

In conclusion, because the eyelid abnormalities in LI are lifelong, careful serial ophthalmic examination for corneal exposure is warranted. Patients with LI and pseudoainhum with greatly reduced transglutaminase activity may be at high risk of developing early nuclear cataract.

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Sir,

Viagra or What?

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Viagra, or sildenafil citrate, was an eagerly awaited drug a few years ago almost as though it were a panacea to all

impotence-related problems in middle-aged males. However, increasing use of the drug has revealed a spectrum of side-effects, some of these being fairly severe. We present a case of visual loss that took place within 12 h of intake of the drug.

Case report

A 61-year-old taxi driver presented to the eye casualty with a 12-h history of loss of vision in his right eye following consumption of double his normal dose of Viagra (100 mg). He was a high hypermetrope with an amblyopic left eye. He also complained of severe frontal headaches of at least a week's duration, worse in the two days before presentation. His general practitioner commenced him on oral penicillin for suspected sinusitis and upper respiratory tract infection, which in his opinion accounted for his headaches.

He was a chronic smoker, smoking about 30–40 cigarettes a day ever since he was a teenager. Past ophthalmic and medical history was otherwise unremarkable.

Examination revealed Snellen acuity of counting fingers in the right eye and 6/12 in his amblyopic left eye. The anterior segments were normal, but there appeared to be a subtle relative afferent pupillary defect with red desaturation; dilated funduscopy revealed a very faint focal cloudy swelling of the retinal nerve fibre layer along the inferotemporal retinal artery and its branches as well as one straddling the disc; these later evolved into full-fledged cotton wool spots (Figure 1, left in composite). The nasal disc margin was blurred; however, frank and global optic disc swelling was never seen.

His superficial temporal arteries were palpable and pulsatile, but tender to touch with the presence of scalp tenderness.

The haematology results were normal apart from a Westergren erythrocyte sedimentation rate (ESR) of 30 mm/h and a C-reactive protein (CRP) of 96 mg/l.

It was quite unclear at this stage whether we were actually dealing with a case of branch retinal artery occlusion (BRAO) and/or anterior ischaemic optic neuropathy (AION), arteritic or nonarteritic, associated with Viagra. Since this was the patient's better eye, the consensus of opinion was to treat him with a high dose of oral corticosteroids. Temporal artery biopsy (TAB), performed within 5 days of commencement of steroids, showed no evidence of giant cell arteritis (GCA).

It was encouraging to see his visual acuity improve steadily with resolution of headaches. His fundus appearance had improved with cotton-wool spots present only inferiorly (Figure 1, centre in composite). As his CRP declined steadily, oral prednisolone was tapered.

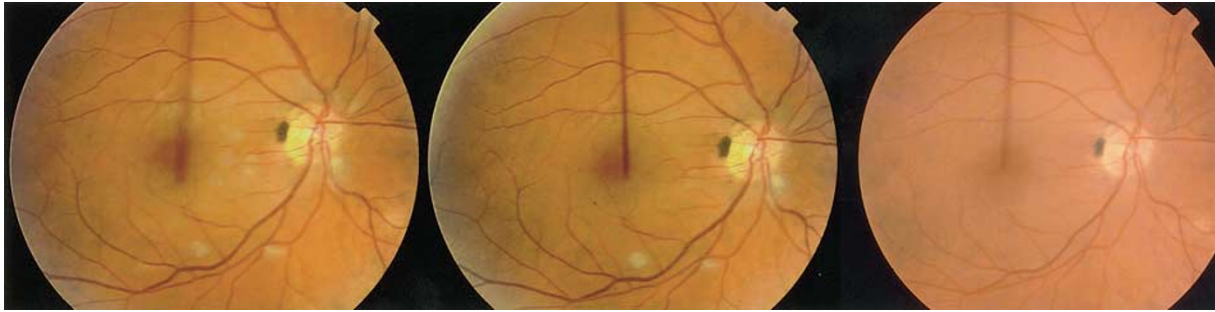


Figure 1 Fundus photograph of the right eye. Left—evolving cotton-wool spots within 24 h; Centre—improving fundal appearance within 1 week; and Right—normal fundal appearance within 4 weeks.

However, his headaches returned and the dose of prednisolone had to be altered accordingly. Interestingly, colour vision never really recovered and he continued to have a deficit as recorded with Ishihara pseudoisochromatic plates.

A month later his visual acuity had improved to 6/6 and fundus picture was normal, (Figure 1, right in composite). He is still under follow-up and awaiting rheumatology review.

Comments

Viagra is an orally active, potent and selective inhibitor of phosphodiesterase-5,¹ an important regulator of c-GMP in the human corpus cavernosum, which is used for the treatment of erectile dysfunction. It acts by increasing the concentration of c-GMP in the smooth muscle cells of the corpus cavernosum inducing vasodilatation.² This enhances the smooth muscle relaxant effects of nitric oxide (NO),³ which is released by cavernous nerves during sexual stimulation. The resultant increased blood flow to the corpus cavernosum leads to erection.

The NO-cGMP pathway also plays an important role in modulating systemic blood pressure through its effect on basal vascular tone.⁴ Studies have shown that therapeutic doses of Viagra (25–100 mg) reduce the mean peak systolic and diastolic blood pressure by approximately 10 mmHg⁴ (also Viagra package insert, Pfizer Inc., NY, USA, 1998). Hayreh (1970) showed that the circulation in the optic disc, peripapillary choroid, and choroid is dependent upon the difference between the intraocular pressure (IOP) and perfusion pressure in the posterior ciliary arteries. When an imbalance results, as in sudden and marked systemic arterial hypotension, AION⁵ may occur; nocturnal hypotension may be an important precipitating factor. Pomeranz *et al*⁶ report five patients with nonarteritic AION who had used Viagra hours before the onset of ocular symptoms and all had low cup-to-disc ratio. There have also been reports of myocardial infarction, sudden cardiac arrest, ventricular

arrhythmias and hypertension associated with the use of Viagra. It can also cause increased IOP secondary to weak inhibitory effects of Viagra on the isoenzyme PDE6 in the retina. Tripathi and O'Donnell⁷ reckon that a sudden rise in IOP or an embolic phenomenon due to short-lived cardiac arrhythmias may produce a BRAO.

Other reports have commented on the presence of cotton-wool spots as a precursor of GCA, and recognition of its significance together with the use of laboratory studies leads to prompt treatment and preservation of vision.^{8,9} Melberg *et al*⁹ reported seven patients with mild visual symptoms and results of an ophthalmologic examination significant for cotton-wool spots were found to have GCA; six of seven patients described constitutional symptoms consistent with it. Six patients had an abnormally elevated ESR. TAB confirmed GCA in six patients; the seventh patient was diagnosed as polymyalgia rheumatica. Prompt treatment with corticosteroids led to the preservation of vision and uneventful resolution of the cotton-wool spots in all seven patients.

Allsop and Gallagher¹⁰ found less than 60% of 135 patients with clinical temporal arteritis had TAB showing the presence of GCA, and suggest that this procedure could be omitted and replaced by a trial of steroid therapy with biopsy reserved for patients with a strong medical contraindication to steroid therapy, or who fail to respond to treatment promptly. Martinez *et al*¹¹ found a TAB positive for GCA in only 31% of 173 patients; they, however, believe that TAB represents the only decisive diagnostic method of GCA.

Hayreh *et al*¹² reviewed 363 patients and suggest that CRP is more sensitive (100%) than ESR (92%) for the detection of GCA; both combined gave the best specificity (97%). They conclude that clinical criteria most strongly suggestive of GCA include jaw claudication, CRP above 2.45 mg/dl, neck pain, and an ESR of 47 mm/h or more, in that order.

CRP, being an acute-phase protein can certainly rise in sinusitis,^{13,14} as initially suspected by his general

practitioner; however, CRP was first tested in hospital only after he was referred, as the headache was followed quickly by loss of vision. The subsequent resolution of all clinical signs on oral steroids surely pointed to a noninfective inflammatory aetiology of rise of CRP.

To date, cases of Viagra-associated AION and BRAO have been reported separately in literature. However, to the best of our knowledge, the possibility of both pathologies existing simultaneously in a patient has not been reported before. Viagra may have contributed to the episode of AION in our patient. The drug may have accentuated his physiologic nocturnal hypotension enough to decrease the perfusion pressure in the posterior ciliary arteries, resulting in ischaemia in a disc that is already predisposed to AION by the anatomic hypermetropic 'disc-at-risk' (as coined by Burde) configuration.^{4,5} The pattern of response to systemic steroids with satisfactory resolution of headaches, preservation of vision, and decrease in CRP raises the possibility of arteritic AION, which unfortunately was not borne out by TAB. Alternately and clinically more convincingly, it may have caused a branch retinal artery to occlude, through a sudden rise in IOP or an embolic phenomenon as described earlier. In this scenario, the aetiology of headaches and high CRP together with response to oral steroids remains unclear.

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