



For numbered affiliations see end of article.

Correspondence to: E Waisberg
ew690@cam.ac.uk

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CHRISTMAS 2023: CHAMPAGNE PROBLEMS

Cheers not tears: champagne corks and eye injury

Be careful this holiday season: ocular trauma while opening bottles of fizz can be significant—and easily avoided, advise **Ethan Waisberg and colleagues**

Ethan Waisberg,^{1,2} Joshua Ong,³ Mouayad Masalkhi,⁴ Hamza Memon,⁵ Andrew G Lee^{5,12}

The joyful effervescence of champagne is often associated with celebration, happiness, and the holiday season. The rapid release of carbon dioxide gas after uncorking a bottle of sparkling wine is a memorable moment enjoyed by all, regardless of whether you drink alcohol. But there is a dark side to uncorking these bubbly beverages.

Cork eye injuries are an often overlooked and substantial threat to ocular health. Although our group usually publishes on the effects of spaceflight on the eye,¹⁻³ this article focuses on the launch of sparkling wine corks instead of astronauts. The goal of this article is to ensure that you don't begin the new year on the operating table of an eye surgeon.

Permanent blindness

This warning might at first sound overly cautious, but the American Academy of Ophthalmology has a public safety campaign, “Uncork with Care,” that gives practical tips for safely uncorking fizz bottles due to the “serious, potentially blinding eye injuries” that occur every year.⁴ The pressure in a 750 ml bottle of champagne or sparkling wine is about three times that of a standard car tyre, with the potential to launch a cork up to 13 m at speeds of up to 80 km/h.^{4,5} A cork can travel from bottle to eye in less than 0.05 seconds, making the blinking reflex ineffective. A cork hitting an eye can cause permanent blindness, retinal detachment, and lens dislocation, among other conditions. In May 2022 cyclist Biniam Girmay opened a bottle of prosecco on the winners' podium to celebrate his win at the Giro d'Italia. The cork hit his eye causing an anterior chamber haemorrhage, and he had to withdraw from the next stage of the competition.⁶

A retrospective review published in 2005 analysed cases of severe eye injuries resulting from bottles containing pressurised drinks in the United States, Hungary, and Mexico.⁵ Champagne bottle corks were responsible for 20% of the eye injuries related to bottle tops in the US, 71% in Hungary, and 0% in Mexico.⁵ These data emphasise the need for preventive measures, including warning labels and alternative packaging materials, such as a screw cap, to safeguard people. Although many people's sight improved, the study found that, in 26% of cases related to pressurised drinks, people remained legally blind. The champagne bottle cork continues to be the biggest contributor to eye injuries caused by bottle tops.⁷⁻¹⁰

In 1994, two cases of blunt eye injuries caused by champagne cork bottles were documented in the

Netherlands.⁸ One of these was a hyphaema, a collection of blood in the anterior chamber of the eye (fig 1). One resolved with medical treatment; the other required surgical evacuation. In 2016, a 29 year old in Australia was diagnosed as having commotio retinae (a traumatic retinopathy) after a high velocity impact caused by a champagne cork expelled from 3 m away.¹¹ Follow-up three months later showed complete resolution of the commotio retinae but persisting mild retinal haemorrhage.¹¹

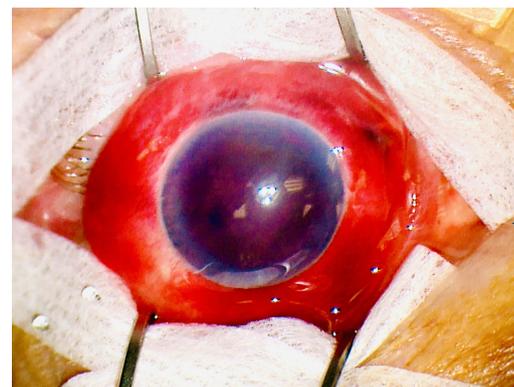


Fig 1 | Photo of a hyphaema. Credit: Grayson W Armstrong. American Society of Ophthalmic Trauma.

Awareness and prevention measures needed

A 2009 review of 34 cases of eye injuries caused by bottle corks and caps from sparkling wine bottles in Italy showed that these seemingly innocuous objects can cause substantial harm to the eye, resulting in various degrees of visual impairment and clinical outcomes such as perforation, trauma, and long term complications.¹² This study found that all patients presented with closed globe injury with early injuries including anterior chamber hyphaema, corneal injury, ocular hypertension, lens subluxation, traumatic cataract formation (early and late), and post-traumatic retinal oedema.¹² Late complications included pupil motility anomalies, iridodialysis, traumatic optic neuropathy and maculopathy, and post-traumatic glaucoma.¹² The study shed light on the range of consequences that can result from cork related eye injuries, underscoring the need for awareness and prevention measures.

Perforating injuries involving bottle corks or caps risk vision impairment. Public awareness campaigns about safety precautions might mitigate the risk of injuries (box 1; fig 2). After such an injury, personalised management from an eye care specialist

is needed, and prompt consultation with an ophthalmologist is essential to minimise the risk of vision impairment. Let us toast to an excellent new year, keep the bubbly in our glass, and the sparkle in our eyes.

Box 1: Champagne safety

We offer some suggestions to mitigate ophthalmic risks during toasts, in line with guidance from the American Academy of Ophthalmology.⁴

- 1 Chill the bottle before opening. Pressure reduces as the bottle cools, and as a result cork velocity decreases. Avoid shaking the bottle before opening for the same reason.

- 2 Face the bottle away from others and yourself at a 45° angle before opening.
- 3 Remove the wire cage (which could act as an additional projectile) carefully from top of the bottle while pressing down on the cork with the palm of a hand
- 4 Place a towel over the top of the bottle and hold the cork firmly
- 5 Gently twist the bottle until the cork loosens
- 6 Counteract the upward moving force of the cork, by pressing down on it



Fig 2 | Practical advice to reduce the risk of champagne cork related eye injuries.

AUTHOR AFFILIATIONS

- 1 Department of Ophthalmology, University of Cambridge, Cambridge, UK
- 2 Moorfields Eye Hospital, NHS Foundation Trust, London, UK
- 3 Department of Ophthalmology and Visual Sciences, University of Michigan Kellogg Eye Center, Ann Arbor, MI, USA
- 4 University College Dublin School of Medicine, Belfield, Dublin, Ireland
- 5 Texas A&M College of Medicine, TX, USA
- 6 Department of Ophthalmology, Blanton Eye Institute, Houston Methodist Hospital, Houston, TX, USA
- 7 Houston Methodist Research Institute, Houston Methodist Hospital, Houston, TX, USA
- 8 Departments of Ophthalmology, Neurology, and Neurosurgery, Weill Cornell Medicine, New York, NY, USA
- 9 Department of Ophthalmology, University of Texas Medical Branch, Galveston, TX, USA
- 10 University of Texas MD Anderson Cancer Center, Houston, TX, USA
- 11 Center for Space Medicine, Baylor College of Medicine, Houston, TX, USA
- 12 Department of Ophthalmology, The University of Iowa Hospitals and Clinics, Iowa City, IA, USA

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