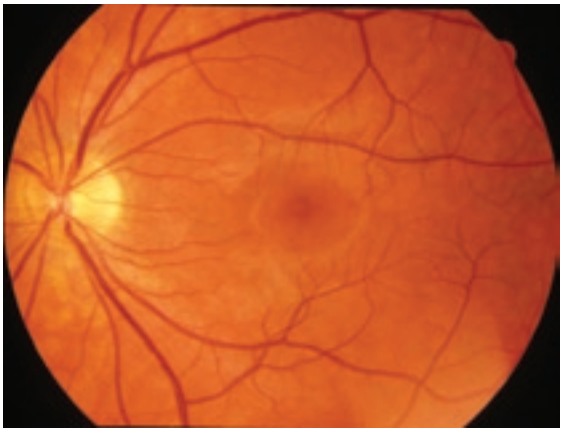
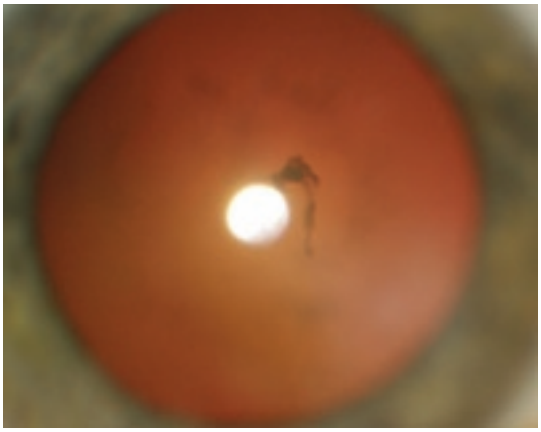
Posterior vitreous detachment



Posterior vitreous traction at the macula



Vitreous floater

DESCRIPTION

Posterior vitreous detachment (PVD) is a common degenerative, usually bilateral, condition carrying with it the risk of damage to the associated retina. The vitreous is normally attached at the following locations:

- A loose ring shaped attachment at the macula
- A ring shaped attachment around the margin of the optic nerve, related to the developmental tubular structure known as Cloquet's canal
- The vitreous base is an attachment area 2-3mm wide at the ora serrata
- The vitreous may also be loosely adherent at the retinal blood vessels
- Mittendorf's dot is the attachment of Cloquet's canal at the posterior lens surface.

With age the vitreous becomes more liquefied (synchysis senilis) and shrinks (vitreous syneresis). Fine collagen fibrils in the vitreous may congregate, forming small 'floating' opacities. The vitreous moves more readily with eye movements or trauma, tugging the hyaloid membrane anteriorly, away from the retinal internal limiting membrane. Retinal tearing or oedema may subsequently occur. If there is flow of the liquid vitreous under the retinal pigment epithelium (RPE), it may lead to rhegmatogenous retinal detachment.

SYMPTOMS

PVD is commonly associated with visual symptoms. The patient may observe small dark spots or lines close to the visual axis, known as 'floaters'. They may also report brief flashes of light in their peripheral vision (photopsia) or, less commonly, central distorted vision (metamorphopsia).

SIGNS

Examination of the vitreous is a dynamic procedure, in order to observe the subtle opacities within the transparent vitreous or the displaced posterior hyaloid face. The most common vitreous opacity associated with PVD has a ring or partial-ring shape anterior to the optic nerve head (Weiss ring). PVD at the macula may cause transient macular oedema.

RPE pigment granules that enter the vitreous are known as tobacco dust or Shafer's sign. These are virtually pathognomonic of a retinal tear or retinal detachment. Small pre-retinal or diffuse vitreous haemorrhages may occur. Careful evaluation of the peripheral retina through dilated pupils with indirect ophthalmoscopy is indicated, to identify any retinal breaks or tears.

PREVALENCE

Very common – (greater than one in 10) particularly in older patients or in younger patients with myopia.

SIGNIFICANCE

A symptomatic PVD represents a risk factor for significant retinal complications such as retinal breaks, detachment or macular hole.

SEE ALSO

Macular hole, Vitreomacular traction syndrome, Epiretinal membrane, Retinal detachment – classification, White without pressure, Vitreous anomalies.

MANAGEMENT

Urgent

A PVD is only urgent if there are concurrent signs of retinal breaks or retinal detachment.

Additional Investigations

Ocular coherence tomography (OCT) may show the vitreous face (hyaloid membrane) having detached and separated from the retina, indicating the resolution of vitreo-retinal traction in that zone.

Review

Retinal detachment is most likely to occur within six months of a symptomatic PVD; after six months the vitreo-retinal traction is likely to have reduced. If the PVD has caused an acute retinal tear, then retinal detachment is most likely to occur within one to two months subsequent.

Advice

If the only signs and symptoms relate to vitreous floaters, the patient is reassured, and advised to return for annual review and at once if symptoms change. PVD alone is not usually an indication for vitrectomy.

The full series of these articles will be available in the book *Posterior Eye Disease and Glaucoma A-Z* by Bruce AS, O'Day J, McKay D and Swann P. £39.99. For further information click on the Bookstore at **opticianonline.net**

- **Adrian Bruce** is a Chief Optometrist at the Victorian College of Optometry and a Senior Fellow, Department of Optometry and Vision Sciences, The University of Melbourne.
- **Justin O'Day** is an Associate Professor in the Department of Ophthalmology, The University of Melbourne and Head Of Neuro-Ophthalmology Clinic, Royal Victorian Eye and Ear Hospital.
- **Daniel McKay** is a Medical Officer at the Royal Victorian Eye & Ear Hospital.
- **Peter Swann** is Associate Professor in the School of Optometry, Queensland University of Technology.