Malaysian Family Physician 2012; Volume 7, Number 1
ISSN: 1985-207X (print), 1985-2274 (electronic)

Online version: http://www.e-mfp.org/

Test Your Knowledge

AN ELDERLY LADY WITH BLURRING OF VISION

Y Azhany,[1] **D Nani**,[2] **E Zunaina**[1]
[1]Department of Ophthalmology, School of Medical Sciences, Universiti Sains Malaysia, Kelantan. (Azhany Yaakub, Zunaina Embong)
[2]Department of Family Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kelantan. (Nani Draman)

Address for correspondence: Dr Azhany Yaakub, Department of Ophthalmology, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia. Tel: 609-7676 362/352, Fax: 609-7653 370, Email: azhany@kb.usm.my

Azhany Y, Nani D, Zunaina E. An elderly lady with blurring of vision. Malaysian Family Physician. 2012;7(1):43-44

CASE DESCRIPTION

A 64-year-old Malay lady presented to outpatient clinic with complaint of progressive painless blurring of vision in both eyes for two years duration. The eye condition currently is not improving with new glasses. There was presence of metamorphopsia (distorted image), but no history of floaters. She is a known case of hypertension and hyperlipidaemia with good compliance to treatment. Her blood pressure (BP) was 140/80 mmHg at presentation and her random blood sugar (RBS) was 7.0 mmol/l.

On examination, her visual acuity was 6/60 in the right eye and 6/45 in the left eye. The conjunctiva and cornea were normal with presence of red reflex in both eyes. Funduscopy examination for both eyes showed similar findings (Figure 1).

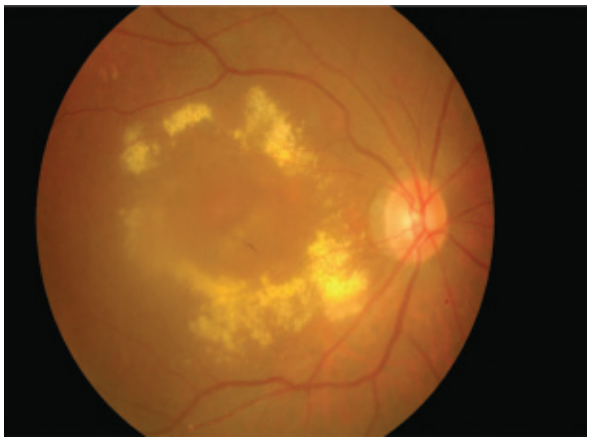

Figure 1

QUESTION:

1. Describe the abnormalities of the fundus in Figure 1.
2. What further eye examination should be performed in this patient?
3. What is the most likely diagnosis?
4. List the features to differentiate it from other diagnosis.
5. List the risk factors that predispose to the disease mentioned in Question 3.
6. Outline the management for this patient.

ANSWER:

1. At the macular area, there is presence of subretinal exudates (yellowish lesion) in a complete circle separated by a clear zone (circinate pattern) with loss of normal fovea reflex. There is no obvious intra or subretinal haemorrhage noted at the macula.
   Peripheral retina shows normal retinal vessels with no exudates and no retinal haemorrhage.
   The optic disc is pink in colour with well defined margin. The vertical cup-disc ratio is 0.3.

2. Amsler Chart
   Amsler chart is a grid of horizontal and vertical lines used to monitor a patient's central visual field. It is an assessment tool that aids in the detection of visual disturbances or visual distortion caused by changes in the retina, particularly the macula, such as age-related macular degeneration (AMD). However, the sensitivity of Amsler charts in detecting macular disease can be less than 50%.[1]

3. Exudative (wet) age-related macular degeneration (AMD).

4. Conditions mimicking exudative AMD:
   A number of exudative macular lesions which have to be distinguished from exudative AMD include diabetic maculopathy and hypertensive retinopathy. Table below shows the differentiation features.[2-4]

5. Risk factors for AMD include advancing age, family history of AMD, cardiovascular risk factors such as hypertension and cigarette smoking.[5,6]

6. Patient needs referral to ophthalmologist for further evaluation, classification and staging of the disease.

   In ophthalmology clinic, patient will undergo Fundus Fluorescein Angiography (FFA) and Optical Coherence Tomography (OCT).

   FFA is a sequence of images captured of the fundus over a ten minutes period after injection of the non-toxic dye fluorescein into a vein in the arm. Currently, FFA is the gold standard for diagnosing choroidal neovascularization in AMD.

	Diabetic maculopathy	Hypertensive retinopathy	AMD
History	DM +	HPT +	DM/HPT +/–
Physical examination	Diabetic related complications	Uncontrolled blood pressure	Normal
Fundus findings	Presence of retinal exudates with other features of diabetic retinopathy such as dot/blot intra-retinal haemorrhages, pre-retinal haemorrhages, cotton wool spots or abnormal new vessels formation. These features involve macular area and other part of retina as well. The hard exudates usually accumulate in the outer plexiform layer of the retina. Outer plexiform layer is one of the deep retina layers.	Presence of retinal exudates with other features of hypertensive retinopathy such as generalised arteriolar attenuation, generalised sclerosis (copper/silver wiring), arterio-venous nipping (Guns sign), flame-shape intra-retinal haemorrhages, and cotton wool spots. The hard exudates usually accumulate in the posterior pole (macular area) may produce a macular star due to lipids accumulate in the nerve fibre layer of Henle surrounding the macula. Henle layer is superficial layer of retina. Blurred optic disc margin is the hallmark of accelerated blood pressure.	Fundus features is confined to the macular area. Subretinal exudates are located in deeper layer below the retina level. The clue is by observing the vessels crossing above the exudates. Deposition of subretinal exudates is a common feature of choroidal neovascularization. Exudative type of AMD may complicate with subretinal haemorrhage and the subretinal haemorrhage is usually located at the fovea area.
RBS	High blood sugar level	Normal	Normal

OCT relies on the analysis of wave patterns of reflected laser light to produce an image. The multilayered structure of the retina is clearly visible. Thickening of the retina and the presence of intra-retinal or subretinal fluid are easily detected. Choroidal neovascularization are also easily visualised as these are seen as areas of high reflectivity. OCT may be used for screening the macula prior to performing more invasive imaging such as FFA.

AMD is classified into Non-exudative AMD (Dry AMD) and Exudative AMD (Wet AMD). The treatment options for AMD are according to the disease status.[4,7,8]

i. Conservative management by Amsler Chart Monitoring in Non-exudative or Dry AMD.

ii. Intra-vitreal anti-vascular endothelial growth factor for Exudative or Wet AMD
Vascular endothelial growth factor (VEGF) is a chemical that causes abnormal blood vessels to grow under the retina (choroidal neovascularization). Anti-VEGF reduces the growth of abnormal blood vessels, slows their leakage, helps to slow vision loss, and in some cases improves vision. The drug is injected into the vitreous.

iii. Photodynamic therapy (PDT) is used in selective cases. PDT uses a combination of a light-activated drug called a photosensitizer and a special low-power laser. The photosensitive drug is injected into a vein in the arm, where it travels through the body, including the abnormal vessels behind the retina at the macula. The low-power laser light is targeted directly on the abnormal vessels, activating the drug, which causes damage specifically to those unwanted blood vessels.

iv. Prophylactic treatment to prevent further progression of AMD, by using high dose multivitamins and antioxidants in intermediate and advanced risk AMD according to the Age Related Eye Disease Study (AREDS). The compounds used in the AREDS study are vitamin C, vitamin E, beta carotene, zinc and copper. These supplements MAY be helpful in progression of disease in high risk cases.

REFERENCES

1. Crossland M, Rubin G. The Amsler chart: absence of evidence is not evidence of absence. *Br J Ophthalmol*. 2007;91(3): 391-3.
2. Kanski JJ. Clinical ophthalmology; Diabetic maculopathy. 6th ed. Butterworth Heinemann Elsevier; 2007. p. 573-4.
3. Kanski JJ. Clinical ophthalmology; Hypertensive retinopathy. 6th ed. Butterworth Heinemann Elsevier; 2007. p. 599-601.
4. Kanski JJ. Clinical ophthalmology; Age related macular degeneration. 6th ed. Butterworth Heinemann Elsevier; 2007. p. 629-34.
5. Quillen DA. Common causes of vision loss in elderly patients. *Am Fam Physician.* 1999;60(1):99-108.
6. Chakravarthy U, Wong TY, Fletcher A, *et al.* Clinical risk factors for age-related macular degeneration: a systematic review and meta-analysis. *BMC Ophthalmol.* 2010;10:31.
7. Krishnadev N, Meleth AD, Chew EY. Nutritional supplements for age-related macular degeneration. *Curr Opin Ophthalmol.* 2010;21(3):184-9.
8. Bird AC. Therapeutic targets in age-related macular disease. *J Clin Invest*. 2010;120(9):3033-41.