

Advice for Floaters and Flashing Lights for primary care

Key learning points

- Floaters and flashing lights usually signify age-related liquefaction of the vitreous gel and its separation from the retina.
- Although most people sometimes see floaters in their vision, abrupt onset of floaters and / or flashing lights usually indicates acute vitreous gel detachment from the posterior retina (PVD).
- Posterior vitreous detachment is associated with retinal tear in a minority of cases. Untreated retinal tear may lead to retinal detachment (RD) which may result in permanent vision loss.
- All sudden onset floaters and / or flashing lights should be referred for retinal examination.
- The differential diagnosis of floaters and flashing lights includes vitreous haemorrhage, inflammatory eye disease and very rarely, malignancy.

Vitreous anatomy, ageing and retinal tears

- The vitreous is a water-based gel containing collagen that fills the space behind the crystalline lens.
- Degeneration of the collagen gel scaffold occurs throughout life and attachment to the retina loosens. The collagen fibrils coalesce, the vitreous becomes increasingly liquefied and gel opacities and fluid vitreous pockets throw shadows on to the retina resulting in perception of floaters.
- As the gel collapses and shrinks, it exerts traction on peripheral retina. This may cause flashing lights to be seen ('photopsia' is the sensation of light in the absence of an external light stimulus).
- Eventually, the vitreous separates from the posterior retina.

Why is this important?

- Acute PVD may cause retinal tear in some patients because of traction on the retina especially at the equator of the eye where the retina is thinner.
- Gel traction may also cause bleeding into the vitreous cavity. When acute PVD is associated with vitreous haemorrhage, 70 per cent of patients have been found to have retinal tear (1).
- When a retinal tear forms, liquefied vitreous gel may pass through the retinal opening and separate the retina from the underlying pigment epithelium causing a retinal detachment in 33-46 per cent of patients.
- Retinal detachment surgery has an anatomical success rate of over 90 per cent. If surgery occurs before the macula detaches, then vision is likely to be preserved.
- Late presentation has been attributed to patients' lack of understanding about the significance of their symptoms and it is recommended that all high risk patients are counselled.

Risk factors for flashes, floaters, PVD or retinal detachment

- Increasing age is the main risk for PVD. One in four people develop a PVD in their 7th decade, and after 70 years of age nearly 2/3 will have had a posterior vitreous detachment (2).
- Conditions that increase the risk of retinal detachment:
 - Myopia: the greater the myopia, the longer the eye is, and the more stretched the retina is.
 - Intraocular surgery: 30 per cent of patients with RD have had previous cataract surgery.
 - Blunt trauma to the eye (not the head).
 - Medications: possibly oral fluoroquinolones (though evidence not conclusive (3)). They have been implicated in tendonitis and tendon rupture, at present it is not proven whether their effect on collagen could accelerate vitreous gel liquefaction, induce PVD and therefore increase risk of retinal detachment. Current data is retrospective and evidence does not support avoiding prescribing fluoroquinolones even in those with other risk factors.
- Other factors with increased risk of retinal detachment are +ve family history, RD in the other eye, history of congenital eye disease, and history of collagen disease (Marfan's disease, Stickler syndrome).
- The incidence of retinal detachment is 1 in 10,000 per year.

Presentation

- Patients often describe floaters as insects, spiders, cobwebs, veils or strands. These are often of abrupt and dramatic onset.
- Haemorrhage is sometimes seen as red opacities within the field of vision.
- Flashes are described as momentary arcs of white light, similar to a bolt of lightning or a camera flash. They can be provoked by changes in gaze direction and are more common in dim light and in the temporal field.
- A shadow may be described if retinal detachment occurs. This may be light to dark grey that starts in the periphery and progresses towards central vision at a constant position in the visual field. It may come from any direction (up, down, left or right).
- When the macula also detaches, then acuity drops and there is an 80 per cent chance of not regaining pre-operative vision levels.

GP management

- It is important to distinguish between recent symptoms and those that are longstanding.
- Longstanding awareness of floaters in the vision especially against a clear light background or occasional flashing in the peripheral field of vision on entering a dark room is common. In this circumstance reassurance is appropriate provided there has been no recent increase and high risk features are not present - ie myopia, intraocular inflammation, previous eye surgery, other eye or family history of RD.
- Acute onset of new flashes and floaters without any other signs of retinal detachment should be referred to a practitioner competent in the use of slit lamp examination and indirect ophthalmoscopy. The patient should be seen within 24 hours.
- Some symptoms indicate immediate referral to an ophthalmologist to be seen on the same day. These are new onset flashes and/or floaters together with:
 - visual field loss (such as a dark curtain or shadow)
 - distorted or blurred vision
 - Fundoscopic signs of retinal detachment or vitreous haemorrhage.

Differential diagnosis

- Flashes:
 - Eye: optic neuritis (pain on eye movement, retrobulbar pain)
 - Other: migraine (scintillations and scotoma, coloured lights, headache and nausea), postural hypotension, occipital tumours, vertebrobasilar TIA

- Floaters:
 - Vitreous haemorrhage due to proliferative retinopathy (diabetic retinopathy, retinal vein occlusion)
 - Vitritis (inflammation or tumour cells in vitreous)
- Visual field loss: optic neuropathy, CVA, retinal vascular disease, compressive lesions of the visual pathway.

Eye clinic management

- Vitreous syneresis: Prophylactic laser treatment if high risk eye and peripheral vitreo-retinal thinning with abnormal adhesions. Treatment to symptomatic floaters is rarely offered because risks are not insignificant and the natural history is of decreasing symptoms with time.
- Peripheral retinal tear: Laser surround to seal tear is reported to be over 90 per cent successful in preventing retinal detachment (4)
- Retinal detachment: Surgery with or without removal of vitreous gel (vitrectomy). Anatomical success 95 per cent.

Patient support and information provision

- www.patient.co.uk/doctor/floaters-flashes-and-haloes

Useful Resources

- [Khan AA, Kelly RJ, Carrim ZI](#). Flashes, floaters, and a field defect. BMJ. 2013;347:f6496
- Gariano RF, Kim C. Evaluation and Management of suspected retinal detachment. Am Fam Physician 2004;69:1991-8. Review of anatomy and causes of PVD and retinal detachments
- Johnson D, Hollands H. Acute onset floaters and flashes: 5 things to know. CMAJ 2012;184:431
- Kang HK, Luff AJ Management of retinal detachment: a guide for non-ophthalmologists BMJ 2008;336:1235-40
- NICE clinical knowledge summary as a resource:
<http://cks.nice.org.uk/retinal-detachment>

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References

Further reading and references

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2. Foos RY, Wheeler NC. Vitreoretinal juncture. Synchisis senilis and posterior vitreous detachment. Ophthalmology 1982;89:1502-12.
3. Han DP, Szabo A. Flashes Floaters and Oral Fluoroquinolones. Is retinal detachment a worry? JAMA Ophthalmol 2013 **131**:91-93
4. Smiddy WE, Flynn HW et al. Results and complications in treated retinal breaks. Am J Ophthalmol 1991;112:623-31