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Case Study

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South East London Diabetic Eye Screening Programme (SELDESP)

Presentation

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- Patient case
  1. Patient background
  2. Patient images
  3. What happened next?
  4. Account of events and follow up
  5. Summary
  6. What we have learnt?

Patient case: Patient background

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- 79-year-old, Caucasian, female
- Type 2, controlled by tablets
- Diagnosed in 2008
- Attended 12 screening appointments, prior to most recent appointment

Patient case: Patient images

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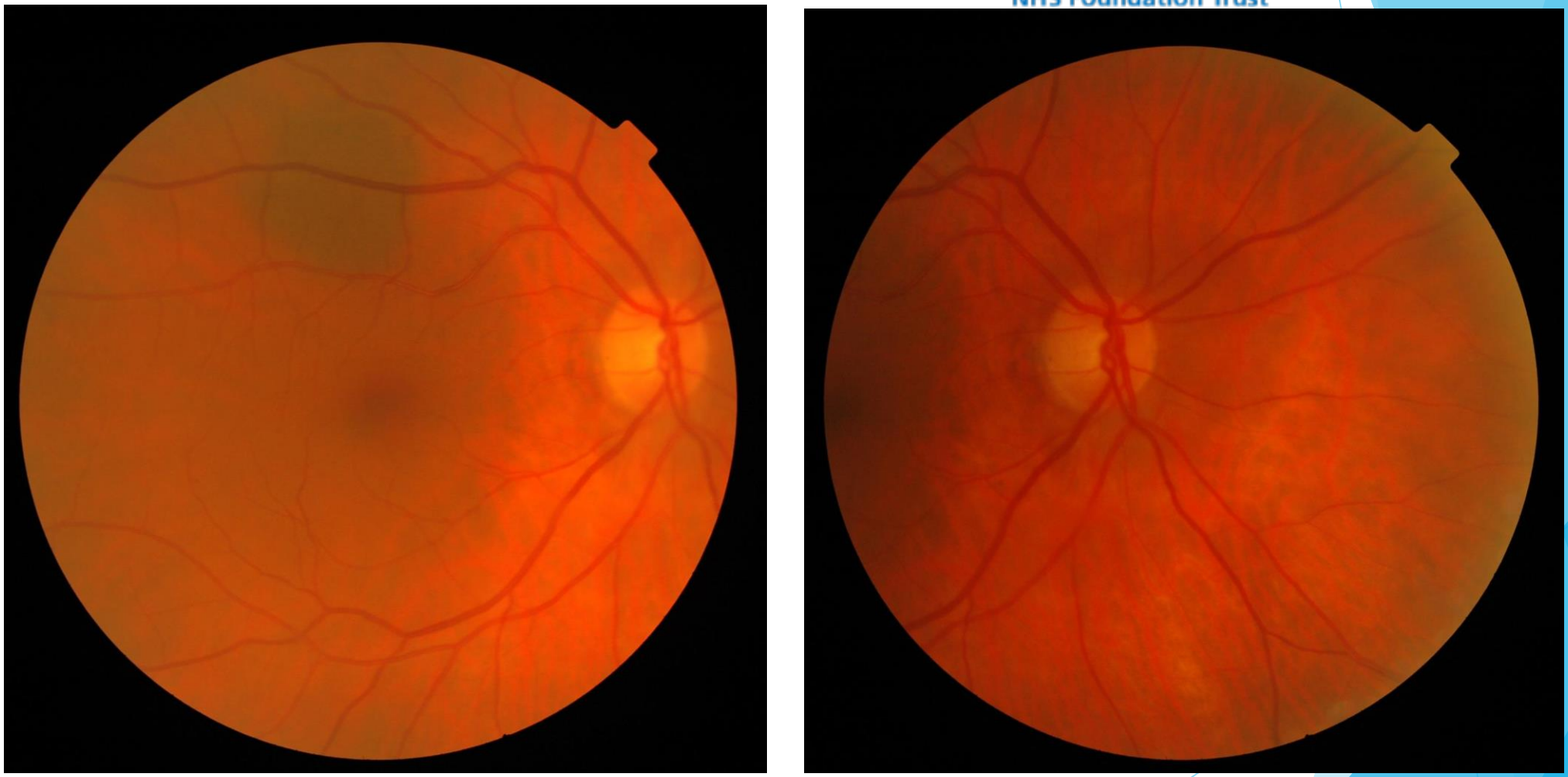

December 2019, right eye, 6/9 using correction, grade?

Patient case: patient images

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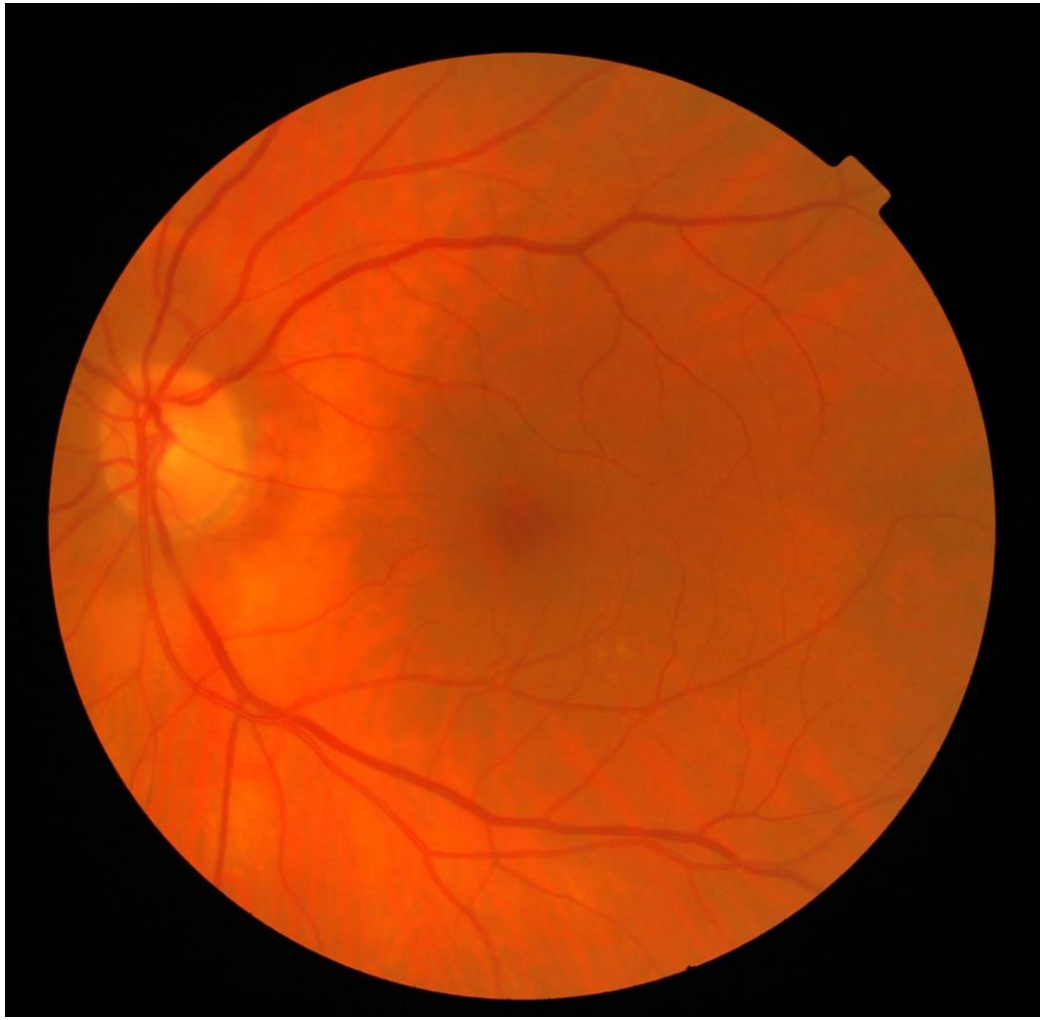
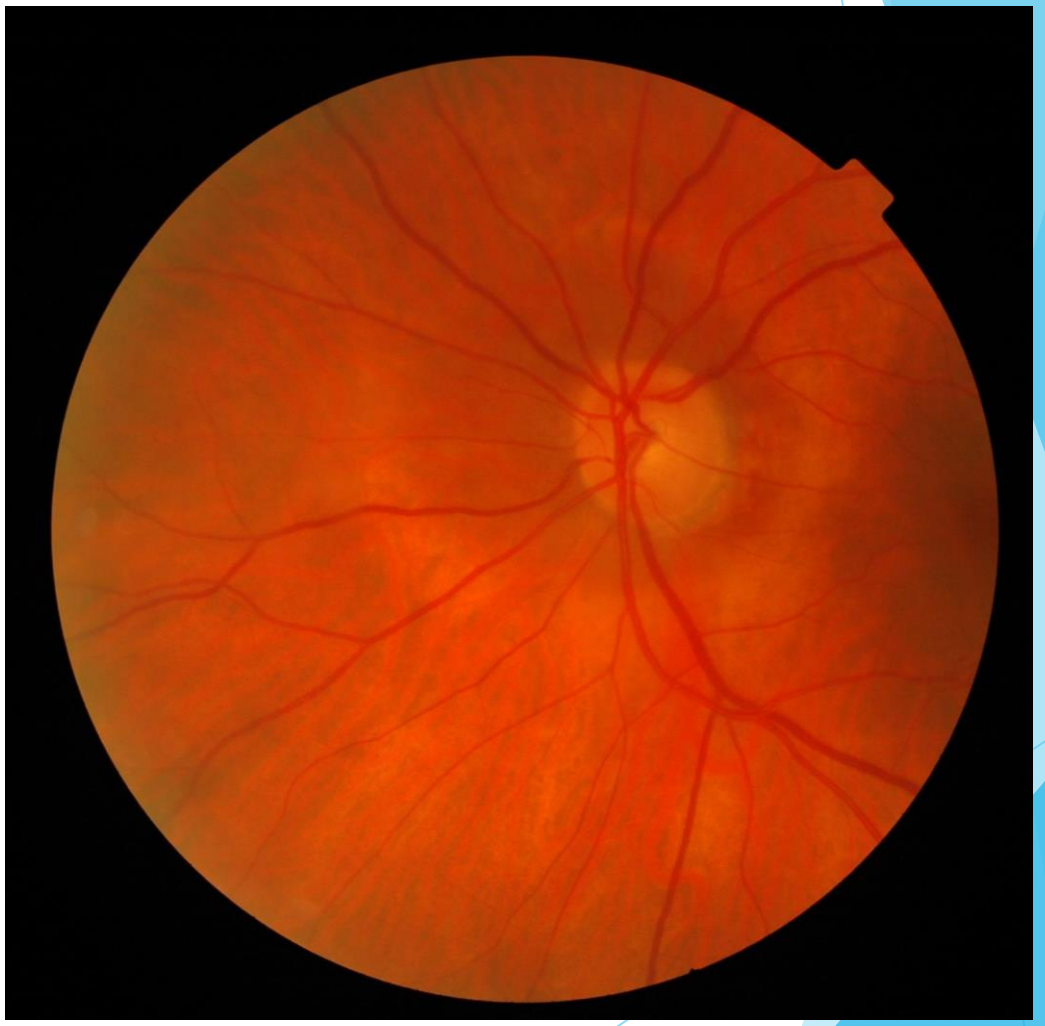
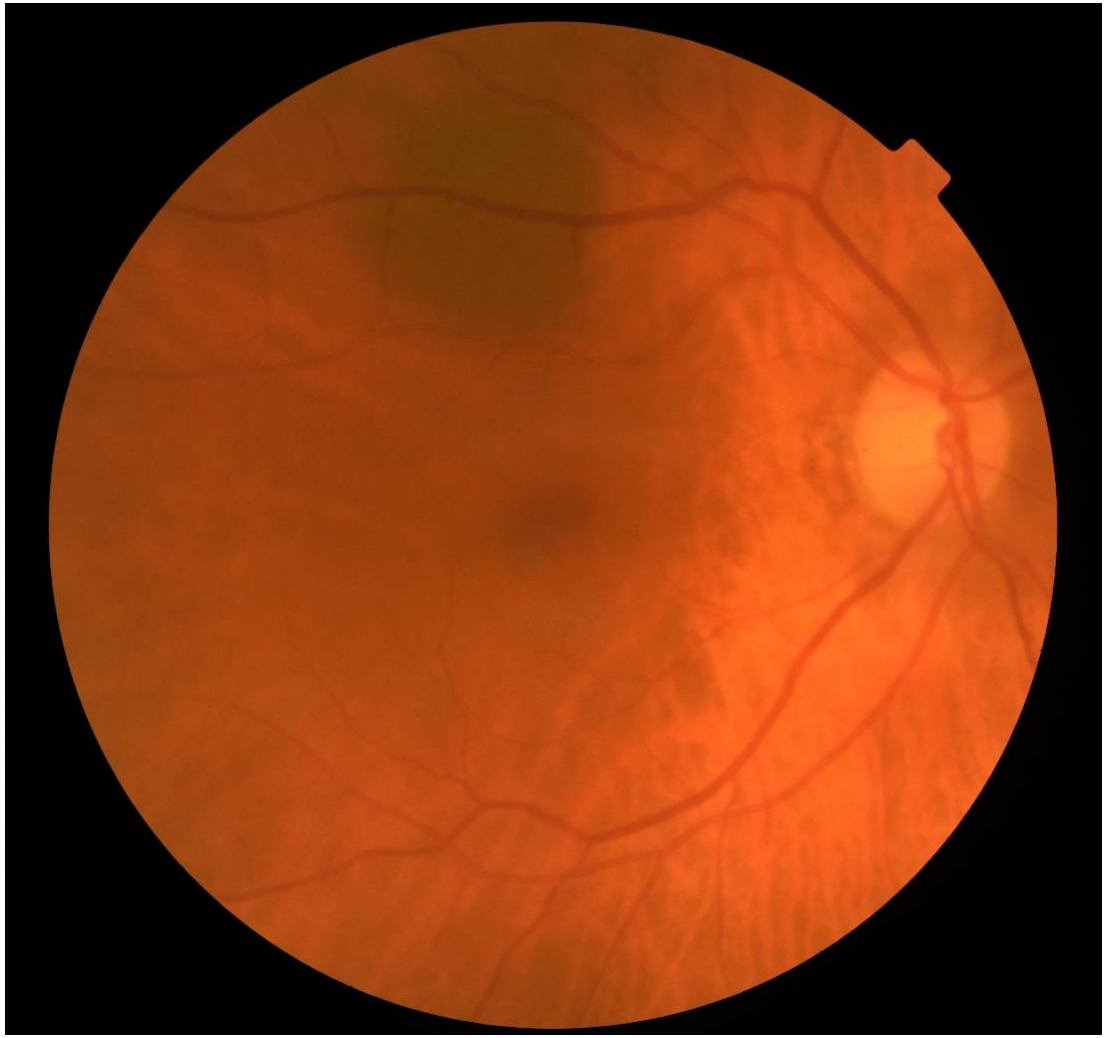
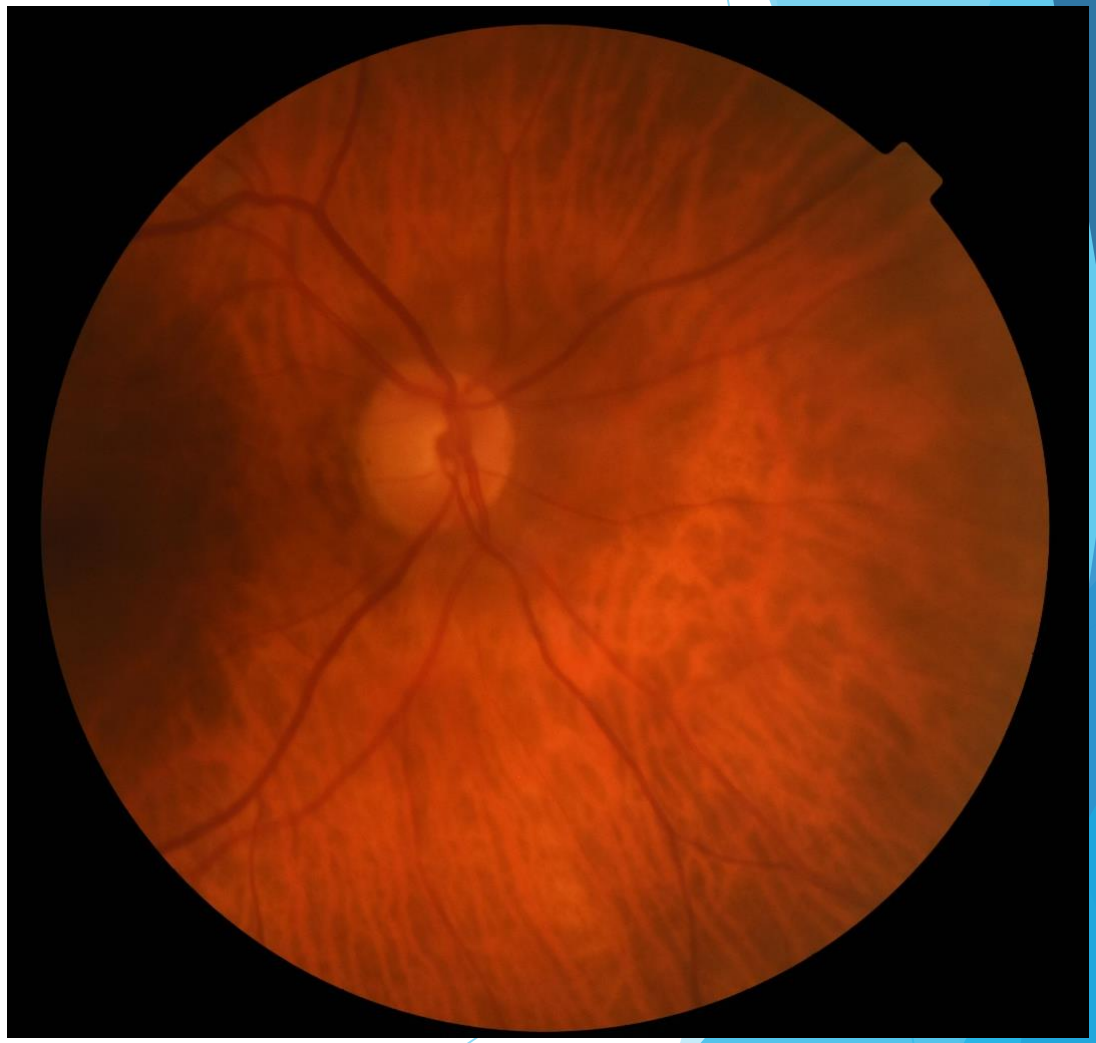




December 2019, left eye, 6/9 using correction, grade? Outcome?

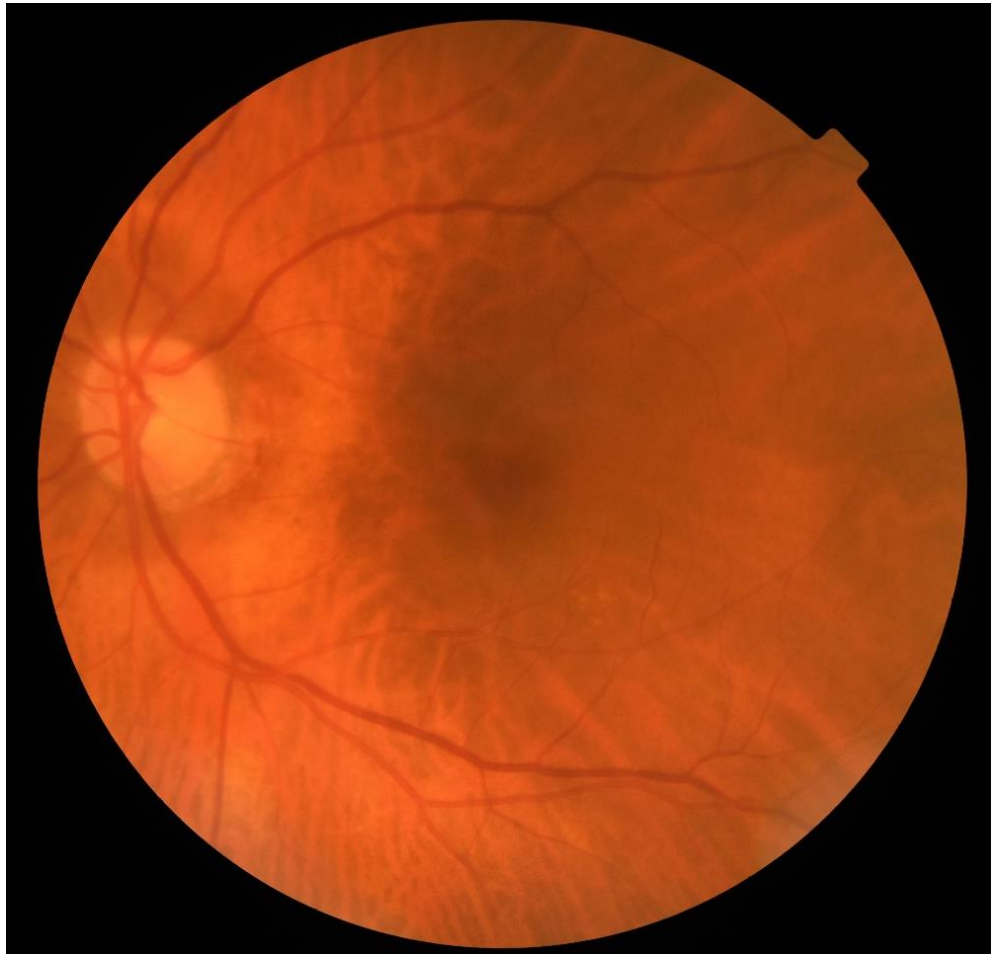
Patient case: patient images

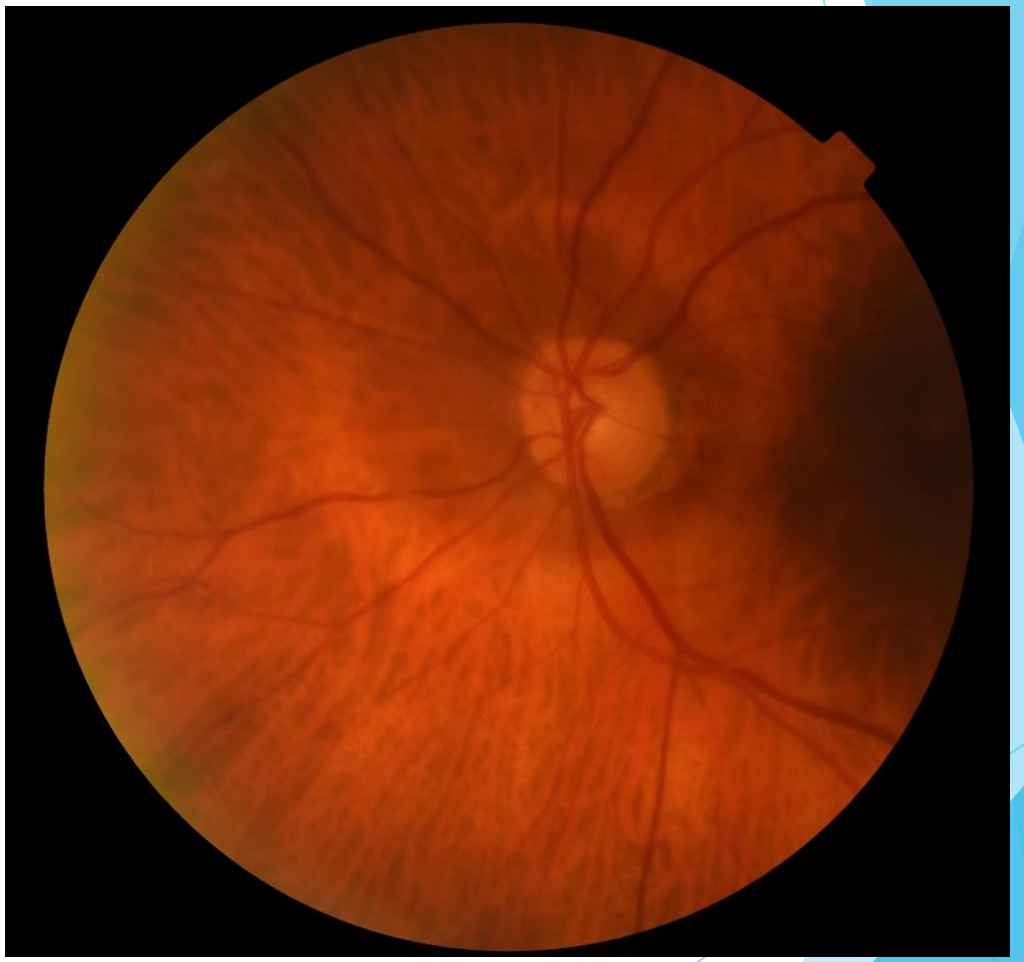




January 2022, right eye, 6/60 no correction, 6/12 using pinhole, grade?

Patient case: patient images:





January 2022, left eye, 6/12 no correction, 6/9 using pinhole, grade?

Patient case: patient images

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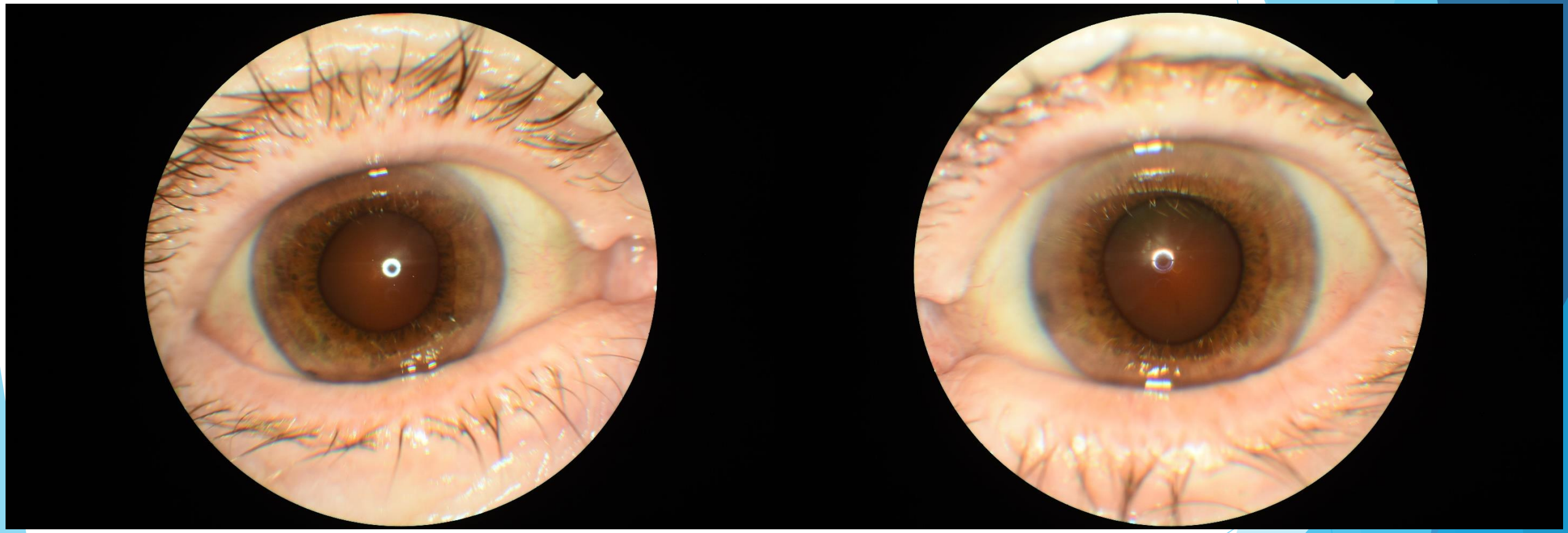

January 2022, anteriors, early cataract, outcome?

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Two hours later… what happened next?

Patient case: Account of events

- Patient's relative returned to the screening venue
- Vomiting and pain in left eye
- Spoke with patient on phone
- Described blurred vision in the left eye and headache

- What do you think was wrong with the patient?

Patient case: Account of events

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- On DESP's advice, attended QEH A&E but then referred on to KCH A&E
- Pressures were 68 right eye and 55 left eye at A&E
- Diagnosed with Acute Angle Closure following drops in screening
- Cosopt and Iopidine both eyes, pilocarpine 2% TDS for 3 days both eyes, predforte BD for 1/52 OD 1/52 and stop Diamox BD for 2 days
- Bilateral YAG laser peripheral iridotomy (PI's) were performed at KCH on 07/01/2022
- Pressures 14 right eye and 15 left eye after PI's performed

Patient case: Account of events

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- Follow up phone call and everything documented
- Datix created
- Attack of angle closure, bilateral YAG peripheral iridotomy, safely have tropicamide drops in the future
- Bilateral cataract surgery at KCH, right eye 01/02/2022 and left eye 08/03/2022
- Patient's vision was 6/6 in both eyes
- KCH glaucoma clinic on 10/05/2022 and now awaiting a 6 month follow up (November 2022)

Patient case: Summary

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- In this case, an educational leaflet was handed to the patient and so the relative knew that the symptoms could be a side-effect of the drops.
- Highlights the importance of making patients aware of these side effects (drops leaflet)
- Emphasizes that even previous attenders can suffer from side effects

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South East London
Diabetes Eye Screening Programme

Advice after receiving your dilation eye drops

This leaflet offers advice to patients who have had a dilated eye examination using Tropicamide 1% eye drops. If you have any further questions, please speak to a healthcare professional caring for you.

In order for us to obtain good photos of the back of your eyes, we have used eye drops to dilate (enlarge) your pupils. Dilation eye drops may blur your vision and can make you sensitive to bright light. You may find it helpful to wear sunglasses. You may also experience temporary stinging and a dry mouth after using the eye drops. You should not drive or operate heavy machinery until your sight returns to normal and your eyes are comfortable. The effects of the drops can last two to four hours, but can be up to six hours.

Very rarely, the drops can cause a sudden, dramatic rise in pressure within your eye (known as acute glaucoma), which will need to be treated quickly in an Eye Unit. The symptoms of this include:

- pain or severe discomfort in your eyes
- redness of the white in your eyes
- constantly blurred sight, sometimes with rainbow halos around lights
- nausea (feeling sick) and vomiting (being sick).

If you experience any of these symptoms after screening, you should return immediately to the Eye Unit or go to your nearest Emergency Department (A&E).

If you experience any other symptoms that you are concerned about, please contact your GP. Information on other possible side effects is available in the manufacturer's leaflet. Please ask our staff if you would like a copy.

showing we care

You can find Emergency Departments with an attached eye casualty at the following hospitals:

- St Thomas' Hospital, Westminster Bridge Road, London SE1 7EH
- King's College Hospital, Denmark Hill, London SE5 9RS
- St George's Hospital, Blackshaw Road, London SW17 0QT
- Queen Mary's Hospital, Frognal Avenue, Sidcup DA14 6LT (9am to 4pm)

Contact us
If you have any further questions, please contact the DESP administration team, **t:** 020 7188 1979, Monday to Saturday, 9am to 4.30pm, or **e:** gst-tr.seldesp.admin@nhs.net

For more information leaflets on conditions, treatments and services offered at our hospitals, please visit **w:** www.guysandstthomas.nhs.uk/leaflets

Pharmacy Medicines Helpline
If you have any questions or concerns about your medicines, please speak to the staff caring for you or call our helpline.
t: 020 7188 8748, Monday to Friday, 9am to 5pm.

Your comments and concerns
For advice, support or to raise a concern, contact our Patient Advice and Liaison Service (PALS). To make a complaint, contact the complaints department.
t: 020 7188 8801 (PALS) **e:** pals@gstt.nhs.uk
t: 020 7188 3514 (complaints) **e:** complaints2@gstt.nhs.uk

Language and accessible support services
If you need an interpreter or information about your care in a different language or format, please get in touch.
t: 020 7188 8815 **e:** languagesupport@gstt.nhs.uk

NHS 111
Offers medical help and advice from fully trained advisers supported by experienced nurses and paramedics, over the phone 24 hours a day. **t:** 111

NHS Choices
Provides online information and guidance on all aspects of health and healthcare, to help you make choices about your health. **w:** www.nhs.uk

Leaflet number: 3528/VER3
Date published: January 2018
Review date: January 2021

Epidemiology of angle-closure glaucoma

- The prevalence of primary angle-closure glaucoma in those aged 40 years or more is 4 in 1,000 with the prevalence rising with increasing age[2]. It most frequently occurs in the 6th to 7th decade of life.
- Accounting for ageing population structures, cases were predicted in 2012 to increase by 19% in the UK within the subsequent decade[2].
- It is more common among the Southeast Asian population, Chinese individuals and Inuits. It is rare among black people (opp to Open angle Glaucoma).
- Females are affected more commonly than males (4:1).
- First-degree relatives are at greater risk (eye shape is often inherited).

1. Khazaeni B, Khazaeni L; Acute Closed Angle Glaucoma
2. Day AC, Baio G, Gazzard G, et al; The prevalence of primary angle closure glaucoma in European derived populations: a systematic review. Br J Ophthalmol. 2012 Sep96(9):1162-7. doi: 10.1136/bjophthalmol-2011-301189. Epub 2012 May 31

Risk of AACG in DESP

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PMID: 35169344

INCIDENCE OF ACUTE ANGLE CLOSURE GLAUCOMA IN THE NORTHERN IRELAND DIABETIC EYE SCREENING PROGRAMME

Dr Matthew O'Donnell,[1] Professor Azuara-Blanco Augusto,[1,2] and Prof Tunde Peto[1,2]

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Editor,

This project aimed to ascertain the risk of acute angle closure (AAC) after the administration of tropicamide within the Diabetic Eye Screening Programme Northern Ireland (DESPNI). DESPNI provides a regional screening service to all of those with diabetes mellitus in Northern Ireland. There are 112000 patients on the register, of these 87 000 have regular annual eye screening using fundus photography.[1] At DESPNI, mydriasis using tropicamide can improve the quality of fundus images obtained. AAC is a rare complication of mydriasis, estimated risk of 0.3–0.03 %, and is an ophthalmic emergency that might lead to permanent visual loss if left untreated.[2] During 2007-2010, of the 95265 DESPNI episodes with Tropicamide dilation, 2 cases were identified, giving the risk of 1 in 31 755 and annual incidence was 0.75 cases.[3] The recommendations to DESPNI included clear instructions of AAC symptoms and emphasising the need for urgent treatment should they occur. This was after peer-to-peer education regarding AAC awareness in ophthalmic screening healthcare programme.

This audit aims to assess the incidence and management of AAC occurring within 72 hours of DESPNI attendance with tropicamide mydriasis between 01/09/2016 to 28/02/2021. A

What have we learnt?

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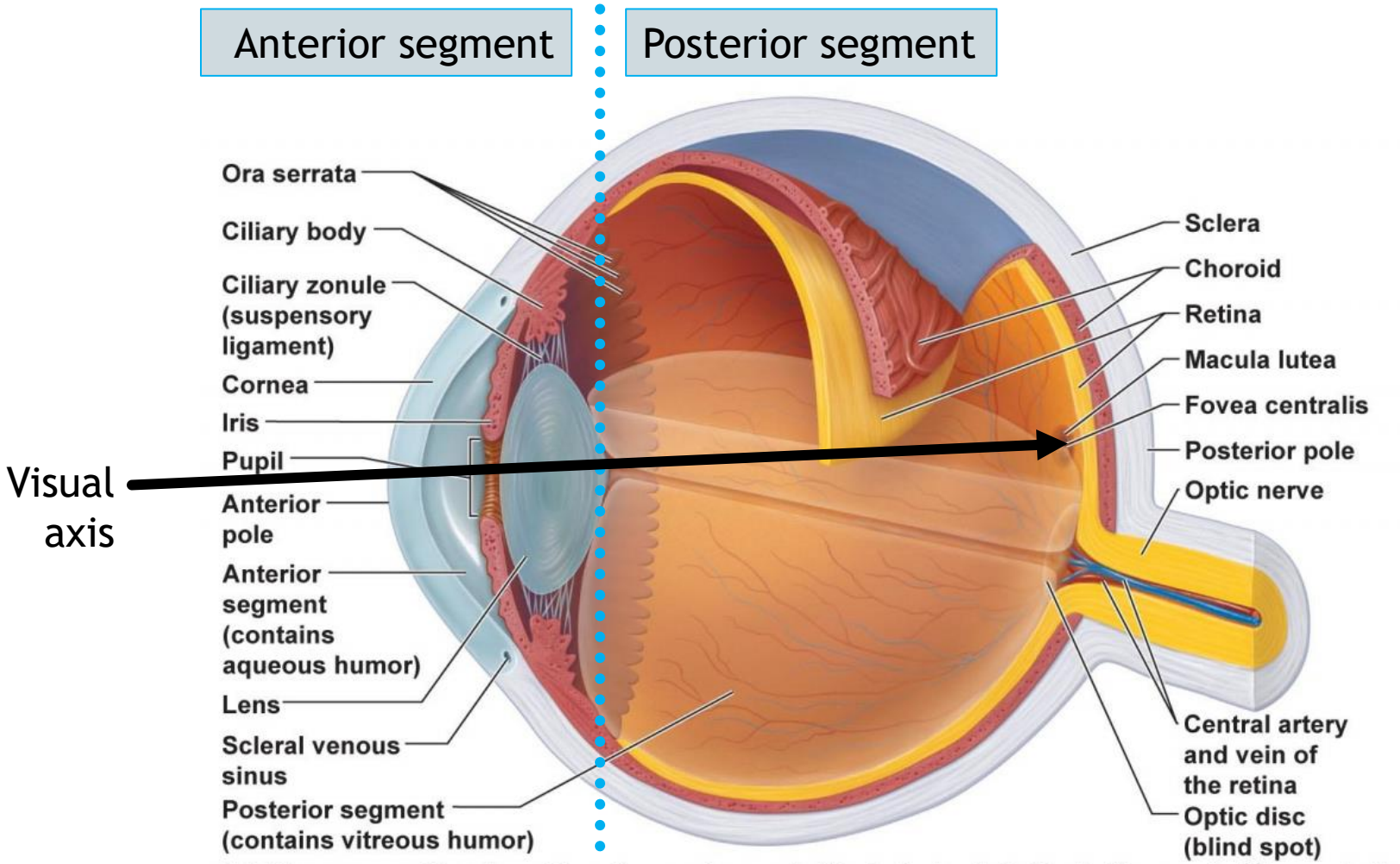
- Importance of making patients aware of dilating drop side effects
- Value of an educational leaflet
- Even previous attenders can suffer from side effects
- Promptness of treatment is key

Mechanism & Treatment of Angle Closure Glaucoma

Cross section of Eye



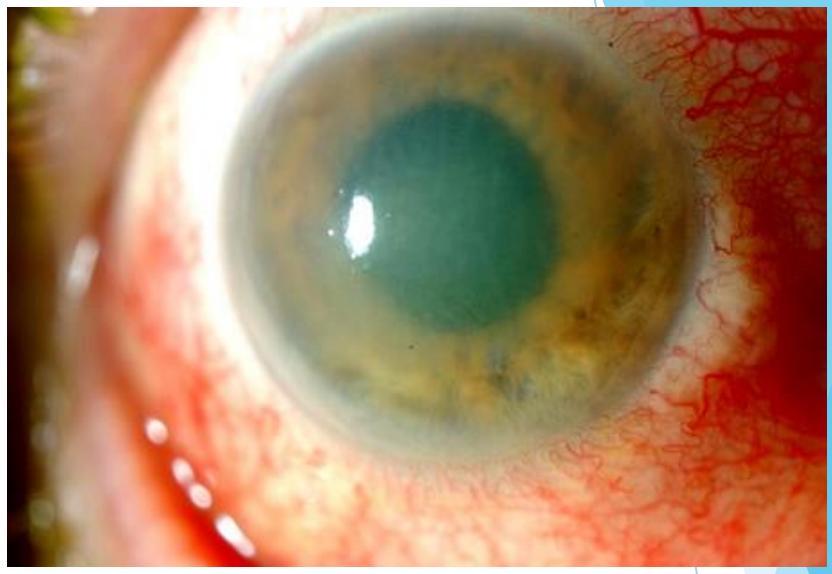
(a) Diagrammatic view. The vitreous humor is illustrated only in the bottom part of the eyeball.

Acute Glaucoma

Usually presents as Rapid ↑ in intraocular pressure

May be precipitated by pupil dilatation in patients at risk of angle closure (*small eyes*)

May be misdiagnosed as a neurological emergency - assumption that nausea & vomiting



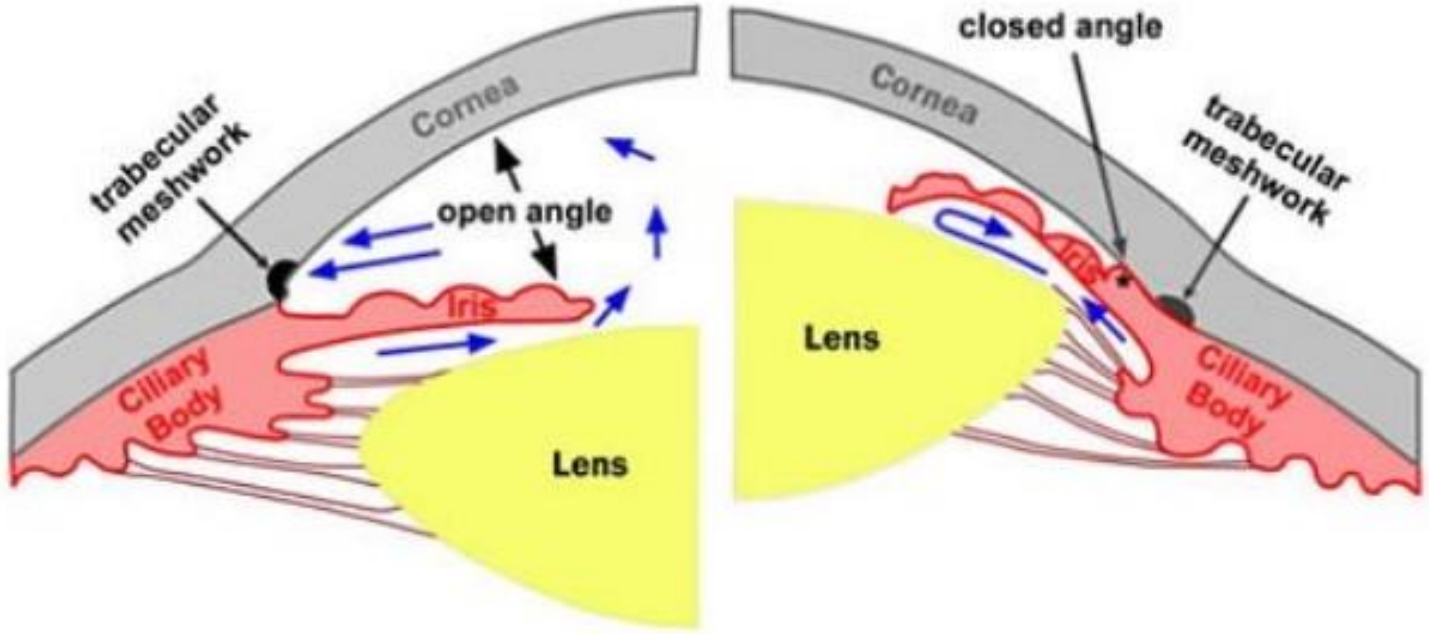
Typical features:

- ↓ vision, halos around lights
- Nausea ± vomiting
- Headache, severe eye pain & photophobia
- On examination:
- Cloudy cornea, mid dilated pupil, red eye
- Shallow anterior chamber on examination
- Pressure usually > 40 mmHg

In a small eye, with a cataract, when the pupil is dilated, the iris bunches up and closes off the angle. This is NOT the same as Open angle glaucoma.

ANGLE CLOSURE GLAUCOMA

In those with angle closure, the aqueous is unable to reach the trabecular meshwork. In angle closure, the iris becomes pressed against the cornea. This obstructs the access to the trabecular meshwork thereby preventing aqueous from draining from the eye.



Initial Medical Treatment

- Topical glaucoma medications that are not contra-indicated in the patient, together with intravenous acetazolamide. Patients lie supine.
- Topical agents include:
  - Beta-blockers - e.g. timolol, not for those with asthma.
  - Steroids - prednisolone 15 every 15 minutes for an hour, then hourly.
  - Pilocarpine 1-2% (in patients with their natural lens).

Moorfields Manual of Ophthalmology
Glaucoma referral and safe discharge - A national clinical guideline; Scottish Intercollegiate Guidelines Network - SIGN (March 2015)
Prata Ts, Kanadani F, Simoes R, et al; Angle-closure Glaucoma: treatment. Rev Assoc Med Bras. 2014 Jul60(4):295-7.

Initial Medical Treatment

- Acetazolamide is given intravenously (500 mg over 10 minutes) and a further 250 mg slow-release tablet after one hour - check for sulfonamide allergy and sickle cell disease/trait. U&E should be monitored.
- If there is no response, systemic hyperosmotics (eg, glycerol PO 1 gm/kg of 50% solution in lemon juice or mannitol 20% solution IV 1-1.5 gm/kg) may be added.
- Offer systemic analgesia ± antiemetics.

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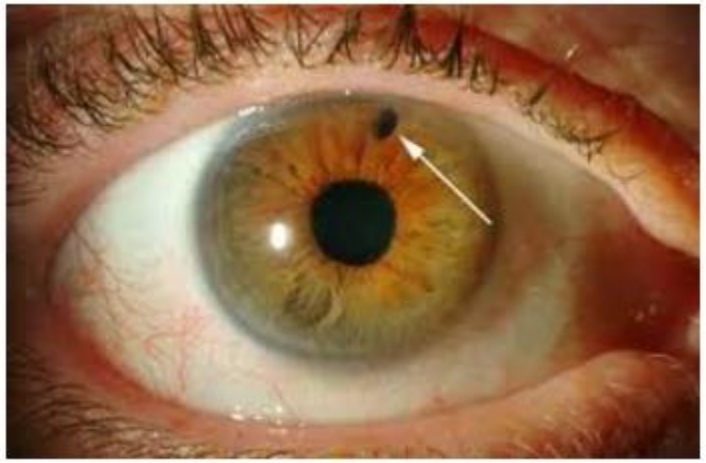
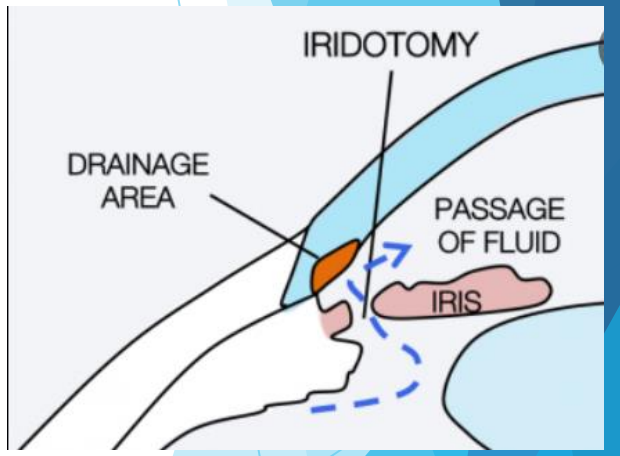
Surgical/ Laser treatment



- **Peripheral iridectomy (PI)** - this refers to a full thickness hole being made in the periphery of the iris and ideally covered by the eyelid to avoid double vision. It is usually performed using a laser to both eyes within a week of the acute attack, once corneal oedema has cleared enough to allow a good view of the iris.
- **Surgical iridectomy** - this is carried out where laser treatment is not possible. It is a less favoured option, as it is more invasive and therefore more prone to complications.
- **Cataract surgery** - one of the few situations where cataract surgery is performed on an urgent basis is when the cataractous lens has swollen to precipitate an attack of AAC. The lens is extracted at the earliest opportunity.

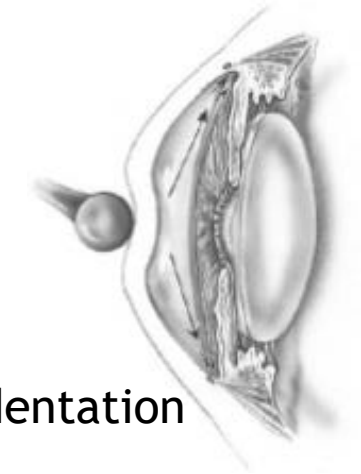


Quigley HA; Glaucoma. Lancet. 2011 Apr 16377(9774):1367-77. doi: 10.1016/S0140-6736(10)61423-7. Epub 2011 Mar 30.
Eid TM; Primary lens extraction for glaucoma management: A review article. Saudi J Ophthalmol. 2011 Oct25(4):337-45. doi: 10.1016/j.sjopt.2011.07.004. Epub 2011 Jul 30

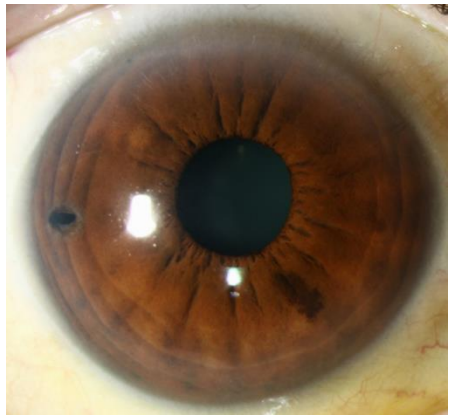
Principles of Management

A. Reduce Intraocular Pressure (IOP)
   - Topical ± systemic medication

B. Open angle



Indentation



Laser peripheral Iridotomy

A. Control anterior segment inflammation
B. Anti-emetics
C. Pain control

Conclusion:

- Case study demonstrating an important side-effect of the drops
- It is not possible to ascertain who is at risk as these patients DO NOT HAVE OPEN ANGLE GLAUCOMA. They are usually women in their 6th and 7th decade with small eyes and sometimes thick glasses.
- If patients do develop high pressure and symptoms, it is really important that they are seen promptly and have laser treatment to prevent further attacks
- It is safe to use tropicamide drops once they have had their laser treatment or cataract surgery.

- Importance of GSTT drops leaflet given to everyone.