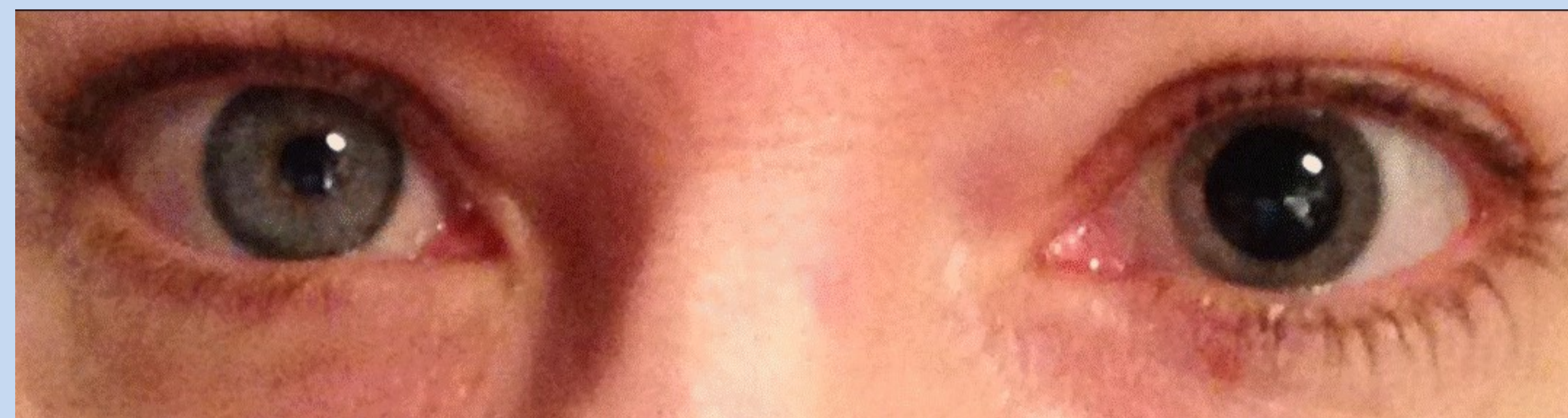


## Case Presentation

A 40-year-old gardener presented with a one day history of a dilated left pupil that she noticed while looking in the mirror (Figure 1).

She denied headaches, vomiting, double vision, eye pain or discharge. There was no history of topical eye drops or trauma. She had no significant past medical history and took no regular medications.



(Figure 1): A photograph of the patient in normal lighting

On examination, her left pupil was 8mm compared to her right pupil at 3mm. The left pupil was non-reactive to direct and consensual light responses and accommodation reflex was impaired. Her right pupillary reflexes were intact. There was no ptosis and eye movements were unremarkable. Fundoscopy demonstrated no papilloedema. Her neurological examination, including deep tendon reflexes, was otherwise normal.

Initial blood tests were all normal including full blood count, urea and electrolytes, C-reactive protein, ESR and HbA1c.

## Differential diagnosis of unilateral mydriasis

- Holmes-Adie pupil
- Acute closed angle glaucoma
- Local pharmacological blockade
- Compression of the oculomotor nerve

## Discussion:

A sudden-onset fixed, dilated pupil can be an ominous sign of life-threatening intracranial pathology. However, there were no other signs of a third nerve palsy. There were also no features of raised intracranial pressure. Therefore, it seemed that compression of the oculomotor nerve by pathology such as a posterior communicating artery aneurysm was unlikely. The absence of pain excluded acute closed angle glaucoma. Holmes Adie pupil tends to be a chronic condition, in contrast to the sudden-onset in our patient.

Upon direct questioning, we established she grew Angel's trumpet:



(Figure 2): A photograph of Angel's trumpet

## Angel's trumpet

Angel's trumpet (Brugmansia) is an ornamental plant known for its bold, trumpet-shaped pendulous flowers. It contains parasympatholytic alkaloids such as atropine. Accidental exposure to these plants can produce unilateral mydriasis [1]. The underlying pharmacological mechanism is blockade of the muscarinic receptors leading to paralysis of the smooth muscle of the pupillary sphincter and ciliary muscles. A diagnosis of mydriasis secondary to local pharmacological blockade by Angel's trumpet exposure was made.

## Outcome and follow-up

Subsequent magnetic resonance imaging of her brain was unremarkable. Her anisocoria went on to resolve completely after 72 hours.

## Learning points

- Acute-onset fixed dilated pupil can be an ominous sign of intracranial pathology and life-threatening causes should first be excluded.
- Topical exposure to plants containing atropine can cause mydriasis.
- Detailed history taking should include possible exposure to environmental toxins.

## References

1. Firestone, D. & Sloane, C. Not your everyday anisocoria: angel's trumpet ocular toxicity. J. Emerg. Med. 33, 21–24 (2007).