This article concerns the case of a five-year-old boy with an operculated retinal tear. The authors believe this is one of the youngest cases of an operculated retinal hole reported in the literature. The patient has now been followed for nine years. Management consisted of regular monitoring of the lesion using an Optos P200 scanning laser ophthalmoscope. The advantages of using this instrument were that the retinal hole could be regularly imaged, despite its peripheral location and without the need for mydriasis, that the procedure was very acceptable and comfortable for the patient, despite his young age, and the fact that retinal images could be sent easily to the consultant ophthalmologist, enabling the optometrist in primary care practice to assist the consultant ophthalmologist in monitoring the patient and subsequently take back full independent clinical responsibility for the patient.

Background
In the UK optometrists in primary care practice generally do not carry out routinely a mydriatic fundus examination. This limits the possibility of detecting routinely peripheral retinal conditions. Those optometrists who do carry out mydriatic fundus examinations mostly do so for specific reasons such as, for example, the routine examination of diabetics and when a patient reports specific symptoms such as ‘flashes and floaters’.

The vast majority of primary eye care examinations in the UK, including children, are carried out by optometrists. Ophthalmologists usually see patients who have been referred to them for a specific reason.

Scanning laser ophthalmoscopes have, in recent years, been introduced for retinal imaging and diagnosis. These use low powered laser scanning with digital imaging. The P200 scanning laser ophthalmoscope (Optos, Dunfermline, Scotland) uses a patented ellipsoidal mirror to capture ultra-widefield, high resolution images (2,000 x 2,000 pixels) without the need for pupil dilation, corneal contact or high levels of illumination. The image produced is named the Optomap Retinal Image and can be viewed and manipulated in red and green wavelengths. The green (532nm) image is mainly sensory retina and pigment epithelium. The red (633nm) image is mainly deeper structures of the retina, from the pigment epithelium through to the choroid. This allows different layers to be viewed.1

The Optomap system uses two confocal laser beams: a green laser (532nm) scans the sensory retina through to the RPE and a red laser (633nm) scans the deeper structures of the retina from the RPE deep into the choroid. This provides two images, one superficial and one deeper which can aid differential diagnosis, for example between CHRPE and other pigmented lesions.2,3

While the typical field of view with a standard fundus camera is 45 degrees and with a SLO is 20-60 degrees4,5 the P200’s imaging system incorporates an ultra-widefield, ellipsoidal mirror at the centre of a virtual scanning system, which allows the retina to be scanned over a large portion of the ocular fundus.1 Optos claims a field of 200 degrees measured from the centre of the eye (exterior scan angle 120 degrees). Under optimum conditions the Optomap image can extend to the ora serrata with the patient in the primary position of gaze. In the authors’ experience, mydriasis is usually not required for pupils greater than 1.75mm diameter.

The authors introduced the Optos P200 scanning laser ophthalmoscope in 2001 to enhance their routine retinal examinations and monitoring of retinal conditions, particularly those in the periphery. All patients attending the practice for eye examinations are imaged routinely. The system in the practice was upgraded to the P200C in 2010 providing for even better resolution peripheral and central retinal images.

Case history
A five-year-old boy presented to the authors’ primary care optometry practice...
practice in 2001 after complaining to his mother of ‘seeing spots in the clouds’. Unaided vision was R. 6/6 L. 6/6. Retinoscopy gave a refraction of R +1.00 DS L +1.00DS. External eyes, pupillary reflexes, ocular motility and ocular motor balance were all normal. Stereoaucuity was 100” by Titmus and colour vision was normal with Ishihara.

The ocular media appeared clear under mydriasis by slit-lamp microscopy. Examination was undertaken under mydriasis with indirect ophthalmoscopy. Although the child was cooperative, no anomaly was initially found. On imaging the retina with the Optos P200, an operculated retinal hole was detected in the temporal periphery of the left eye (Figure 1).

This was the very first patient that the author had imaged using the newly installed Optomap system.

A referral was made to a consultant vitreo-retinal ophthalmologist. Having confirmed the nature of the retinal hole, the consultant ophthalmologist asked the author to monitor the lesion closely using Optomap at regular intervals, initially every three months, then six-monthly and subsequently annually. This was carried out by the author and the ophthalmologist kept appraised. The patient was seen on one subsequent occasion two years later by the ophthalmologist.

Subsequent images provided a more peripheral view of the region. Figure 1 shows the operculated tear on presentation at the age of five years. Figures 2 and 3 show the tear and operculum in 2010, nine years later.

Discussion

Operculated retinal tears are round, red breaks with an avulsed round (disc-shaped) retinal plug (operculum) adherent to the detached cortical vitreous. The term operculum derives from the Latin for cover or lid. The operculum is usually observed floating immediately anterior to the hole or in its close proximity and will usually move on eye movement. If there is vitreous syneresis and synchysis, it will be free to move elsewhere. Because it lies anterior to the retina, the operculum will cast a shadow on the underlying retina. They are seen in other conditions also, such as the example shown in Figure 4 overlying a full-thickness macular hole.

The operculum usually shrinks over time and this can be useful in aiding the clinician in determining whether the tear is old. Operculated tears are usually located between the ora serrata and the equator, more often in the superior retina.

An operculated tear probably develops as a relatively sudden event associated with a PVD formation. Jones quotes Foos & Wheeler who found PVD to be rare in people younger than 30 years.

Operculated tears can lead to clinically significant retinal detachment, but the risk of retinal separation is much less than the risk from a horseshoe tear because there is usually no vitreous traction. No

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**MULTIPLE-CHOICE QUESTIONS** - take part at opticianonline.net

1. What is the minimum size for use of the Optos P200 SLO on an undilated patient?
   - A Any diameter
   - B 1.25mm
   - C 1.75mm
   - D 2.8mm

2. Which of the following structures would be viewed in the red filter image?
   - A Cornea
   - B Lens
   - C Neuroretina
   - D Choroid

3. What colour does 633nm represent?
   - A Blue
   - B Orange
   - C White
   - D Red

4. What is an operculum when related to ocular health?
   - A A tear
   - B A degeneration of the retina
   - C A plug of dislodged or detached tissue
   - D An area of retina elevated by inflowing fluid

5. Which of the following is true about an operculum?
   - A They shrink over time so may indicate longevity of a lesion
   - B They are persistent throughout life
   - C They do not cast a shadow on the retina
   - D The operculum is static on eye movement

6. Where is the most likely area of retina to find an operculated tear?
   - A Temporally
   - B Nasally
   - C Superiorly
   - D Inferiorly

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Successful participation in this module counts as one credit towards the GOC CET scheme administered by Vantage and one towards the Association of Optometrists Ireland’s scheme. The deadline for responses is December 9 2010.
Enhanced eye examinations

Gordon Illet describes how Tower Hamlets PCT has commissioned a five-year service for people with learning disabilities

Following a six-month pilot project in which people with learning disabilities were given extended eye examinations by trained and accredited optometrists in the community, the service for a further five years. The service not only complements the Designated Enhanced Service (DES) for people with learning disability which asks GPs to provide annual health checks, including information on cataract and vision, but also provides a valuable service for this vulnerable group.

Tower Hamlets PCT commissioned the pilot in recognition of the fact that GOS funding is inadequate to allow extended examination times, and that the learning disabled are more likely to need, but less likely to access, all forms of healthcare. The PCT, with support from SeeAbility’s Eye-2-Eye project and RNIB, trained optometrists in the skills needed to examine people with learning disability. Equipment for acuity testing was funded where needed, and the optometrists were paid an enhanced fee of £60 as well as the GOS fee where appropriate.

Pre-examination questionnaires giving personal information, medical and ocular history were completed by the patients or their carers, and feedback forms on the outcome of the examination and any recommendations issued after the visit. Patients with more severe learning disabilities, known eye disease or severe communication difficulties were encouraged to attend the clinic at The Royal London Hospital. This clinic was designed to run during quiet times so that patients would not be distracted and waiting times could be minimised.

Worrying finding

Survey and outcome data from this pilot underlined the need for people with learning disabilities to access regular eye care. Thirty-one per cent of patients had not had an eye examination for five years or more and 12 per cent had never had an eye examination. This is especially worrying in the light of the findings that of the 25 patients attending the clinic, five were subsequently registered as sight impaired (partially sighted); prescriptions for spectacles were issued to 75 per cent of the patients; and almost 30 per cent had significant eye disease ranging from cataract and strabismus to optic atrophy.

Feedback from patients and carers as well as eye care professionals taking part was almost all positive apart from a need to improve attendance rates to appointments with community optometrists which is being addressed.

Services of this type are now run in a number of areas and LOCSU is developing a model clinical pathway so that local optical committees can open discussions with their PCTs, GP commissioners, local learning disability services and other interested eye health professionals to commission a service in their area.

Simon Barnard is in private optometric practice with Alex Levit in North London and is visiting associate professor at the Department of Optometry & Visual Science, School of Health Sciences, Hadassah College, Jerusalem, Israel. Alex Levit is principal optometrist at Central Middlesex Hospital. Both are directors of Supervisionaries, the clinically orientated marketing club for independent optometrists. Contact email: members@supervisionaries.com

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