

Spontaneous pneumo-bleb formation following intracameral C₃F₈ injection

Aafreen Bari ,¹ Anchal Gera,² Tushar Agarwal²

¹Ophthalmology, AIIMS, New Delhi, India

²AIIMS, New Delhi, India

Correspondence to
Dr Aafreen Bari;
aafreen.aiims@gmail.com

Accepted 22 June 2022

DESCRIPTION

An elderly woman presented with pain, redness, watering and photophobia in the left eye for 2 months. She had undergone phacoemulsification with posterior chamber intraocular lens implantation in the left eye 2 months ago. On examination, she had Descemet's membrane detachment with central corneal oedema (**figure 1A**). Her visual acuity and intraocular pressure by non-contact tonometry at presentation in the left eye were counting fingers at half metre and 30 mm Hg, respectively. On B-scan ultrasonography, posterior segment was anechoic, and there was no optic nerve head cupping. She was planned for isoexpansile perfluoropropane (C₃F₈) injection in the anterior chamber using a 30-gauge needle. The gas mixture was injected through posterior-limbal incision and 80% of the anterior chamber was filled. Three days later, she again presented with pain and photophobia in the left eye. On examination, the anterior chamber was completely filled with gas bubble, and there was pupillary block. There were subconjunctival and subtenon bleb-like elevations originating from the area of tract from where the gas was injected (**figure 2A**). The Descemet's membrane was attached, corneal oedema had resolved (**figure 1B**) and the intraocular pressure was 34 mm Hg. The

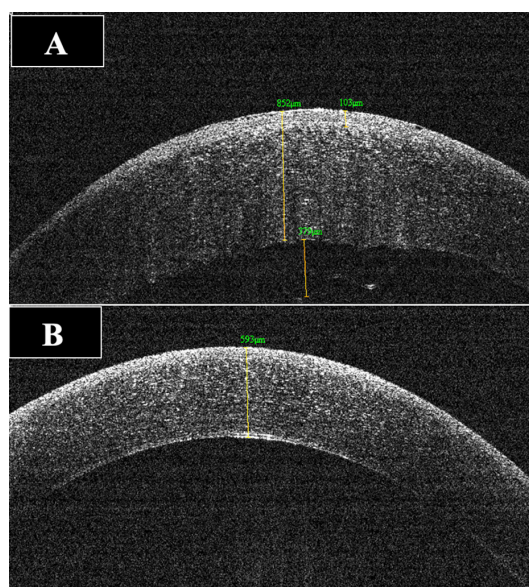


Figure 1 Anterior segment OCT of left eye showing (A) preinjection corneal oedema with a thickness of 852 µm and Descemet's membrane detachment in a wavy pattern 379 µm below its anatomical position; (B) postinjection compact stroma with reattached hyperreflective Descemet's membrane.

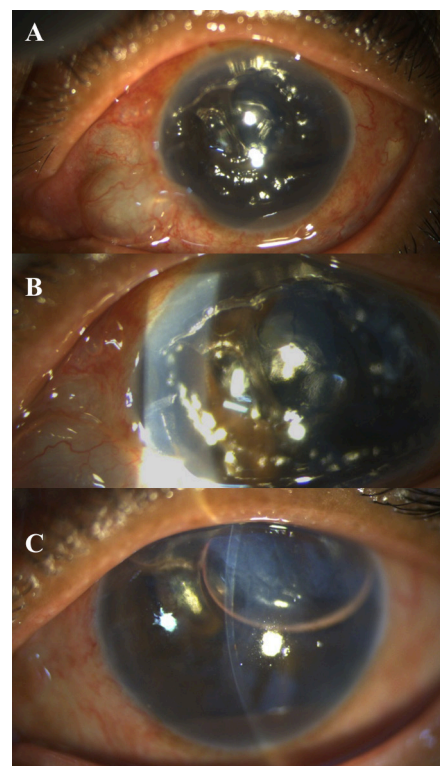


Figure 2 Clinical photograph of left eye with (A) fully inflated anterior chamber postgas injection with nasal subconjunctival and subtenon pneumo-blebs; (B) broad slit-beam highlighting 30-gauge needle tract at nasal limbus; (C) resolved corneal oedema with reattached Descemet's membrane after anterior chamber decompression.

patient was taken up for an anterior chamber decompression with 26-gauge needle. On this occasion, the stab was made from a fresh site (temporal limbus area). Subconjunctival and subtenon blebs were punctured. Following the procedure, intraocular pressure had normalised, and the patient was relieved of pain. On 1 week follow-up, the patient had one-third residual air bubble in the anterior chamber with clear cornea and intraocular pressure of 14 mm Hg.

Intracameral gas injection is a commonly used treatment modality in cases of Descemet's membrane detachment. Isoexpansile concentrations of C₃F₈ (14%) and sulfur hexafluoride (20%) are preferred choices of gas to be injected for cases with central corneal involvement, requiring longer tamponade.¹ In cases where anterior chamber is fully filled with intracameral gas or when the gas is injected in concentrations higher than its



© BMJ Publishing Group Limited 2022. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Bari A, Gera A, Agarwal T. *BMJ Case Rep* 2022;**15**:e251446. doi:10.1136/bcr-2022-251446

Images in...

isoexpansile concentration, pupillary block glaucoma with high intraocular pressure is of great concern. C_3F_8 is known to expand up to four times within 72–96 hours. A prophylactic peripheral iridectomy is recommended in such cases to prevent the same.² Other complications that have been reported following intracameral gas include malignant glaucoma with stretched out and anteriorly rotated ciliary bodies and Urrets-Zavalía syndrome.³

In our case, the C_3F_8 mixture was erroneously loaded higher than the isoexpansile concentration. It expanded and filled

the anterior chamber causing pupillary block. The gas escaped through the tract of 30-gauge needle into the subconjunctival and subtenon space creating pneumo-bleb like elevations (figure 2B). Anterior chamber decompression relieved the residual excess pressure that had built up and normalised the intraocular pressure (figure 2C).

Contributors AB: Preparation of manuscript, editing; AG: Data collection and organisation; TA: Concept and final approval.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Consent obtained directly from patient(s).

Provenance and peer review Not commissioned; externally peer reviewed.

Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

ORCID iD

Aafreen Bari <http://orcid.org/0000-0001-8520-283X>

REFERENCES

- 1 Kumar DA, Agarwal A, Sivaganam S, et al. Height-, extent-, length-, and pupil-based (help) algorithm to manage post-phacoemulsification Descemet membrane detachment. *J Cataract Refract Surg* 2015;41:1945–53.
- 2 Basu S, Vaddavalli PK, Ramappa M, et al. Intracameral perfluoropropane gas in the treatment of acute corneal hydrops. *Ophthalmology* 2011;118:934–9.
- 3 Vanathi M, Mohan S, Dada T, et al. Malignant glaucoma after intracameral isoexpansile perfluoropropane tamponade for the management of acute corneal hydrops. *Cornea* 2010;29:838–40.

Learning points

- Corneal oedema after an uneventful cataract surgery should raise the suspicion of Descemet's membrane detachment.
- Intracameral gas injection in Descemet's membrane detachment is a two-edged sword; if injected inadequately, it may lose its primary purpose of tamponade; while if in excess, it can cause pupillary block glaucoma. A prophylactic peripheral iridectomy should be done to avoid pupillary block.
- The mixture of air and gas should be carefully made so that the concentration of gas does not exceed its isoexpansile concentration.
- A clear corneal tract may be preferable for injection of intracameral gas to prevent escape of the mixture in subconjunctival and subtenon's space.
- A close follow-up is required in these cases to detect inadvertent pupillary block glaucoma.

Copyright 2022 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <https://www.bmj.com/company/products-services/rights-and-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

Customer Service

If you have any further queries about your subscription, please contact our customer services team on +44 (0) 207111 1105 or via email at support@bmj.com.

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