Welcome to the fifth issue of IMAGE, which focuses on diabetic macular oedema (DME) - the most common cause of vision loss in people with diabetes. New imaging technologies available at CFEH, such as optical coherence tomography (OCT), can be valuable in the early diagnosis of DME.

We would like to thank all the optometrists who provided valuable feedback on IMAGE through our recent reader survey. Congratulations to Antonello Palmisani and Bernadette Moran for each winning $50 to spend at Guide Dogs NSW/ACT online store. Overwhelmingly, the survey responses stated that IMAGE is useful to optometrists, particularly the case reports, and easy to understand. In addition, the majority of optometrists requested that the newsletter continue to be distributed monthly. In response to your comments, you will see enhancements to the newsletter over the next few issues.

**CASE REPORT**

**Malika has diabetes and fluctuating vision**

Malika, aged 64, has had Type 2 diabetes for 23 years with a history of poor glycaemic control, hypertension and hypercholesterolemia. Her diabetes is currently treated with both insulin and an oral sulfonylurea and her most recent haemoglobin A1c (HbA1c) was 8.5 percent. After experiencing fluctuating vision for three weeks, Malika scheduled an appointment with her optometrist who found a best corrected visual acuity of 6/6 in each eye.

During a dilated fundus examination, her optometrist noted retinal microvascular changes in the left eye (Figure 1) and referred Malika to CFEH for further tests.

**Issues to consider**

1. How can a practitioner better appreciate the macular changes viewed in fundoscopy?

2. What are the differential diagnoses for fluctuating vision in a patient with diabetes?

**Figure 1:** Scattered haemorrhages and hard exudates in the left eye as observed by Malika’s Optometrist.

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**Centre Update**

On June 25, we celebrated receiving our 1000th referral. This is a particularly impressive achievement considering CFEH represents a completely new service offering within eye health and that less than a year ago the Centre was still a construction site. Our aim though is to increase the number of people we assist by ten-fold over the next year.

A recent survey of OAA NSW/ACT members clearly showed that we are on the right track. The vast majority of the 313 optometrists who completed the survey indicated strong demand for the services provided by CFEH and that we provide a highly professional and excellent quality service.

What the survey did however highlight is that we still have more work to do in assisting optometrists to understand the types of patients to refer as well as promoting our assistance programs for patients from regional NSW. More information on the results of the survey will be communicated to OAA members over the coming month.

These results come on the back of our first SCOPE (Series of Continuing Ophthalmic Professional Education) event, which was attended by 104 optometrists from across NSW and the ACT. Feedback from the day was very positive, with 98% of attendees rating the day as either excellent (75%) or above average (23%). Plans are currently underway for future SCOPE events.

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Prof. Michael Kalloniatis

**Director**
Results and Discussion

Differential diagnoses for Malika’s fundus appearance prior to assessment at CFEH include diabetic retinopathy, hypertensive retinopathy, renal retinopathy, branch retinal vein occlusion and anaemic retinopathy. Retinal imaging with optical coherence tomography (OCT), Optomap widefield photography and digital fundus photography would aid in diagnosis and management.

Whilst at CFEH, Malika reported that her blood pressure and cholesterol were under pharmacological control. Her recent blood tests were normal, except for a moderately elevated HbA1c.

Imaging with Spectralis OCT, Cirrus OCT, Optomap and Canon digital fundus camera was performed. Scattered microaneurysms, intraretinal haemorrhages and cotton wool spots were found in the posterior pole and midperipheral retina of each eye consistent with moderate nonproliferative diabetic retinopathy (NPDR).

Hard exudates were observed 1.5 disc diameters temporal to the centre of the macula in the right eye and one disc diameter temporal to the centre of the macula in the left eye (Figure 2).

Spectralis OCT imaging revealed intraretinal cystoid spaces within the temporal fovea in the right eye (Figure 3). In the left eye, the central macula was unaffected, however intraretinal fluid accumulation and hard exudates were observed in the outer nuclear layer about one disc diameter temporal to the centre of the macula (Figure 4).

Based on the OCT images, the right eye was deemed to have clinically significant macular oedema (CSME) and the left eye had diabetic macular oedema (DME), defined as retinal thickening within two disc diameters of the macular centre.

Urgent referral (within four weeks) to a retinal specialist for further investigation and possible treatment of CSME was recommended.

While Malika’s fluctuating vision may be at least partly related to CSME, lenticular changes secondary to her suboptimal blood glucose control may also have been a contributing factor. It is interesting to note that the right eye had normal visual acuity despite oedema within the fovea. This is likely due to the underlying photoreceptor layer being unaffected.

Prepared by: Paula Katalinic, CFEH Principal Optometrist
Diabetic Macular Oedema

Diabetic macular oedema (DME) is the most common cause of vision loss in people with diabetes, however visual acuity can often be 6/6 or better if the central macula is unaffected. In Australia, 8 percent of adult men and 6.8 percent of adult women have diabetes and the prevalence of diabetic retinopathy (DR) is between 25 and 35 percent\textsuperscript{1-3}. Specifically, the prevalence of DME in the diabetic population was found to be 5.5 percent in the Melbourne Visual Impairment Project\textsuperscript{2-3}.

DME largely results from disruption of the blood retinal barrier leading to increased accumulation of fluids within the intraretinal layers of the macula\textsuperscript{4}. Other factors that may influence progression of DME include alterations in blood flow, changes to the vitreomacular interface, retinal ischaemia and inflammation\textsuperscript{4}. Risk factors for DME include increased duration of diabetes, hyperglycaemia, hypertension, renal disease and hyperlipidaemia\textsuperscript{4-5}.

DME is defined as retinal thickening, or hard exudates, within two disc diameters of the centre of the macula\textsuperscript{1}. Any retinal thickening within 500μm of the fovea, or hard exudates within 500μm of the fovea with adjacent thickening, is considered clinically significant macular oedema (CSME)\textsuperscript{1}. DME may develop at any level of DR and is often difficult to detect ophthalmoscopically.

\textbf{OCT can be valuable in the early diagnosis of diabetic macular oedema}

National Health and Medical Research Council (NHMRC) guidelines recommend stereoscopic examination of the macula, through dilated pupils, with fundus biomicroscopy. Referral should occur when there is a suspicion of DME or there is an unexplained decrease in visual acuity\textsuperscript{1}.

New imaging technologies such as optical coherence tomography (OCT) can be valuable in the early diagnosis of DME, often allowing visualisation of intraretinal fluid accumulation and/or macular thickening\textsuperscript{6}.

Focal laser photocoagulation, in eyes that have CSME, reduces the risk of moderate vision loss by at least 50 percent and has been the mainstay of DME treatment for many years\textsuperscript{5}.

Recent clinical trials however, have demonstrated that intravitreal ranibizumab has an additive effect in reducing macular thickness and improving visual acuity for at least one year, when coupled with focal laser photocoagulation, in eyes with reduced visual acuity and central macular thickening\textsuperscript{7}.

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\textbf{STAFF PROFILE}

Sinead McCabe thrives on a challenge so she has been very happy since being appointed as Client Services Coordinator at CFEH in January. Sinead works closely with Diane Far at reception and is responsible for developing and streamlining processes associated with the Centre’s growing registrations, referrals and client bookings. Raised in Ireland, Sinead has worked for the Irish civil service, including time in the office of the Irish President.

“I enjoy my role because I’m connected in a practical way with clients, the Centre’s clinical staff and our referring practitioners,” says Sinead.

Diane joined CFEH a year ago and has looked after the day-to-day running of the Centre’s reception from day one. Coming from a client facing role at a nearby bustling Medical Centre, Diane is well equipped to handle the needs and requests of clients and clinicians.

“The way I see it, I can make a positive difference in the lives of people every day,” Diane says.
Case Report – Dora’s been warned: ‘Glaucoma can sneak up on you!’

Dora, 65 years old, has not had her eyes checked for two years. After talking to her neighbour who is being treated for glaucoma, she decided to visit an optometrist in her local area.

Her optometrist noted suspicious optic nerves during a dilated fundus exam and referred Dora to CFEH for further tests.

What services would you request from CFEH to aid in assessing Dora’s condition?

Centre for Eye Health assists eye-care practitioners to optimally manage their patients. With more than 20 state-of-the-art instruments in one location, the Centre provides an extensive range of advanced testing to detect, investigate and monitor eye disease at no charge to your patients.

References


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