

Recurrent transient visual loss in a middle aged woman

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Chow SY, Draman N, Teh WM, et al. Recurrent transient visual loss in a middle aged woman. *Malays Fam Physician*. 2017;12(3):42–46.

Keywords:

Visual loss, bilateral optic disc swelling, primary care, differential diagnosis

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Abstract

Visual loss is a common presenting complaint in primary care. We present a case of recurrent transient visual loss in a middle aged woman. Her funduscopy showed bilateral optic disc swelling. We have highlighted the differentiation of bilateral optic disc swelling at the primary care level as the management differs according to the diagnosis.

Case History

A 43 year-old Chinese female presented with bilateral painless transient blurring of vision for the past 3 months. She described the visual disturbance as ‘the room suddenly became dark’ when she tried focusing on a specific object. Her transient blurring of vision lasted for 3 to 4 seconds before she regained her vision. These transient visual losses had been increasing in frequency over the past 1 month. The visual loss was not related to any particular time or posture. The visual loss did not worsen with any activities such as exercise or hot showers. There were no floaters, flashes, eye discharge, or diplopia. She had no headache, vomiting, fever, aura, tinnitus, limb weakness or numbness, vertigo, dysarthria, hearing loss, or constitutional symptoms. She did not seek medical attention or self-medicate because the visual loss lasted only a few seconds. These transient visual losses were mainly of the right eye.

She has hypertension which is well controlled on tablet Amlodipine 5mg OD under a

primary care clinic follow up. There was no history of diabetes, hyperlipidemia, cardiovascular disease or transient ischemic attack. She is not on any oral contraceptive pills or traditional supplements. She is married, working as a sales representative at a food company.

On examination, her visual acuity was 6/24 (right) and 6/12 (left). Pinhole examination bilaterally showed a visual acuity of 6/9. Her pupils were reactive bilaterally (3mm). Her conjunctiva, sclera and cornea were normal. No relative afferent pupillary defect (RAPD) was noted. Confrontational visual field assessment was grossly normal. Fundus camera for both eyes showed similar findings (**Figure 1**). Neurological examination was unremarkable, with all cranial nerves (mainly CN II, III, IV and VI) and peripheral nerves grossly intact. Her blood pressure was 140/70mmHg and her pulse rate was 86 and in regular rhythm. She was afebrile. All the other systems (respiratory, abdomen and cardiovascular) were unremarkable.

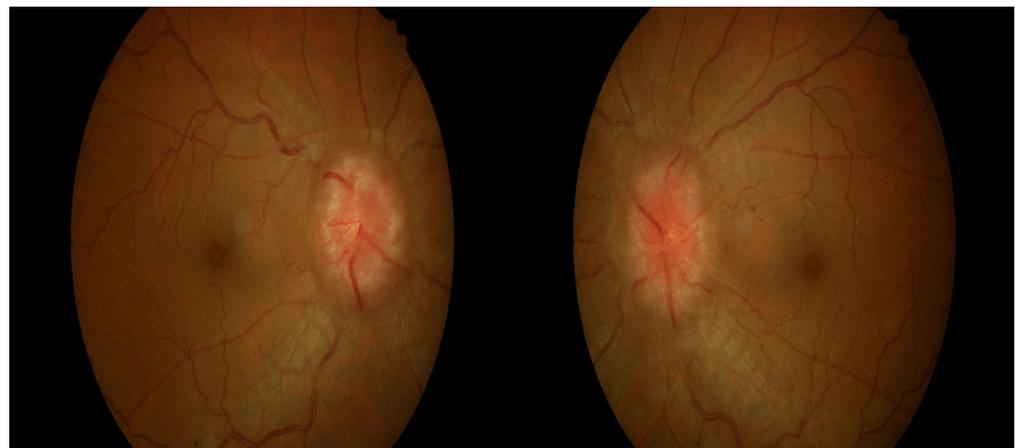


Figure 1: Funduscopy of her right and left eye

Questions

1. Describe the abnormality of the fundus in Figure 1.
2. What is the most likely diagnosis based on the fundus finding?
3. List the features to differentiate it from other diagnosis.
4. What is the diagnostic investigation to confirm the diagnosis?
5. Outline the management for this patient.

Answers

1. Bilateral optic disc swelling evidenced by hyperemic, elevated disc, cup obliterated and blurred optic disc margins. However, no peripapillary haemorrhages, or cotton wool spots noted. The macula and retina vessels appeared normal.
2. The diagnosis is papilloedema secondary to a space-occupying lesion. Papilloedema refers to optic disc swelling due to raised intracranial pressure. From the history and physical findings, the most likely diagnosis is a space-occupying lesion because the patient presented with painless visual loss which was brief (few seconds), and her hypertension was fairly well controlled. Transient visual loss represents transient fluctuations in nerve head perfusion, correlating to the degree of intracranial pressure elevation.
3. There are many other differential diagnosis of bilateral optic disc swelling in this age group besides papilloedema. These are atypical optic neuritis, hypertensive retinopathy grade 4, ischaemic optic neuropathy and venous occlusion such as central retinal occlusion and cavernous sinus thrombosis.¹ **Table 1** shows the features that help differentiate the common causes of bilateral optic disc swelling.¹⁻⁵
4. Neuroimaging of the brain can help to differentiate the causes of bilateral optic disc swelling. CT scan or MRI of the brain should be ordered to rule out intracranial mass lesions. If neuroimaging is normal, one should consider another diagnosis, which is idiopathic intracranial hypertension. In this case, lumbar puncture should be done to assess the opening pressure.
5. 1. To establish the diagnosis of space-occupying lesion.
2. For further management by the neurosurgical team.

Case progression:

She was admitted to the ward and underwent an urgent CT scan followed by MRI of the brain. Her CT scan and MRI revealed a large extra-axial lesion arising from right greater sphenoid wing, measuring 7 x 5.5 x 4 cm with perilesional vasogenic oedema and significant midline shift to left. Her lesion was homogeneously enhanced with dural tail and sphenoidal hyperostosis. She was then referred to neurosurgical team for further management.

Discussion

Monocular or binocular transient recurrent visual loss can be due to a variety of disorders that can be benign or having detrimental neurologic or ophthalmologic implications if not managed early. This case highlights the importance of getting a proper history and physical examination to identify the possible differential diagnosis of recurrent painless transient visual loss. Pertinent history such as whether the visual loss was monocular or binocular, duration of the symptoms, associated symptoms, precipitating factors and past medical history are vital to clinching the diagnosis. The physical examination should not only include visual acuity but a full visual examination such as visual field, RAPD and funduscopy. The common causes of transient visual loss are amaurosis fugax (the embolic phenomenon in the eye due to retinal arterial occlusion - cardiac disease, vasculitis), ischemic causes such as stroke, and transient ischemic attack, retinal vein occlusion, followed by optic neuropathy (optic neuritis), papilloedema and ocular causes such as glaucoma, keratitis and blepharitis.^{6,7} Primary care providers who see these kind of cases should initially rule out thromboembolic events (stroke, transient ischemic attack) and vertebrobasilar circulatory disorders. Usually these thromboembolic events are painless and last up to 1 to 15 minutes. These events are also accompanied with neurological symptoms and signs.

Table 1: Differential diagnosis of bilateral optic disc swelling

	Papilloedema	Hypertensive retinopathy grade 4	Optic neuritis
Definition	Swelling of the optic disc due to raised intracranial pressure	Hypertensive eye changes with optic disc swelling	Inflammation of the optic nerve head
History	Transient visual loss, headache worse in the morning, nausea, vomiting, diplopia	Headache, underlying hypertension that is usually uncontrolled	Acute rapid eye loss (several hours to few days), pain with eye movement, symptoms suggestive of any underlying disease (infection/inflammation, multiple sclerosis)
Physical examination	Neurological signs depending on the brain site involvement	May present with positive signs for uncontrolled hypertension (signs of congestive cardiac failure, signs of renal impairment, signs of clinical coronary heart disease, cardiac murmur), concomitant dyslipidaemia changes (xanthelasma/xanthoma)	Usually normal. May present with neurological signs in cases of multiple sclerosis or signs suggestive of infection/inflammation
Blood pressure	Normal or may be elevated	Elevated	Normal
Visual acuity	Normal/transient loss	Normal	Variable
Colour vision	Normal	Normal	Impaired. Red colour desaturation in early stage
Pupils: RAPD	Absent	Absent	(a) Bilateral and symmetrical: Absent (b) Bilateral and asymmetrical: present (c) Unilateral: present
Fundus findings	Normal fundus except for optic disc findings-optic disc hyperemic, elevated disc, cup obliterated, blurred optic disc margins (late stage), peripapillary haemorrhages	Optic disc swollen (mild), arteriolar thickening, tortuosity, 'silver wiring', arteriovenous nicking, 'cotton wool' exudates, flame-shaped or blot haemorrhages	Normal fundus except for optic disc findings – optic disc hyperaemic but not elevated, haemorrhages nearby/on optic disc
Investigation	CT scan/MRI scan	Blood pressure	MRI scan

Presence of vertigo, dysarthria and diplopia is suggestive of vertebrobasilar disorder. History such as changes related to posture, hot shower, exercise or muscular straining may help in differentiating the diagnosis. Loss of vision after exercise or hot shower (Uhthoff's phenomenon) is pathognomonic of demyelinating disease of the optic nerve (optic neuritis).⁸ Papilloedema usually presents with visual loss related to posture change and generally lasts for a few seconds as what this patient experienced.⁷ Associated symptoms such as early morning headache, nausea and vomiting should raise alarm on the possibility of increased intracranial pressure (ICP). Past medical history such as diabetes mellitus, hypertension and dyslipidaemia suggest an atherosclerotic cause. Grade 4 hypertensive retinopathy (malignant hypertension) can present with visual loss when there is damage in the retina. Severe hypertension can also result in changes to the optic nerve head that mimics papilloedema.

In this case, the patient surprisingly did not present with the typical ICP symptoms. Her visual acuity was also fairly good (6/9). It is uncommon for patients to have persistent visual acuity or visual field loss until the later stages of papilloedema. Therefore, it could be misleading if one were to check the visual acuity without doing the other aspects of eye examination. In this case, funduscopy showed bilateral optic disc swelling, narrowing down the differentials into a few possible diagnoses as mentioned in **Table 1**. Once papilloedema is seen, it requires urgent imaging to look for a space-occupying lesion because the underlying cause of papilloedema can have significant impact towards morbidity and mortality.

Final progression of the patient:

She was diagnosed with right sphenoid wing tumour. Craniotomy and tumour excision surgery were performed. Gross total resection (Simpson grade II) and cranial nerves were preserved. Her histopathological examination confirmed meningioma, WHO grade 1 transitional subtype. Post operatively, her visual

acuity resumed to normal. She is currently under the care of the neurosurgical team with 4 monthly follow-up and yearly MRI. Meningioma is the most common benign brain tumour in Malaysia accounting for 30-36% of all brain tumours, with a marked female: male preponderance of 3:1.⁹ Early detection and prompt adequate surgical treatment have shown good treatment outcomes with low recurrence rate. For this patient, her prognosis is good with an estimated recurrence rate of 16% to 19% in 10 years.¹⁰

Conclusion and key points

1. Transient visual loss can be an important symptom of serious pathology such as a space-occupying lesion as illustrated in this case
2. A thorough history and examination including general and eye examinations (visual acuity, visual field, RAPD, funduscopy) are essential to clinch the diagnosis.
3. Serious disorders not to be missed with a symptom of transient visual loss
 - Stroke/transient ischemia attack/ amaurosis fugax (emboli of retinal vessels)
 - Malignant hypertension
 - Retinal vein and artery occlusion (branch or central)
 - Space occupying lesion
 - Acute angle closure glaucoma (Subacute, transient and intermittent high intraocular pressure can lead to transient corneal edema in the early stages)
4. Often missed diagnosis of bilateral blurred margin of optic disc
 - Papilloedema
 - Optic neuritis
 - Malignant hypertension
 - Leukemia (masquerade)
5. All cases with papilloedema must have urgent neuroimaging.

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