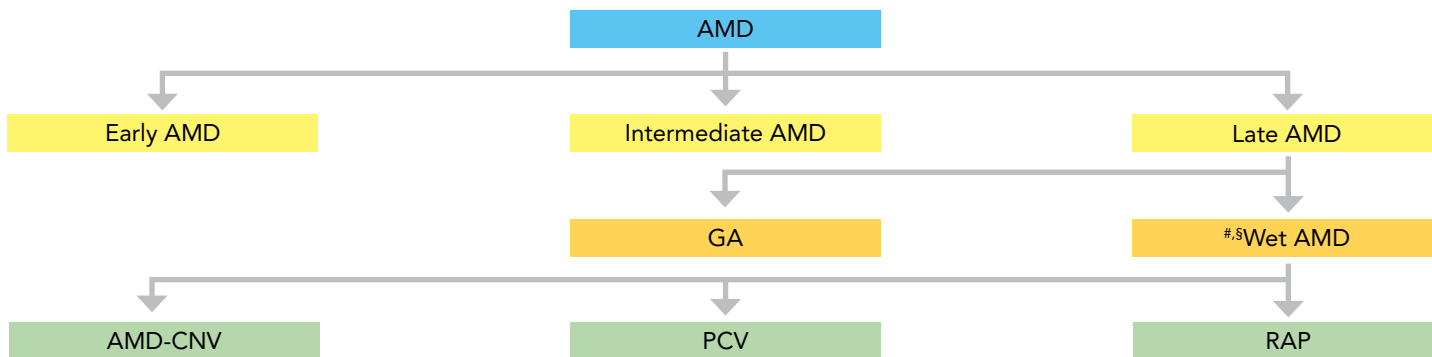
Guidelines

Developed by the AMD & PCV  
Steering Committee from:



MINISTRY OF HEALTH  
MALAYSIA

## AMD Classification<sup>1,2</sup>



| Classification   | AREDS Category | Clinical Features   |
|------------------|----------------|---|
| No AMD           | 1              | None or a few small drusen (<63 microns in diameter) <sup>5</sup>   |
| Early AMD        | 2              | Any or all of the following: multiple small drusen, few intermediate drusen (63 to 124 microns in diameter), or RPE abnormalities.  |
| Intermediate AMD | 3              | Any or all of the following: extensive intermediate drusen, and at least one large drusen (≥ 125 microns in diameter), or geographic atrophy not involving the center of the fovea. |
| Late AMD         | 4              | GA involving the fovea and/or any of the features of neo-vascular AMD.  |

**Notes:**

- # Wet AMD may progress to GA
- § Repeated injections can also lead to GA
- 5 Practical Tip : Retinal vessel exiting optic disc (estimated 125µm in size)

**Keys:**

- GA : Geographic Atrophy
- AMD : Age-related Macular Degeneration
- CNV : Choroidal Neo-Vascularization
- PCV : Polypoidal Choroidal Vasculopathy
- RAP : Retinal Angiomatous Proliferation

## Wet AMD Clinical Diagnosis<sup>2,3</sup>

### Wet AMD

#### AMD-CNV

- Serous detachment of the neurosensory retina
- RPE detachment
- Hemorrhages – sub-RPE, sub-retinal, intra-retinal or pre-retinal.
- Hard exudates (lipids) within the macular area related to any of the above, and not related to other retinal vascular diseases
- Epi-retinal, intra-retinal, sub-retinal or sub-pigment epithelial scar/glia tissue or fibrin-like deposits

#### PCV

- Sero-sanguineous maculopathy with one of the characteristic features :
  - Serous or sero-sanguineous or notched PED
  - Massive sub-macular hemorrhage
  - Breakthrough bleeding into the vitreous may also occur
  - Presence of sub-retinal orange nodule
  - CSCR-like features

#### RAP

- Single intra-retinal hemorrhage or flame shaped hemorrhage at perimacular area
- Extensive small drusen/pseudodrusen

**Keys:**

CSCR : Central Serous Chorio–Retinopathy

PED : Pigment Epithelial Detachment

RPE : Retinal Pigment Epithelial

AMD : Age-related Macular Degeneration

CNV : Choroidal Neo-Vascularization

PCV : Polypoidal Choroidal Vasculopathy

RAP : Retinal Angiomatous Proliferation

## Wet AMD OCT Diagnosis<sup>2</sup>

### Wet AMD

#### AMD-CNV

- Increase in retinal thickness
- Intra and/or sub-retinal fluid
- Small PEDs
- Suspicion of CNV
- Area of hyper-reflectivity either sub-RPE or sub-retinal
- With normal or thinner choroidal thickness (on Enhanced Depth Imaging)

#### PCV

- Large notched PED
- RPE protrusion with moderate inner reflectivity
- Sub-retinal fluid
- Moderate hyper-reflectivity beneath PED with double hump features
- Polypoidal structure attached to back surface of detached RPE
- With normal or increased choroidal thickness (on Enhanced Depth Imaging)

#### RAP

- PED with intra-retinal cystoid expansion
- Intra-retinal fluid with hyper-reflectivity of inner retinal layers
- Increased hyper-reflectivity of inner retinal layer where anastomosis is occurring

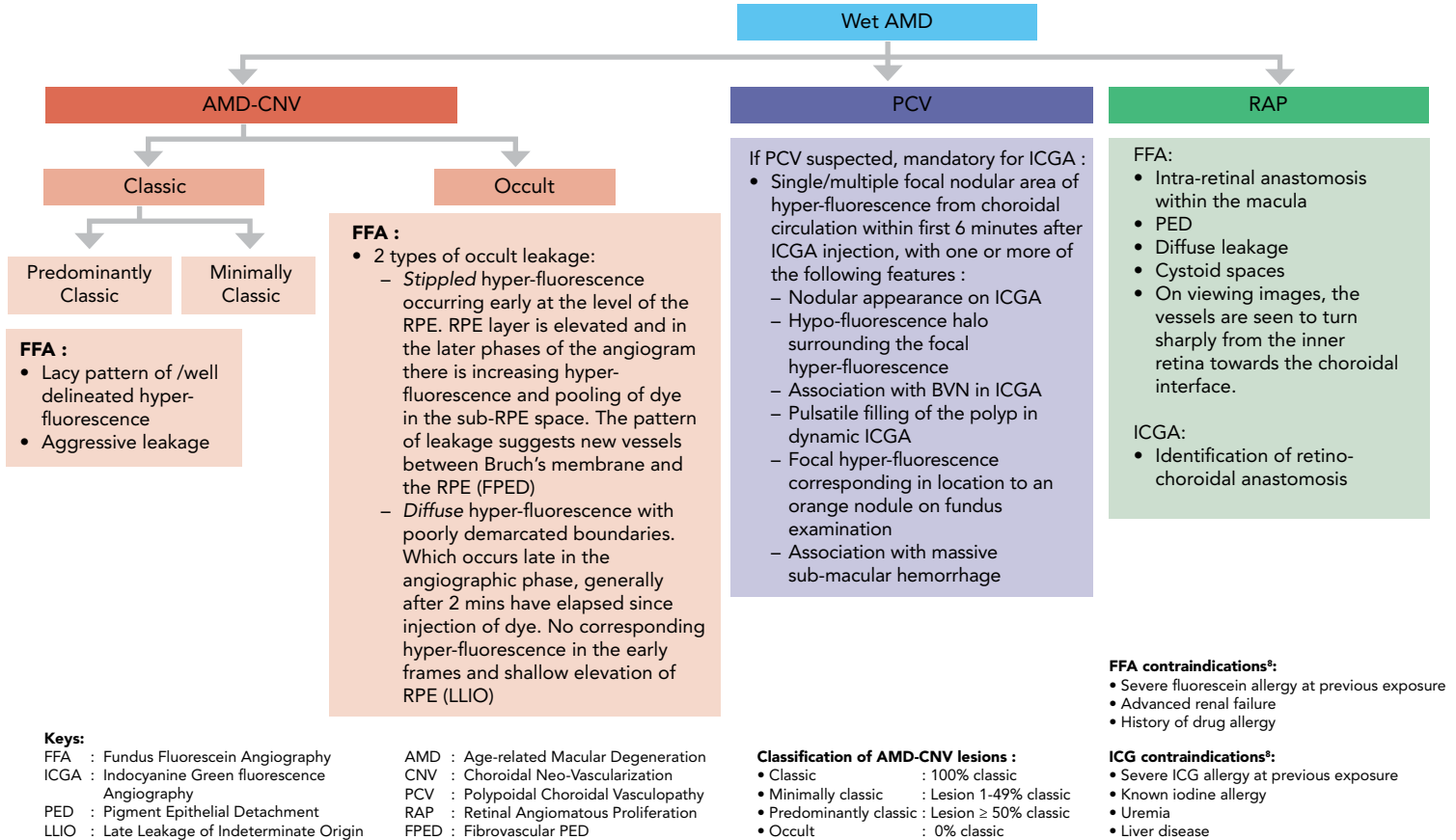
#### Keys:

PED : Pigment Epithelial Detachment  
RPE : Retinal Pigment Epithelial  
RAP : Retinal Angiomatous Proliferation

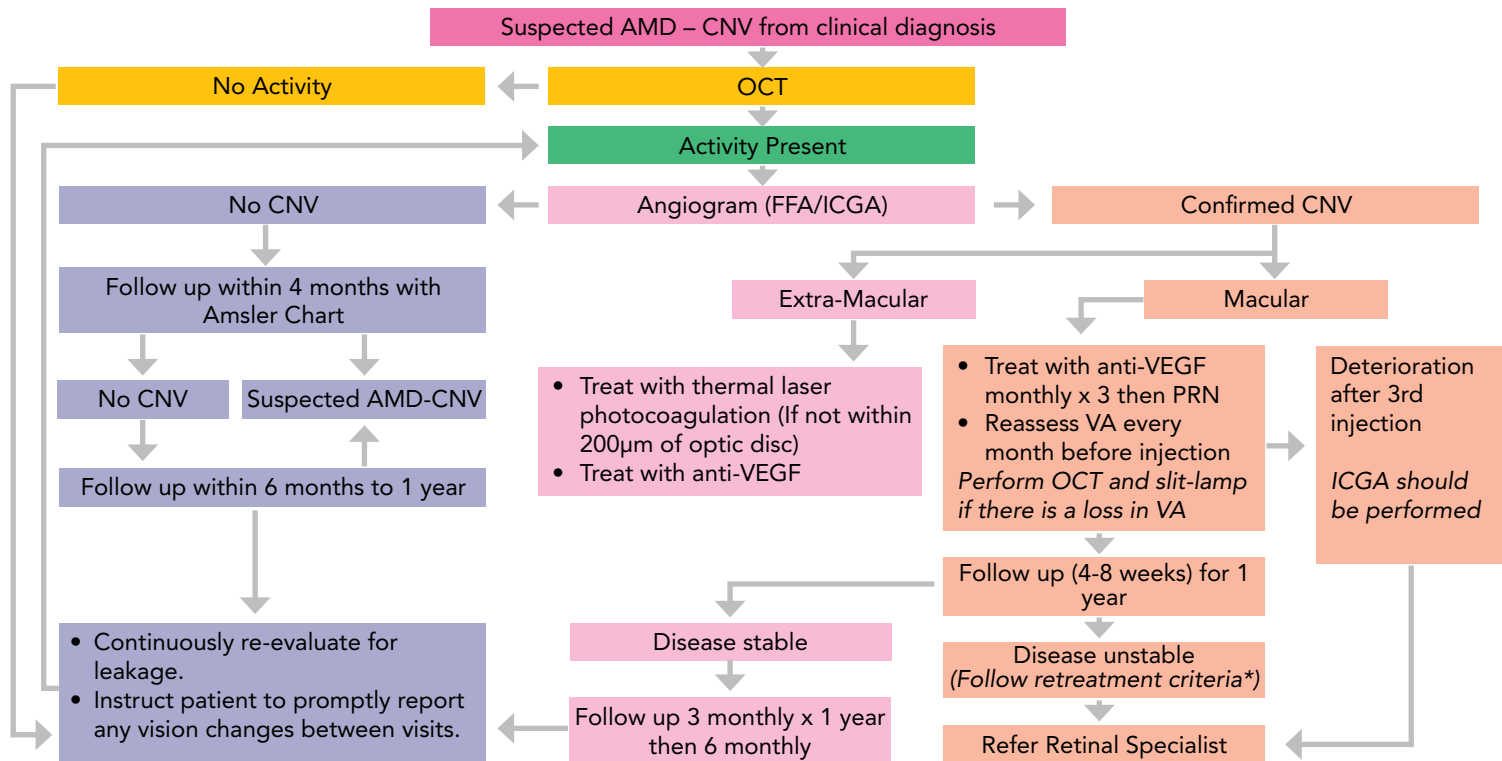
AMD : Age-related Macular Degeneration  
CNV : Choroidal Neo-Vascularization  
PCV : Polypoidal Choroidal Vasculopathy  
OCT : Optical Coherence Tomography

## Wet AMD Angiographic Diagnosis<sup>2,3</sup>

Highly recommended to perform both FFA and ICGA, at least for the initial diagnosis if there are no other contraindications.<sup>8</sup>



## AMD – CNV Treatment Algorithm<sup>2,3</sup>



**\* Retreatment Criteria:**

- Any loss of vision with OCT evidence of fluid in the macula
- Increase in OCT sub retinal fluid or intra retinal fluid on OCT
- New macular hemorrhage
- Persistent fluid on OCT
- Residual or new CNV activity

**How to apply anti-VEGF therapy<sup>2</sup>:**

- Ranibizumab is indicated and in the MOH formulary
- Aflibercept is awaiting approval into the MOH formulary
- Bevacizumab is off label
- Consider switching between anti-VEGF therapy if no favourable response is noted after at least 6 injections

**Definition of Extra-**

- Macular:**
- Outside arcade

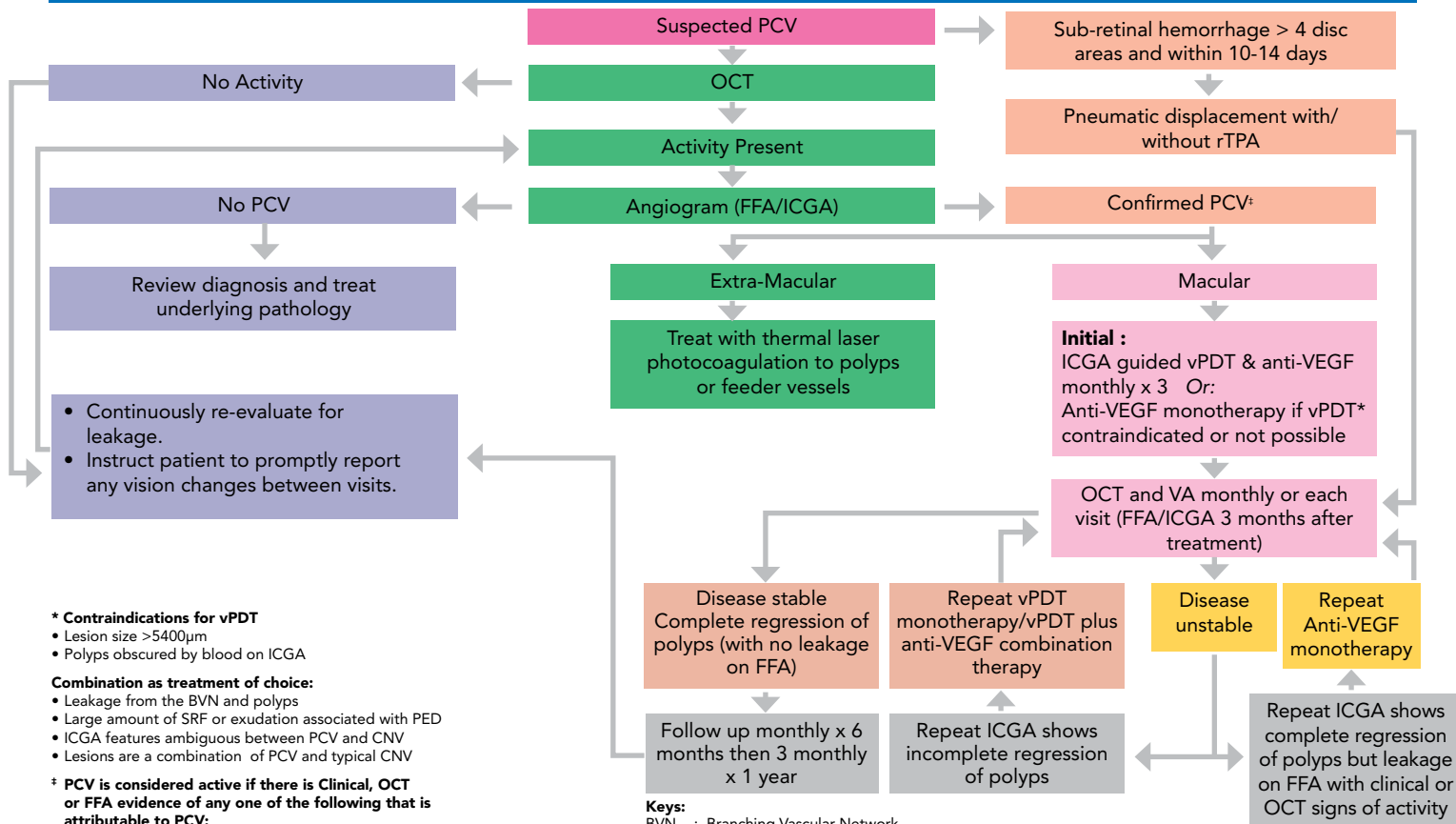
**Definition of Macular:**

- Within the arcade

**Keys:**

- AMD : Age-related Macular Degeneration
- CNV : Choroidal Neo-Vascularization
- PCV : Polypoidal Choroidal Vasculopathy
- RAP : Retinal Angiomatous Proliferation
- FFA : Fundus Fluorescein Angiography
- ICGA : Indocyanine Green fluorescence Angiography
- OCT : Optical Coherence Tomography
- VEGF : Vascular Endothelial Growth Factor

## PCV Treatment Algorithm<sup>3,5,6,7</sup>



**\* Contraindications for vPDT**

- Lesion size >5400µm
- Polyps obscured by blood on ICGA

**Combination as treatment of choice:**

- Leakage from the BVN and polyps
- Large amount of SRF or exudation associated with PED
- ICGA features ambiguous between PCV and CNV
- Lesions are a combination of PCV and typical CNV

**\* PCV is considered active if there is Clinical, OCT or FFA evidence of any one of the following that is attributable to PCV:**

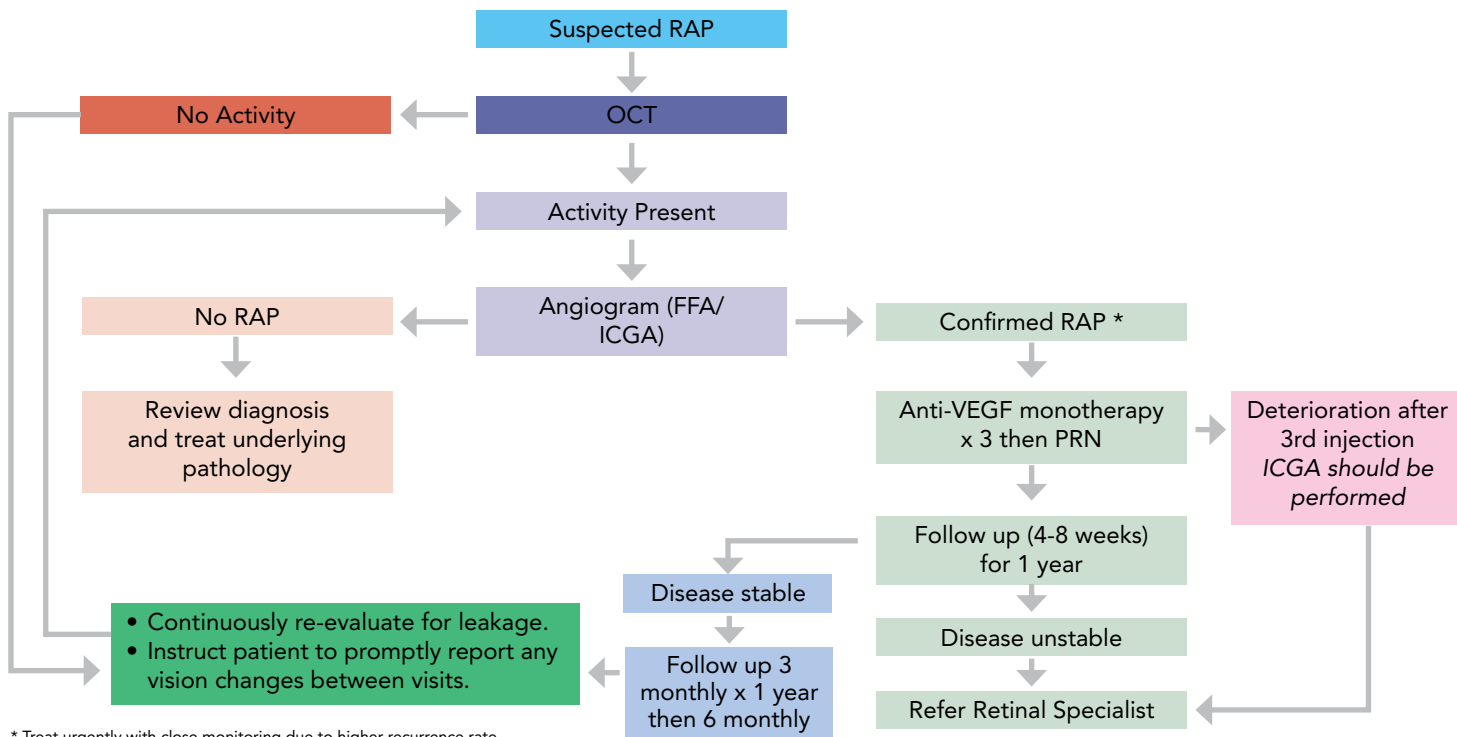
- Drop in VA (≥5 letter ETDRS)
- SRF with or without intra-retinal fluid
- PED
- Sub-retinal hemorrhage
- FFA evidence of leakage

**Keys:**

BVN : Branching Vascular Network  
 SRF : Sub- Retinal Fluid  
 PCV : Polypoidal Choroidal Vasculopathy  
 OCT : Optical Coherence Tomography  
 FFA : Fundus Fluorescein Angiography  
 ICGA : Indocyanine Green fluorescence Angiography

VEGF : Vascular Endothelial Growth Factor  
 VPDT : Verteporfin Photodynamic Therapy  
 rTPA : Recombinant tissue plasminogen activator  
 PED : Pigment Epithelial Detachment

## RAP Treatment Algorithm<sup>1,5</sup>



\* Treat urgently with close monitoring due to higher recurrence rate

**Keys:**

RAP : Retinal Angiomatous Proliferation  
OCT : Optical Coherence Tomography  
FFA : Fundus Fluorescein Angiography

ICGA : Indocyanine Green fluorescence Angiography  
VEGF : Vascular Endothelial Growth Factor



## Other MOH Guideline Updates

1. Criteria in which treatment is not recommended in view of minimal visual benefits:
    - a. Large disciform scar with sub-retinal fibrosis and no evidence of disease activity surrounding or adjacent to it.
  2. General cautions for anti-VEGF therapy:
    - a. Permanent structural damage in the fovea.
    - b. Evidence or suspicion of hypersensitivity to anti-VEGF agent. Such evidence should lead to avoidance of therapy, and alternate treatments sought.
    - c. Thrombo-embolic phenomena, including MI or CVA in the preceding 3 months, or recurrent thrombo-embolic phenomena.
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## References:

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3. Koh, Adrian HC, et al. Polypoidal choroidal vasculopathy: evidence-based guidelines for clinical diagnosis and treatment. *Retina* 33.4 (2013): 686-716.
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5. Takahashi K, et al. Treatment guidelines for age-related macular degeneration. *J Jpn Ophthalmol Soc* 2012; 116:1150-1155.
6. Koh, Adrian, et al. EVEREST study: efficacy and safety of verteporfin photodynamic therapy in combination with ranibizumab or alone versus ranibizumab monotherapy in patients with symptomatic macular polypoidal choroidal vasculopathy. *Retina* 32.8 (2012): 1453-1464.
7. Lai, Timothy YY, and Wai-Man Chan. An update in laser and pharmaceutical treatment for polypoidal choroidal vasculopathy. *The Asia-Pacific Journal of Ophthalmology* 1.2 (2012): 97-104.
8. Nema, HV et al. *Diagnostic Procedures in Ophthalmology* (2014): 152-178.

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