CASE REPORT

Fish allergy causing angioedema and secondary angle-closure glaucoma

Donovan Calder,¹ Jennifer Calder²

¹Department of Surgery, Radiology, Anaesthetics and Intensive Care, University of the West Indies, Kingston, Jamaica

²Department of Epidemiology and Community Health, New York Medical College, Valhalla, New York, USA

Correspondence to
Dr Donovan Calder,
calderdon@mac.com

SUMMARY

A 56-year-old woman with a history of primary angle-closure glaucoma presented with acute generalised swelling, and facial angioedema following a fish meal. She complained of nausea, vomiting, headache, pain in both eyes and acute loss of vision. Her visual acuity was reduced and intraocular pressures (IOP) were elevated. Gonioscopy revealed complete angle closure in the left eye and complete to partial closure in the right eye. Through existing peripheral iridotomies the anterior capsules were seen pressed up against the iris of both eyes. A diagnosis of angle-closure glaucoma was made, medications were started to reduce the elevated intraocular pressure and systemic antihistamine to counter the allergic reaction. She was hospitalised for further management. A follow-up at 2 years revealed her visual acuities and IOP had remained normal.

BACKGROUND

In patients with prior treatment of angle-closure glaucoma with peripheral iridotomies, the general assumption is their risk for acute angle-closure glaucoma would have been eliminated; especially in a patient who has experienced stable intraocular pressures for 3 years postsurgery. This case clearly demonstrates that the risk is not zero. The mechanism appears to be different as compared with primary angle-closure glaucoma.

CASE PRESENTATION

A 56-year-old woman presented to an outpatient private ophthalmology practice complaining of headache, pain in both eyes, acute loss of vision, itching and severe nausea and vomiting. There was acute generalised swelling, and extensive swelling of the lips and periorbital regions (figure 1). She reported eating a fish meal.

She had a history of bilateral acute angle-closure glaucoma and had bilateral peripheral iridotomies (figure 2). She was pseudophakic in the right eye with stable intraocular pressures, open iridocorneal angles and had been off medications for over 3 years. Her underlying medical problems included a history of hypertension, asthma and a prior history of fish allergy.

On presentation, she had facial angioedema, bilaterally injected conjunctivae, shallow anterior chambers and moderately dilated pupils. Her visual acuity was 20/200 OD (oculus dexter) and 20/400 OS (oculus sinister) and intraocular pressures (IOP) were 50/56 mm Hg OD/OS.

Figure 1 Facial angioedema on presentation.

INVESTIGATIONS

Gonioscopic examination at initial presentation was graded as zero for the left eye indicating complete angle closure and ranged from zero (complete) to one (partial) for the right eye. Based on this acute angle-closure glaucoma was diagnosed.

OUTCOME AND FOLLOW-UP

Within 24 h her symptoms and signs had improved and by the second day the intraocular pressures were within normal limits. All medications were discontinued over a 10-day period (figure 3).

Two years post-follow-up, she remains off all medications. Her visual acuities were best corrected 20/20 OU (oculi uterque) and IOPs of 16/20 mm Hg OD/OS.

DISCUSSION

Although fish allergy is a commonly reported IgE-mediated food allergy, most studies have been limited to children¹ and select species of fish.² Physician-diagnosed asthma has been shown to be a risk factor for fish allergy in children. Sensitivity to fish is considered to be lifelong and occurs across fish species,³ therefore, people with fish sensitivity

Figure 2 Peripheral iridotomy.

To cite: Calder D, Calder J. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2012-007691

Figure 3 Patient 10 days after onset.

should avoid all types of fish. Signs and symptoms frequently reported include, facial angioedema, pruritus, generalised urticaria, cough, wheezing and dysphagia.^{1 4}

Acute angle closure secondary to uveal effusion has been uncommonly reported with the use of some pharmaceuticals.⁵ Although several types of drugs have been associated with this phenomenon, sulfa-based drugs such as topiramate are primarily involved.⁶ The precise pathophysiology behind the uveal effusion and ciliary body swelling remains unclear,⁶ however, some speculate that elevated prostaglandins within the ciliary body versus a systemic allergic reaction are responsible for the swelling of the ciliary body and subsequent forward rotation of the iris-lens diaphragm.⁷ This is in contrast to the systemic allergic reaction experienced by our patient with the fish allergy, which we think is responsible for the swelling of her ciliary body. With the increasing availability of ultrasound biomicroscopy a clearer picture of the underlying pathophysiology should evolve. Unfortunately this was not available. Hyperosmotic agents should still be used as first-line treatment in reducing the intraocular pressure. The role of pilocarpine remains controversial as it may have had little or no effect and may be contraindicated.

This is the first case of acute angle-closure glaucoma presenting secondary to an episode of acute anaphylaxis secondary to

fish allergy in a pseudophakic patient with previous bilateral peripheral iridotomies.

Learning points

- ▶ Patients with facial angioedema should be evaluated for the risk of angle-closure glaucoma.
- ▶ While every effort should be made to reduce the intraocular pressure with antiglaucoma drugs. Treatment of the allergic reaction will lead to resolution of the angle-closure glaucoma.
- ▶ Prior treatment of primary angle-closure glaucoma does not eliminate the risk of a second episode that may occur via a different mechanism.
- ▶ People with fish allergy should not eat fish.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Turner P, Ng I, Kemp A, *et al.* Seafood allergy in children: a descriptive study. *Ann Allergy Asthma Immunol* 2011;106:494–501.
- 2 Rona RJ, Keil T, Summers C, *et al.* The prevalence of food allergy: a meta-analysis. *J Allergy Clin Immunol* 2007;120:638–46.
- 3 Helbling A, Haydel R, McCants ML, *et al.* Fish allergy: is cross-reactivity among fish species relevant? Double-blind placebo-controlled food challenge studies of fish allergic adults. *Ann Allergy Asthma Immunol* 1999;83:517–23.
- 4 Lin H-Y, Shyur S-D, Fu J-L, *et al.* Fish induced anaphylactic reaction: report of one case. *Acta Paed Sin* 1998;39:200–2.
- 5 Takusagawa HL, Hunter RS, Jue A, *et al.* Bilateral uveal effusion and angle-closure glaucoma associated with bupropion use. *Arch Ophthalmol* 2012;130:120–2. doi:.
- 6 Sankar PS, Pasquale LR, Grosskreutz CL. Uveal effusion and secondary angle-closure glaucoma associated with topiramate use. *Arch Ophthalmol* 2001;119:1210–11.
- 7 Rhee DJ, Goldberg MJ, Parrish RK. Bilateral angle-closure glaucoma and ciliary body swelling from topiramate. *Arch Ophthalmol* 2001;119:1721–3.

Copyright 2013 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.

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