

# Clinical cases

## Introduction

These case histories are designed to test your understanding of the symptoms, signs and management of ophthalmic diseases that have been discussed in this book. Answers are given after each case and include references to chapters where additional information may be found.

## Clinical cases

### Case 1

A 70-year-old woman presents to the eye casualty department with sudden loss of vision in her right eye. She has noted increasing headache and her scalp is tender when she combs her hair. She complains of pain in the jaw when she eats, and tires easily. There is no ophthalmic history but she suffers from peptic ulceration. She takes no regular medications. There is no family history of medical problems.

Examination reveals a visual acuity of counting fingers in the right eye. A relative afferent pupillary defect is present (see Chapter 2). The optic disc appears slightly swollen (Figure 20.1). The left eye is normal.

### Questions

- What is the likely diagnosis?
- What is the immediate treatment?
- How would you confirm the diagnosis?
- What other precautions would you take?

### Answers

The patient almost certainly has giant cell arteritis causing ischaemic optic neuropathy (see Chapter 14).

*Ophthalmology Lecture Notes*, Twelfth Edition.  
Bruce James, Anthony Bron and Manoj V. Parulekar.  
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Published 2017 by John Wiley & Sons, Ltd.  
Companion Website: [www.lecturenoteseries.com/ophthalmology](http://www.lecturenoteseries.com/ophthalmology)

Intravenous steroids must be given *immediately* before any other diagnostic step is taken, for there is a risk of arteritis and blindness in the fellow eye.

An ESR, CRP and temporal artery ultrasound or biopsy will help to confirm the diagnosis.

As the patient is being treated with steroids, it is important to obtain a chest radiograph to exclude tuberculosis (TB) (steroids may reactivate latent TB). Blood pressure and blood glucose must be monitored. The patient should be warned of the other complications of steroid therapy, including immunosuppressive effects. Treatment to prevent osteoporosis is required. A positive history of gastric ulceration demands prophylactic treatment with a proton pump inhibitor.

### Case 2

A 40-year-old man presents with sudden onset of a drooping left eyelid. When he lifts the lid with his finger he notices that he has double vision. He has a severe headache. He is otherwise fit and well with no past ophthalmic history. He is on no regular medication. There is no family history of medical problems.

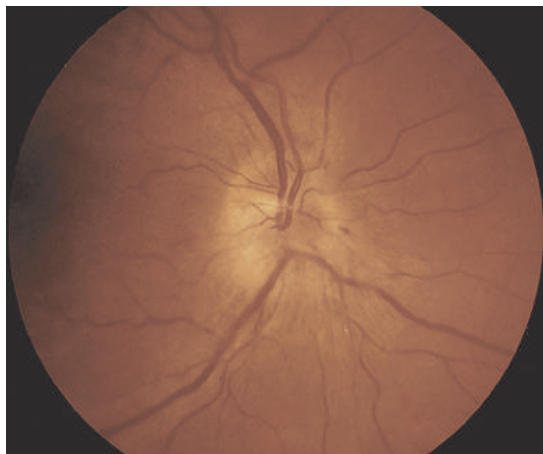
Examination reveals normal visual acuity in both eyes. A left ptosis is present. The left pupil is dilated. The left eye is abducted in the primary position of gaze. Testing eye movements reveals reduced adduction, elevation and depression of the left eye. The remainder of the eye examination is normal.

### Questions

- What nerve palsy is present?
- What is the most likely cause?
- What is the management?

### Answers

The man has a third nerve palsy (see Chapter 15). An aneurysm from the posterior communicating artery pressing on the third nerve must be the initial diagnosis in a painful third nerve palsy. The patient requires urgent neurosurgical investigation with a magnetic resonance angiogram (MRA). Urgent neurosurgical



**Figure 20.1** The appearance of the optic disc in Case 1.

intervention may be required. It is also important to check blood pressure and blood glucose. Diabetics may develop a painful third nerve palsy, but the pupil is not always affected (a 'pupil-sparing third nerve palsy').

### Case 3

A 55-year-old man presents to his GP with a 5-day history of the sudden onset of floaters in the left eye. These were accompanied by small flashes of light. He has treated hypertension but no other medical problems.

The GP examines the eye and finds a normal visual acuity. Dilated funduscopy reveals no abnormality.

### Questions

- What should the GP advise?
- What is the diagnosis?
- What are the associated risks?

### Answers

As the symptoms are acute the GP should arrange for an **urgent ophthalmic assessment**. The most likely diagnosis is a **posterior vitreous detachment**. With careful ophthalmoscopy, it will be possible to identify vitreous opacities in keeping with this diagnosis. The **flashing lights are caused by traction of the detached vitreous gel on the retina**. A specialized examination of the peripheral retina is needed. **A tear may occur in the retina, which in turn may lead to a retinal detachment. Laser applied around the tear while it is flat can prevent retinal detachment** (see Chapter 11).

### Case 4

A 75-year-old woman attends the main casualty department with nausea and vomiting. She says that her right eye is painful and red and that her vision

is blurred. She is long-sighted and wears glasses for near and distance vision. She is generally fit. There is no family history of medical problems.

On examination, the casualty officer finds the vision to be reduced to counting fingers in the right eye. The eye is red, the cornea appears cloudy, and the pupil is oval and dilated on the affected side. No view of the fundus is obtained.

### Questions

- What is the diagnosis?
- How might it be confirmed?
- What is the treatment?

### Answers

The lady is **long-sighted and has acute angle closure** (see Chapter 10). Tonometry would reveal a raised intraocular pressure often has high as **60–70 mmHg** (see Chapter 2). If possible through the cloudy cornea, gonioscopy would confirm the presence of a closed angle and a narrow angle in the fellow eye (see Chapter 10). This can also be seen using high resolution ultrasound or confocal microscopy. The pressure must be lowered with **intravenous acetazolamide and topical hypotensive drops, including pilocarpine, to produce miosis**. A peripheral iridotomy is then performed, usually with a YAG laser, in both eyes, to prevent further attacks. If she has cataracts then surgical replacement of her lenses with artificial intra-ocular lenses can also help to widen the drainage angle.

### Case 5

A 28-year-old man presents to his optician with a **painful, red right eye. The vision has become increasingly blurred over the last 2 days.** He wears **soft monthly disposable contact lenses**, and says he isn't **very reliable at cleaning his storage containers.**

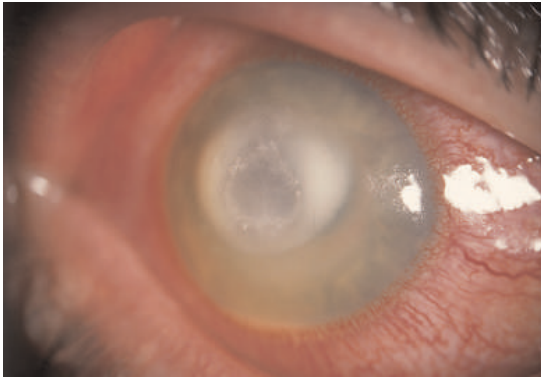
The optician notes that the vision is reduced to 6/60 in the right eye, the **conjunctiva is inflamed, and there is a central opacity on the cornea**. A **small hypopyon** (see Chapter 9) is present (Figure 20.2).

### Questions

- What is the likely diagnosis?
- What should the optician do?

### Answers

The man has a **bacterial corneal ulcer** secondary to **contact lens wear**. He requires **immediate referral to an ophthalmic casualty unit**. The ulcer will be scraped for culture and **Gram stain** and the contact lens and



**Figure 20.2** The appearance of the eye in Case 5.

any lens containers cultured. Intensive, topical, broad-spectrum antibiotics are administered as an inpatient pending the result of the microbiological investigation (see Chapter 7).

### Case 6

A mother attends her GP's surgery with her baby, now 8 months old. He has had a persistently watery eye since birth. Intermittently, there is a yellow discharge surrounding the eye. The white of the eye has never been red. The baby is otherwise healthy.

Examination reveals a white, quiet, normal eye. Slight pressure over the lacrimal sac produces a yellowish discharge from the normal puncta.

### Questions

- What is the diagnosis?
- What advice would you give the mother?

### Answers

It is likely that the child has nasolacrimal obstruction due to an imperforate nasolacrimal duct. The mother should be reassured that this often resolves spontaneously. The lids should be kept clean and the region overlying the lacrimal sac massaged gently on a daily basis. Antibiotics are generally not effective. If the symptoms persist after the child's first birthday, the child can be referred to an ophthalmologist for syringing and probing of the nasolacrimal duct (see Chapter 6).

### Case 7

A 14-year-old complains of intermittent redness and soreness of the right eye. He has noticed a small lump on the upper lid. The vision is unaffected.

Examination reveals a small, raised, umbilicated lesion on the skin of the upper lid, associated with a follicular conjunctivitis below (Figure 20.3).

### Questions

- What is the likely diagnosis?
- What is the treatment?

### Answers

It is likely that the lid lesion is a molluscum contagiosum. It is treated by excision (see Chapter 5).

### Case 8

A 35-year-old man presents to his GP with erythematous, swollen right upper and lower eyelids, worsening over the previous 2 days. He is unable to open them. He feels unwell and has a temperature.

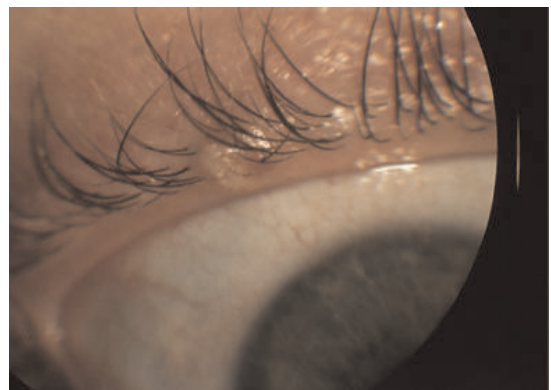
Examination reveals marked lid swelling, a tender globe and, on manual opening of the lids, proptosis with chemotic injected conjunctiva. Eye movements are limited in all directions. Visual acuity and colour vision are normal, and there is no relative afferent pupillary defect (see Chapter 2). The optic disc and retina also appear normal.

### Questions

- What is the diagnosis?
- What is the management?

### Answers

The man has orbital cellulitis (see Chapter 4). Blood cultures and a high nasal swab should be performed, together with a CT scan of the orbits and sinuses, to confirm the diagnosis and delineate any abscess. He



**Figure 20.3** The appearance of the lid in Case 7.

requires admission to hospital for intravenous antibiotics and close monitoring of his vision, colour vision and pupillary reflexes, as he is at risk of severe optic nerve damage. The ENT surgeons should be informed, as they may be required to drain an abscess. The normal acuity and colour vision suggest that the optic nerve is not compromised at present, but should these signs worsen, urgent surgical drainage will be required.

## Case 9

While working in the laboratory a colleague inadvertently sprays his eyes with an alkali solution.

## Questions

- What is the immediate treatment?
- What should you do next?

## Answers

The eyes must be washed out with copious quantities (litres) of water or saline immediately until the pH is neutralized. Acids and particularly alkalis are very toxic to the eye. Failure to treat immediately may result in permanent, severe ocular damage (see Chapter 16). The patient should then be taken to an eye emergency clinic.

## Case 10

A 27-year-old man presents with a 2-day history of a painful red right eye; the vision is slightly blurred and he dislikes bright lights. He is otherwise fit and well, but complains of some backache. He wears no glasses.

## Questions

- What is the likely diagnosis?
- What would you expect to find on examination of the eye?
- What treatment would you give?
- What is the eye condition likely to be associated with?

## Answers

The patient has iritis (see Chapter 9). Examination would reveal a reduction in visual acuity, redness of the eye that is worse at the limbus, cells in the anterior chamber and possibly on the cornea (keratic precipitates) or a collection at the bottom of the anterior chamber (hypopyon). The iris may be stuck to the lens (posterior synechiae). There may be inflammation of the vitreous and retina. The patient is treated with

steroid eye drops to reduce the inflammation and dilating drops to prevent the formation of posterior synechiae. The history of backache suggests that the patient may have ankylosing spondylitis.

## Case 11

A 68-year-old lady presents with a 4-day history of a mildly painful red eye and blurring of vision. One year previously she had a corneal graft to the same eye. She is on no medications and is otherwise well.

## Questions

- What is the most important diagnosis to rule out?
- What treatment should the patient be given?

## Answers

There may be a number of causes of this lady's red eye. A diagnosis of graft rejection must be considered first of all. The patient must be referred to an eye department as an emergency. If a graft rejection is confirmed, she will need intensive treatment with topical steroids to save the graft (see Chapter 7).

## Case 12

A 68-year-old hypertensive man noted a fleeting complete loss of vision in one eye lasting for about a minute. He described it as a curtain coming down over the vision. Recovery was complete. There was no pain.

Examination reveals no abnormality.

## Questions

- What is the diagnosis?
- What treatment would you advise?

## Answers

The patient has had an episode of amaurosis fugax, most likely caused by the passage of a thrombotic embolus through the retinal circulation. The patient requires treatment with antiplatelet drugs and a cardiovascular work up. The most likely abnormality is a plaque on the carotid artery, which may require an endarterectomy (see Chapter 12).

## Case 13

A 60-year-old lady presented to her GP with gradual loss of vision over some months. She noticed that the problem was particularly bad in bright sunshine. The eye was not painful or red. She was otherwise well.

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Ant uveitis

## Questions

- What is the probable diagnosis?
- How can the diagnosis be confirmed?
- What treatment may be advised?

## Answers

It is likely that the lady has a cataract. These can be readily seen with a **slit lamp**, but are also well visualized with the direct ophthalmoscope **in the red reflex** (Figure 20.4). The advantages and possible complications of cataract surgery should be discussed with her once the diagnosis has been confirmed (see Chapter 8).

## Case 14

An 80-year-old lady who has already lost the vision in one eye develops distortion and reduction of vision over a few days in her good eye.

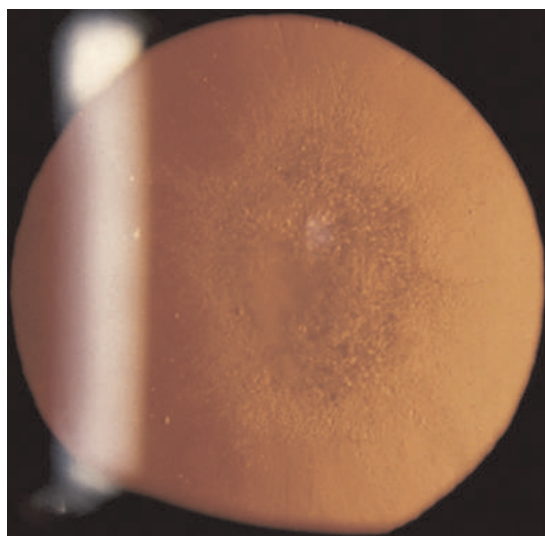
Examination reveals an acuity of 6/12, an **early cataract and an abnormality at the macula** (Figure 20.5).

## Questions

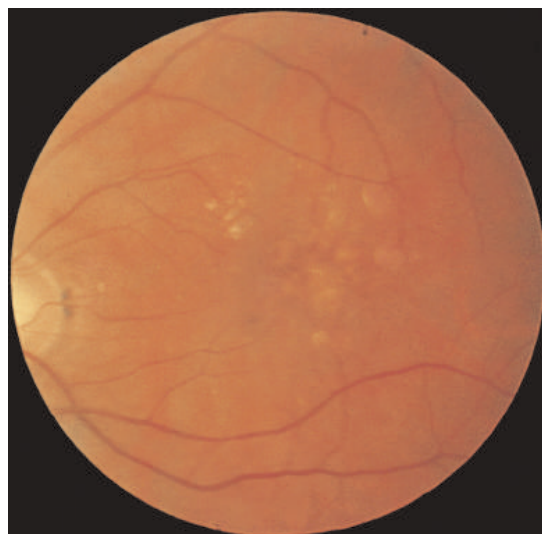
- What is the likely diagnosis?
- What treatment may be helpful?

## Answers

The rapid onset suggests that the cataract has little to do with the new visual disturbance. It is most likely



**Figure 20.4** A posterior subcapsular cataract, seen in the red reflex by direct ophthalmoscopy in Case 13.



**Figure 20.5** The appearance of the macula in Case 14.

due to **age-related macular degeneration (AMD)** (see Chapter 11). In some patients, with wet AMD, where a **fibrovascular membrane grows beneath the macula that can be shown on a fluorescein angiogram**, anti-**VEGF injections** into the vitreous may be helpful in preventing further progression and in some cases improving vision.

## Case 15

A 30-year-old builder was using a hammer to hit a steel chisel. He felt something hit his eye and the vision became blurred. He is fit and well and there is no history of medical problems.

On examination by his GP the vision was reduced to 6/12. A fluorescein staining lesion was seen on the cornea. A small hyphaema was seen in the anterior chamber, and in the red reflex observed with a direct ophthalmoscope a well-delineated lens opacity was seen. The retina appeared normal.

## Questions

- What is the cause of the reduced acuity?
- What is the likely origin of the lens opacity?
- What is the possible management of the patient?

## Answers

It is likely that a piece of steel travelling at high velocity has **penetrated the cornea, traversed the iris (resulting in the hyphaema) and passed into or through the lens (causing the opacity)**. The relatively good acuity suggests that there has been no

damage to the macula. The patient needs to be seen as an emergency in an eye unit. The corneal wound, if self-sealing, will probably not require suturing. The exact location of the foreign body has to be determined. Although it is unlikely to cause an infection (heat generated by the impact of the hammer on the metal may effectively sterilize the fragment), it may cause retinal toxicity if it has entered the vitreous cavity or retina. If it is enclosed in the lens (Figure 20.6), there is less chance of retinal toxicity developing but the patient is at high risk of developing a subsequent cataract that may require an operation. A foreign body that impacts on the retina or the vitreous body requires a vitrectomy to remove it, with careful examination of the retina for tears (see Chapter 16).

## Case 16

A 2-year-old child was thought to have a squint by her parents. The finding was confirmed by her GP and she was referred to hospital.

## Question

- What examination must be conducted in hospital?



**Figure 20.6** The intralenticular foreign body seen in Case 15.

## Answer

Having taken a full history, an orthoptist will measure the visual acuity of the child, examine the range of eye movements, determine the presence of type of squint with a cover test, trying to assess the degree of binocular vision present. The child will have a refraction performed and glasses prescribed if there is a significant refractive error or a difference in the strength of the lens needed between the two eyes (anisometropia). An ophthalmologist will examine the eye to check that there is no ocular or neurological condition that may account for the squint (see Chapter 15), and can discuss any future need for surgery.

## Case 17

A 26-year-old lady presents with a 3-day history of blurring of vision in the right eye. This has become progressively worse. She also has pain caused by moving the eye. She has previously had an episode of weakness in the right arm 2 years ago whenever she took a warm bath, but this settled without treatment. She is otherwise fit and well.

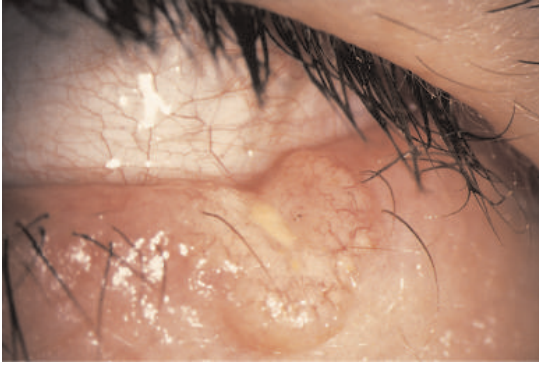
On examination the vision was 6/60, with no improvement on looking through a pinhole. A central scotoma was present on confrontation. The eye was white and quiet with no abnormality noted save for a right relative afferent pupillary defect (see Chapter 2).

## Questions

- What is the diagnosis?
- How could this be confirmed?
- What are the management options?
- What is the prognosis?

## Answers

The patient has the typical symptoms and signs of optic neuritis (see Chapter 14). The diagnosis can be supported by an MRI scan to look for additional plaques of demyelination and a visual evoked potential to examine the functioning of the optic nerve. A neurologist may also suggest performing a lumbar puncture, particularly if there is any doubt about the diagnosis. With the possibility of a previous neurological episode, it is likely that the patient has multiple sclerosis. It is of great importance that appropriate counselling is given. Steroid treatment may speed up the recovery of vision but would not change the outcome and the prognosis for recovery of vision over a few months is good.



**Figure 20.7** The appearance of the lid in Case 18.

## Case 18

A 79-year-old man presents with a lesion on his right lower lid (Figure 20.7). It has been there for some months and has gradually grown bigger. It is ulcerated and the ulcer shows a pearly margin.

## Questions

- What is the lesion?
- How should it be treated?

## Answers

This is a **basal cell carcinoma**. It requires local excision. There is no problem with metastatic spread but local extension could cause severe problems as the tumour grows and infiltrates surrounding structures (see Chapter 5).

## Case 19

A 60-year-old man presents with tired sore eyes. He has noted that the **eyelids may crust in the morning**. Sometimes the white of the eye is red. **The vision is unaffected**. He is otherwise fit and well.

## Questions

- What is the probable diagnosis?
- What signs would you look for?
- How can this condition be treated?

## Answers

The patient has **blepharitis** (see Chapter 5). Scaling of the lid margins and **at the base of the lashes**, together with inflammation of the lid margins and plugging of the meibomian glands, may be present (Figure 20.8). **Lid cleaning, along with the use of local antibiotic**



**Figure 20.8** Plugging and capping of the meibomian glands in Case 19.

ointment and **possibly topical steroids** (supervised by an ophthalmologist), will improve, if not alleviate, the symptoms. **Heat and lid massage can restore oil flow**. Courses of systemic tetracycline may be beneficial in more advanced cases and are in any case used in the treatment of acne rosacea which may be an associated condition.

## Case 20

A 30-year-old man developed an **acute red eye** first on the right and then in the left eye, associated with a **watery discharge**. Vision is unaffected but the eye irritates. He is otherwise fit and well.

## Questions

- What is the diagnosis?
- What confirmatory signs would you look for on examination?
- What precautions would you take following your examination?

## Answers

The patient has **viral conjunctivitis** – probably adenovirus – (see Chapter 7). Examination for a **preauricular lymph node and conjunctival follicles on the lower tarsus would confirm the diagnosis**. This form of conjunctivitis is **highly contagious; it is important to ensure that hands and equipment are thoroughly cleaned following the examination, and that the importance of good hygiene is emphasized to the patient**.

## Case 21

A 26-year-old woman attends the eye casualty on the advice of her optician. She has a 6-week history of

headaches and feeling nauseated in the mornings. She has normal vision and a normal examination, except for her **optic discs which appear swollen**, with blurred margins and no spontaneous venous pulsation.

## Questions

- What would be your differential diagnosis?
- What further investigations are needed?

## Answers

The description of the optic discs is suggestive of **papilloedema from raised intracranial pressure**. In the context of recent onset headaches and early-morning nausea, it is important to **rule out an intracranial space occupying lesion and an urgent MRI of the brain should be requested**. If the scan does not show any pathology, **idiopathic intracranial hypertension would be the most likely diagnosis and the patient should be referred to neurology for lumbar puncture** and ongoing management. Optic discs can appear swollen for **other reasons including optic disc drusen** (which could be visualized with a B-scan ultrasound of the eyes) **and hypermetropia**. Spontaneous venous pulsation is absent in around 10% of healthy people.

## Case 22

A 65-year-old man presents to his GP complaining he is **struggling to see things to his left-hand side for the last two days**. He has a background of hypertension and is found to have an **irregular heart rhythm**. On examination, the **left part of the visual field is missing from his vision in both eyes**.

## Questions

- How would you describe this visual field defect?
- What is the most likely diagnosis?
- What management would be needed?

## Answers

The visual field loss described is a **left homonymous hemianopia**. This would be caused by disruption to the visual pathway **anywhere after the optic chiasm in the right-hand side of the brain**. In the context of his cardiovascular risk factors, this is most likely a **cerebral infarction and he should be referred urgently to the stroke team**. In addition to imaging of the brain and the carotid arteries, he needs a full cardiovascular work up including an ECG, blood pressure

measurement and blood tests to check his glucose and lipids. The stroke physicians would work with the patient to modify these risk factors to reduce the probability of further ischaemic events, this is likely to include antiplatelet agents or anticoagulation.

## Case 23

A 30-year-old man presents to the emergency department stating that the sight in his right eye was very blurred when he woke up and he has lots of floaters moving in his vision. He **has type 1 diabetes and you see from his notes that he failed to attend his last three diabetic screening appointments**. The visual acuity in the right eye is counting fingers, it is 6/6 in the left eye.

## Questions

- What are the possible causes for his symptoms?
- How should he be managed?

## Answers

The most likely cause of these symptoms is a **vitreous haemorrhage, possibly associated with diabetic retinopathy or possibly a retinal tear**, which may lead to a retinal detachment. As he is a diabetic, this also puts him at risk of vascular pathology including a retinal vein or artery occlusion, this would cause loss of vision but the patient would be unlikely to complain of floaters. This patient should be referred immediately to the ophthalmologists for a full dilated retinal examination. If he has a vitreous haemorrhage, it is likely that he has developed proliferative diabetic retinopathy and would need urgent laser photocoagulation treatment or a vitrectomy. He needs to have his blood glucose and blood pressure checked to ensure that these are adequately controlled.

## Case 24

A **2-month-old baby boy who was born overseas** is brought to his GP by his parents, who showed them the following photograph (Figure 20.9) and said that they have been told that he needs to have his eyes checked. He was born by normal delivery at full term and is otherwise healthy.

## Questions

- What are the possible causes for this appearance?
- Why does this need urgent assessment?





Figure 20.9 Appearance of the eyes in question 24.

## Answers

This shows a white reflex in the left eye. The most likely cause for this is a congenital cataract but the most serious pathology to rule out is a retinoblastoma. This child needs urgent ophthalmic review and management to prevent the development of amblyopia.

## Case 25

A 54-year-old man attends his GP concerned about his peripheral vision; he had recently hit a parked car while driving. He has large sweaty hands, coarse facial features and tells you that he is struggling to find shoes which fit him.

## Questions

- What is the most likely diagnosis?
- How would you explain his visual complaints?

## Answers

These are the classic features of acromegaly. Most cases of acromegaly are associated with a pituitary adenoma. A macro adenoma of the pituitary may push upwards on the optic chiasm and put pressure on the decussating fibres from the nasal retinae, which represent the temporal vision in both eyes. This presents as a bitemporal hemianopia of visual field testing.