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CASE REPORT

Non-diabetic retinopathy: a case report

Hassan F. Alkwikbi[1]*, Nabil Mamon Abdelfattah[2],
Haithem Mamon Abdelfattah[2]

ABSTRACT

Background: Non-Diabetic Retinopathy is a serious feature that may increase cardiovascular or cerebrovascular risk. Etiology may be ocular or systemic.

Case Presentation: We present a twenty-eight year old male patient with blurring vision that is neither diabetic, hypertensive, ocular disease nor systemic disease. Proper management (history, examination, investigations and follow-up) can prevent ocular morbidity or life mortality.

Results: Ocular conditions are associated with retinopathy in non-diabetic patients. However, in diabetic patients, non-diabetic retinal pathologies prevail leading to retinopathy.

Conclusion: Ophthalmologists should be aware of the conditions associated with retinopathy in non-diabetic patients (ocular and systemic conditions) and should appropriately investigate, refer and manage these patients.

Keywords: Non-diabetic retinopathy, fundus fluorescein angiography, blurring vision, case report

Introduction

Retinopathy is a serious ophthalmic condition. It is the main cause of poor vision in some cases. Ocular conditions associated with retinopathy in non-diabetic patients include retinal vein occlusions, retinal telangiectasia, and retinal macroaneurysms. Systemic conditions associated with retinopathy in non-diabetic patients include systemic hypertension, carotid atherosclerotic diseases, blood dyscrasias, systemic infections and past radiotherapy to the head. Proteasome modulator 9 is a gene linked to retinopathy in diabetic and non-diabetic people [1].

Routine ophthalmic fundus examination can discover signs of retinopathy as microaneurysms, retinal haemorrhages (dot, blot, and flame shaped), hard exudates, cotton wool spots, retinal venular abnormalities (venous beading and tortuosity), intraretinal microvascular abnormalities, and new vessels.

In some individuals over the age of 40 without diabetes mellitus exhibit–usually very mild–retinopathic features such as microaneurysms, dot and blot haemorrhages and cotton wool spots would be consistent with a diagnosis of diabetic retinopathy. The signs commonly disappear spontaneously, and this is more likely in those with lower levels of cardiovascular risk.

Assuming that an alternative ocular cause such as RVO or idiopathic macular telangiectasia has been excluded, this 'non-diabetic' retinopathy tends to be associated with increased cerebrovascular and cardiovascular risk, and may be particularly prevalent in patients with known or incipient hypertension. There is evidence suggesting that it may be a marker of pre-clinical diabetes in some patients. Appropriate management is the proper management (history, examination).

Case Presentation

We present a case of a twenty-eight year old male patient with blurred vision. He underwent a routine ophthalmic examination. The patient gave irrelevant history of diseases (DM, hypertension, systemic disorders, cardiovascular diseases, blood dyscrasias, systemic infections & past radiotherapy to the head).

Best corrected VA was 20/28 OU, IOP was 14 OU & normal anterior segment examination. Fundus examination showed microaneurysms, retinal haemorrhages (dot, blot, and flame shaped), hard exudates, cotton wool

Correspondence to: Hassan F. Alkwikbi
*Eye hospital, Prince Muhammed Medical City, Aljouf, Sakaka City, Saudi Arabia.
Email: hsn_dr@hotmail.com
Full list of author information is available at the end of the article.
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spots, retinal venular abnormalities (venous beading and tortuosity), intraretinal microvascular abnormalities and new vessels.

Investigation of retinopathy was conducted to exclude the following: diabetes mellitus, hypertension, history of cardiovascular disease (stroke, ischaemic heart disease, peripheral vascular disease), history of thrombosis, Anaemia; e.g., sickle cell disease, drug history; e.g., aplastic anaemia, connective tissue disease; e.g., systemic lupus erythematosis, radiotherapy; e.g., central nervous system or nasopharyngeal tumours, thyroid eye disease, malignancy; e.g., leukaemia, AIDS: Acquired Immune Deficiency Syndrome.

Physical examination included the following: general health (pallor, cachexia, lymphadenopathy), blood pressure assessment, Cardiovascular assessment, neurological assessment.

Investigations showed the following: full blood count, erythrocyte sedimentation rate, fasting glucose concentrations and oral glucose tolerance test, Lipids (total cholesterol, high density lipoprotein cholesterol, low density lipoprotein cholesterol, triglycerides), infectious disease investigations; e.g., chest x ray, syphilis and HIV serology, neurological investigations; e.g., carotid ultrasound, Connective tissue investigations (C reactive protein, antinuclear antibodies, anti-dsDNA), haematological investigations (activated protein C resistance, protein C activity, protein S activity, antithrombin III activity, antiphospholipid antibodies, and anticardiolipin antibodies), and further special diagnostic investigations as indicated in preliminary results.

Fundus Fluorescein Angiography and Fundus photography were done.

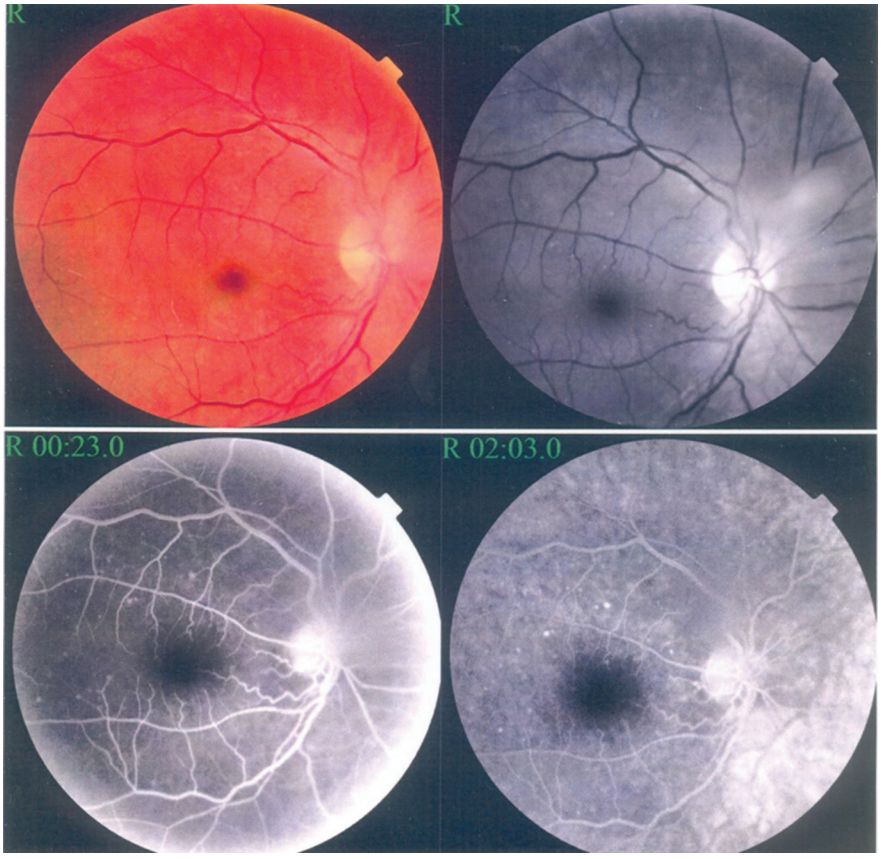

Figure 1. *FFA of Rt. Eye with areas of hyperflurence and microaneurysms*

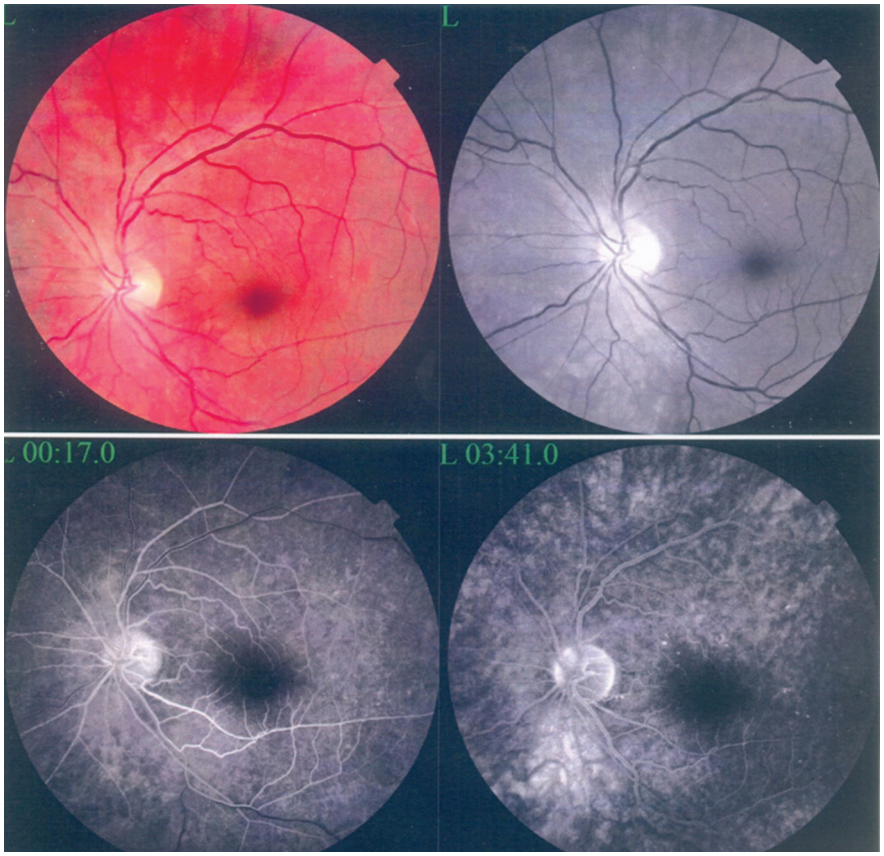

Figure 2. *FFA of Lt. Eye with areas of hyperflurence and microaneurysms less than Rt. Eye.*

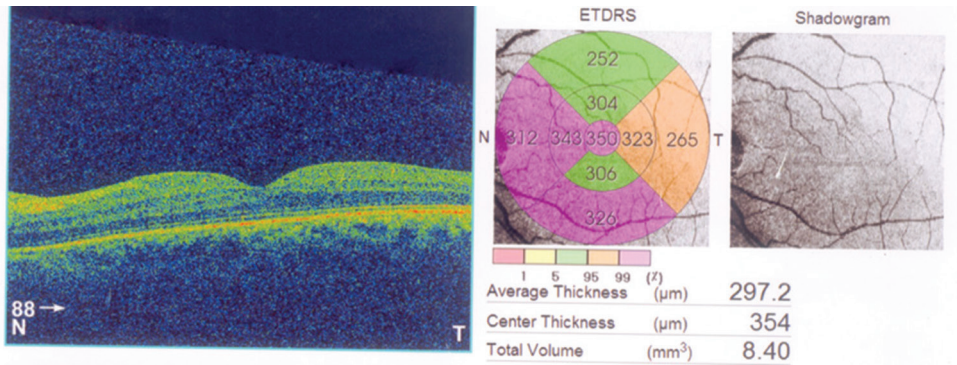

Figure 3. *OCT of Lt. Eye with macular oedema mainly in foveal and parafoveal areas.*

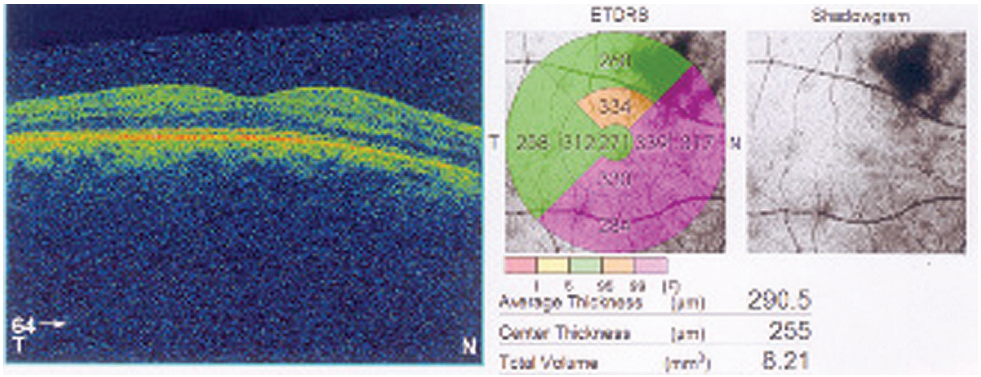

Figure 4. *OCT of Rt. Eye with macular oedema mainly in parafoveal areas.*

Discussion

Non-diabetic retinopathy has been defined in different studies to include microaneurysms, retinal haemorrhages (dot, blot, and flame shaped), hard exudates, cotton wool spots, retinal venular abnormalities (venous beading and tortuosity), intraretinal microvascular abnormalities, and new vessels [2, 3]. Even in diabetic patients, non-diabetic retinal pathologies prevail leading to retinopathy [4]. Up to 10% of individuals over the age of 40 without diabetes mellitus exhibit–usually very mild–have retinopathy features [5].

Ischaemic central retinal vein occlusion is associated with an increased risk of new vessel formation in the iris and subsequent secondary neovascular glaucoma, which can develop up to 24 months after initial presentation. Branch retinal vein occlusion can also lead to a new vessel formation in the retina or optic disc [6]. Central retinal vein occlusion is defined to be present if there is retinal edema, optic disc hyperemia or edema, scattered superficial and deep retinal hemorrhages, and venous dilation [7]. Retinal macroaneurysms may resolve spontaneously by thrombosis, or may be associated with recurrent leakage with retinal and vitreous haemorrhage. Laser photocoagulation can be suggested [8]. Early treatment of Coats' disease can reduce the extent of visual loss [9].

In a number of studies, retinopathy is encountered in non-diabetic people with high systolic blood pressure [10]. Retinopathy is a prognostic marker in patients with hypertension. It has consistently been reported to occur more often in people with uncontrolled or undetected and untreated hypertension than in normotensive people and in those with adequately treated hypertension [3,11,12].

Cerebrovascular disease and association of retinopathy is independently reported [12]. However, hypertension, dyslipidemia and obesity have been associated with retinopathy in non-diabetic individuals [13]. Retinopathy has been linked with lower glomerular filtration rates and microalbuminuria, and it occurs in parallel with left ventricular hypertrophy early in the course of blood pressure elevation [8].

Conclusion

Retinopathy in a patient with systemic lupus erythematosis is a known marker for the active phase of the disease [14]. Retinopathy in an AIDS patient is associated with increased systemic severity of the disease [15].

There is evidence suggesting that it may be a marker of pre-clinical diabetes in some patients. Appropriate management is undefined, though evaluation and optimal management of systemic vascular risk factors may be prudent [5].

Ophthalmologists should be aware of the conditions associated with retinopathy in non-diabetic patients (ocular and systemic conditions) and should appropriately investigate, refer and manage these patients [16].

List of Abbreviation

DR	Diabetic Retinopathy
DM	diabetes mellitus
FFA	Fundus Fluorescein Angiography
VA	Visual Acuity
OU	both eyes
IOP	intraocular pressure
AIDS	Acquired immune deficiency syndrome

Conflict of Interest
None

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Consent for publication
Informed consent was taken from the patient to publish this case report in a medical journal.

Ethical consideration
The permission from the ethical committee o f the institute was taken.

Author details

Hassan F. Alkwikbi[1], Nabil Mamon Abdelfattah[2], Haithem Mamon Abdelfattah[2]

1. Eye hospital, Prince Muhammed medical City, Aljouf, Sakaka City, Saudi Arabia

2. Banha teaching hospital, teaching hospitals and institutes organization, Egypt

Authors' contributions

HMA and NMA wrote the case report and carried out the investigations. HFA and HMA reviewed the manuscript. All authors approved the final draft.

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