Reminder of important clinical lesson

Ockham's razor revisited: decreased visual acuity secondary to keratoconus in a patient with intracranial hypertension

Adrian T Fung,^{1,2} Domit Azar,^{2,3} Samantha Fraser-Bell,^{1,2} Peter McCluskey,^{1,2,4} John Grigg^{1,2}¹Sydney Eye Hospital, Sydney, New South Wales, Australia;²Discipline of Clinical Ophthalmology and Eye Health, The University of Sydney Medical School, Save Sight Institute, Sydney, New South Wales, Australia;³Concord Repatriation General Hospital, Sydney, New South Wales, Australia;⁴Royal Prince Alfred Hospital, Camperdown, New South Wales, Australia**Correspondence to** Dr Adrian T Fung, adrianfungi@yahoo.com.au**Summary**

Both intracranial hypertension and keratoconus may be associated with visual impairment. The authors present a case of a young female with poor right vision that did not improve despite treatment of her intracranial hypertension. Ophthalmic consultation diagnosed keratoconus as the cause.

BACKGROUND

This case reminds us to rethink the diagnosis when management of a problem is not followed by the expected improvement.

CASE PRESENTATION

A young woman presented to a neurologist with a 6-week history of severe right frontotemporal headache, nausea and progressive blurring of vision in her right eye. Three years earlier, she had presented with similar symptoms. MRI at that time diagnosed intracranial hypertension secondary to right sigmoid and jugular venous sinus thrombosis. This had been treated with 12 months of anticoagulation, sodium valproate and acetazolamide resulting in partial resolution of her headache but right visual acuity remained reduced at 6/60.

The neurologist found decreased right visual acuity without any other neurological deficits. However, cerebral venography and manometry demonstrated intracranial hypertension secondary to left transverse sinus stenosis. This was successfully stented (figure 1) with resolution of her headache but no improvement in her vision. Ophthalmic consultation was then requested.

The patient's best corrected distance visual acuity had deteriorated to 20/60 on the right and was 6/6 on the left. Brightness and red saturation were equal in both eyes. Pupil examination was normal with no relative afferent pupillary defect. The optic discs and fundi were normal. Clinically, keratoconus was suspected as the cause of reduced vision in the right eye.

INVESTIGATIONS

Humphrey visual field perimetry was unreliable in the right eye and normal in the left eye. Objective perimetry with multifocal visual evoked potentials (AccuMap, Heidelberg Engineering) demonstrated a central scotoma in the right eye and a normal recording in the left. Both full field and multifocal electroretinography were normal in both eyes.

Corneal topography (Pentacam, Oculus) showed features of keratoconus in the right eye. Central corneal thickness was reduced to 488 µm centrally with +7.5 dioptres of astigmatism, axis 165° (figure 2).

DISCUSSION

William Ockham was a thirteenth century monk who believed in the principle of parsimony.¹ This principle states that 'one should not increase beyond what is necessary the entities required to explain a phenomenon'. That is, if several signs and symptoms fit a single diagnosis, this diagnosis is more likely than several unrelated diagnoses occurring coincidentally. This case reminds us to rethink this principle when management of a problem is not followed by the expected improvement. Under such circumstances, we must be vigilant of dual independent pathologies. In this case, the markedly asymmetrical visual acuities, and normal optic nerve function and appearance in the affected eye should have raised suspicion of a cause of reduced vision other than intracranial hypertension. We are not aware of any association between venogenic intracranial hypertension and keratoconus.

Figure 1 Cerebral venography and stenting of the stenosed left transverse sinus.

Figure 2 Corneal topography demonstrating right paracentral corneal thinning and steepening consistent with keratoconus.

Learning point

- Even if there is known ophthalmic pathology, always question it as being the cause of visual symptoms, if management of the problem is not followed by the expected improvement.

Competing interests None.

Patient consent Not obtained.

REFERENCES

1. **Lutter LD.** Ockham's razor. *Foot Ankle Int* 1999;**20**:543–4.

This pdf has been created automatically from the final edited text and images.

Copyright 2011 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.

BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Please cite this article as follows (you will need to access the article online to obtain the date of publication).

Fung AT, Azar D, Fraser-Bell S, McCluskey P, Grigg J. Ockham's razor revisited: decreased visual acuity secondary to keratoconus in a patient with intracranial hypertension. *BMJ Case Reports* 2011;10.1136/bcr.05.2010.3030, date of publication

Become a Fellow of BMJ Case Reports today and you can:

- Submit as many cases as you like
- Enjoy fast sympathetic peer review and rapid publication of accepted articles
- Access all the published articles
- Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow