



# **The 2nd Orthoptic Clinical Education Conference**

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**Program & Abstracts**

**14 & 15 March 2003**

**Clinical Education Program,  
School of Orthoptics, LTU**

# PROGRAM

## Friday 14<sup>th</sup> March 2003

8:30	Registration
9:00	Welcome
9:15	The role of the Orthoptist in the UK. Gary Price (Liverpool, UK)
9:45	Management of acquired esotropia. Adrienne Hall
10:00	Trachoma in the Northern Territory. Roni Naim
10:15	Ramathibodi Hospital Eye Clinic and Priest Hospital - Bangkok. Jess Davison
10:30	Morning Tea
11:00	Retinitis Pigmentosa. Olivia Cerra
11:15	Iatrogenic psuedoretinitis pigmentosa. Paul Senden
11:30	Calculating the refractive outcome of cataract surgery. Suzanna Talevski (RVEEH)
11:45	Contrast sensitivity. Is there a place for it in clinics? Julie Khoury
12:00	Ophthalmoplegic migraine. Hoang Kim Van
12:15	Pearls for the assessment of paediatric ocular motility patients. Sandra Staffieri (RCH)
12:30	Lunch
1:30	Does occluding the prosthetic eye improve measurement of the sound eye?! Jean Pollock
1:45	Early detection of glaucoma using the Heidelberg Retina Tomograph. Jude Fitzgerald
2:00	Retinal Thickness Analysis: A new tool in glaucoma diagnosis. Derrell Meyer (NH)
2:30	The effects and possible treatment plans of chemical warfare agents and how Melbourne hospitals may cope with such threats. Amanda Milun
2:45	Afternoon Tea
3:15	Screening for diabetic retinopathy: Expanding the role of orthoptists. Adam Fenton (NH)
3:30	A parents and health professionals guide to retinoblastoma. Adele Ibrahim
3:45	The Multi-Sensory Room. Joanne Rooney

4:00	Corneal Transplants. From donor to recipient. Marios Constantinou
4:15	POWERREF II: A new standard in refraction. Aleksandar Jakovljevic

## **Saturday 15<sup>th</sup> March 2003**

8:30	Registration
9:00	Botulinum toxin as a diagnostic and therapeutic tool in strabismus. Gary Price (Liverpool, UK)
9:15	The extraocular muscle uses of Botox at the RVEEH. Robyn Wallace (RVEEH)
9:30	The occlusion dose monitor. Natalia Dawson
9:45	Case study: The invasiveness of diagnosing Tolosa-Hunt syndrome. My Tran
10:00	Visual field defects caused by Sabril (Vigabatrin). Stephanie Tsonis
10:15	Syndromes found in the paediatric setting and their ocular implications. Tania Crlenjak
10:30	Morning Tea
11:00	The clinical examination of a patient with head trauma. Luke Skilbeck
11:15	Central retinal vein occlusion at a glance. Nardia Clark
11:30	Long-term visual outcomes of occlusion therapy for amblyopia. Pam Garoufalis (MCEC)
11:45	Strabismus Inheritance Study in Tasmania (SIST). Nicola Hunt
12:00	Thyroid eye disease: A 'global' condition. Nathan Jones
12:15	Visual assessment of children with amblyopia. Michelle Tawadros
12:30	Lunch
1:30	The journey. Julie-anne Haschek
1:45	AMD - Treatment options. Cathie-anne Jane
2:00	Treatment of macular degeneration through photo dynamic therapy (PTD). Chris Logan
2:15	ARMD update. Aarti Adhvaryu
2:30	Visual fatigue in children with low vision. Kerry Fitzmaurice
2:45	Afternoon Tea
3:15	Motivation can prevent severe proliferation. The importance of an orthoptist's role in early management of diabetic retinopathy. Ruth Kelly
3:30	In praise of effective communication. Catherine Devereux
3:45	Apert syndrome. Hulya Kolay

4:00	Ocular coherence tomography. Ursula Richards
4:15	Plaquenil and ocular side effects. Natasha Popovic

## **The role of the Orthoptist in the UK.**

### **Gary Price (Liverpool, UK)**

The structure of the National Health Service (NHS) in the UK and the role of the Ophthalmology service. The role of the Orthoptist in the UK as part of this multidisciplinary team.

The role of the Orthoptist and the services they provide at Alder Hey Children's Hospital and The Royal Liverpool University Hospital (RLUH), Liverpool, England.  
A typical day with the Clinical Orthoptist.

Methods of assessment of Strabismus and its associations specific to Alder Hey and RLUH.

Current areas of ophthalmic research and special interest at Alder Hey and RLUH.

## **Management of acquired esotropia.**

### **Adrienne Hall**

A three and a half year old female presented to the clinic with an acute acquired right esotropia. A bimedial rectus recession was performed according to measurements to correct the strabismus, resulting in an esophoria post-op. Six months post-op the deviation remained latent, however one year post-op the patient presented with a recurrent right esotropia.

The management options existing for acquired esotropia greatly influence the choice of treatment. This presentation addresses the management options for this deviation, considering possible causes, differential diagnosis, patient age, refractive error and ocular motility status.

## **Trachoma in the Northern Territory.**

### **Roni Naim**

During the period of my Orthoptics training from August to October 2002, I worked at the Alice Springs Hospital in the eye department. This training period included trips to rural Aboriginal communities with the flying doctor Service, clinics at Aboriginal Congress and Surgery observation.

During my training I became aware of many eye health issues related to Aboriginal communities. Aside from the high rates of cataract and diabetic retinopathy, trachoma was the one specific disease that became of interest to me. This was because Australia is the only developed country that still has blinding trachoma. After seeing the poor conditions that some Aboriginal communities lived in, it was no surprise that Trachoma still existed in Australia. Living standards were inadequate, with poor personal and community hygiene. Part of Australia is still a third world country.

## **Ramathibodi Hospital Eye Clinic and Priest Hospital - Bangkok.**

### **Jess Davison**

My presentation is on the clinical setup of the orthoptic/ophthalmic department at Ramathibodi hospital in Bangkok. I will outline who the patients were and how many of them attended. How they were treated in both the clinical, professional and personal aspects and how they were assessed, including the refraction, orthoptic and low vision clinics. I will also mention how strabismus surgery was carried out at Priest hospital as i was able to assist in a few operations.

## **Retinitis Pigmentosa.**

### **Olivia Cerra**

Retinitis Pigmentosa (RP) is a degenerative condition of the retina. Primarily the photoreceptor layer (predominantly the rod system) loses its functioning ability. The prevalence is approximately 1 in 4000, making it a relatively common disease. A common complaint is difficulty with night vision, which is a classic symptom of this disorder. Due to the nature of RP, its subtle progression makes it difficult to identify, hence initial diagnosis can be delayed until the second or third generation of life. Many patients fail to recognise the signs until it has significantly progressed.

The following presentation will highlight the cause, signs and symptoms and management of RP. Currently there is no known treatment for RP. It is important to increase awareness of RP as well as the many other incurable retinal disorders. This untreatable disorder is extremely distressing for a patient as it often necessitates major changes to their lifestyles, such as the sudden inability to drive a car. Counseling about how to deal with their visual handicap would be beneficial so that patients can continue life as normal as possible. This may also include the formation of support groups. It is important to educate patients that low visual aids may be of assistance to enhance any remaining vision.

## **Iatrogenic psuedoretinitis pigmentosa.**

### **Paul Senden**

Melleril is a neuroleptic drug indicated for the management of schizophrenic patients who have failed to respond adequately to treatment with appropriate courses of at least two other antipsychotic drugs. Many side effects exist for Melleril; including potentially fatal cardiovascular effects, neurological syndromes and multiple ocular complications. The ocular complications include pigment deposits of the fundus, diminution of visual acuity, colour aberrations affecting vision and anticholinergic effects. The patient involved in this case study suffered extreme ocular side effects from high doses of Melleril. Subsequently, the patient presented with bone spiculed fundi, attenuation of retinal arterioles and pale/waxy discs - consistent with retinitis pigmentosa. Also, bilateral central lenticular opacities and fine pigmentary deposits on the corneal endothelium were present in this patient. These ocular findings manifested to the patient's complaint of no perception of light in one eye and only a small central field of greyness perceived in the fellow eye.

## **Calculating the refractive outcome of cataract surgery.**

**Suzanna Talevski (RVEEH)**

When looking at the refractive outcome of cataract surgery, we are aware of the importance of the A-scan measurement itself, the keratometry readings and the positioning of the IOL.

This presentation will discuss how to choose the IOL power required, ensuring the correct a-constant is used in the calculation. In addition this presentation will outline the method used to calculate the refractive outcome of cataract surgery.

When examining the outcome of surgery, it is not just a matter of looking at the post-op refraction and how far from plano it is. It is important to examine the A-scan calculation, to determine the predicted outcome in order to compare the final outcome, hence calculating the error.

## **Contrast sensitivity. Is there a place for it in clinics?**

**Julie Khoury**

Contrast sensitivity tests have been available for a long time and there are a number of different methods for measurement available. However, it is very rarely seen let alone used in clinics. Is it a functional and useful test or one that should be disregarded? Measurement of contrast sensitivity can give a more complete picture of the patient's visual function and take little time to use. It can be used to aid in the diagnosis of ocular conditions, in detection of visual loss and to monitor the progress and effect of treatment. Some of the methods of measurement include the Pelli-Robson chart, Arden gratings and the VISTECH vision contrast test system. Contrast sensitivity testing has been used in the assessment of people with amblyopia. It has also been used with people who have suffered head injuries and in ocular conditions such as optic atrophy, macular degeneration and glaucoma. It was found to be a useful tool in the assessing and monitoring of these patients. In conclusion, contrast sensitivity is a useful tool to include in the overall assessment of a patient's visual function. It can aid in the diagnosis, monitoring and treatment of a patient's condition with minimal time and effort.

## **Ophthalmoplegic migraine.**

**Hoang Kim Van**

Oculomotor ophthalmoplegic migraine is a rare episodic childhood condition in which a unilateral oculomotor palsy is preceded by headache. I describe its definition, the lack of strict criteria but generally accepted clinical criteria for diagnosis, the clinical pattern of presentation, the many theories surrounding its pathogenesis, a discussion of the importance of differential diagnosis and the effective treatment/management that is currently available and effective.

**Pearls for the assessment of paediatric ocular motility patients.**

**Sandra Staffieri (RCH)**

**Does occluding the prosthetic eye improve measurement of the sound eye?!**

**Jean Pollock**

## **Early detection of glaucoma using the Heidelberg Retinal Tomograph.**

### **Jude Fitzgerald**

Early detection of glaucoma and appropriate treatment leads to a lower likelihood of a patient suffering serious visual damage in the long term from glaucoma.

Unfortunately there are no early symptoms of glaucoma so by the time a patient notices visual symptoms significant damage may have already been done.

The Heidelberg Retinal Tomograph can help early detection of glaucoma by using low powered diode laser beams to scan the retina and give a three dimensional image of the optic nerve head, and gives a quantifiable measurement of any cupping or damage that may be present. This then allows comparison over time to track the progression of nerve damage.

Heidelberg Retinal Tomography is a quick procedure, is unobtrusive for the patient and doesn't require any mydriatics. The scan requires only a little co-operation from the patient.

The three dimensional image of the optic nerve head allows the patient to view their own optic disc. By allowing the patient to visualise the progression of damage they may be encouraged to adhere to glaucoma treatment.

The HRT may help identify glaucoma patients earlier, allowing early treatment and lead to a decrease in preventable vision loss.

## **Retinal Thickness Analysis: A new tool in glaucoma diagnosis.**

**Derrell Meyer, Michael Coote, Adam Fenton (NH)**

The paramacular region has the greatest density of retinal ganglion cells contributing to overall retinal thickness. Laser optic cross-sectioning of macula thickness at these points aids in the interpretation of early glaucoma and challenging cases.

## **The effects and possible treatment plans of chemical warfare agents and how Melbourne hospitals may cope with such threats.**

**Amanda Milun**

The threat of possible war in which Australia would be involved is more real now than ever before. We are constantly hearing about the countdown to war on T.V, radio and newspapers but has anyone actually stopped to think about what would literally happen in the event of an attack here in Melbourne? Chemical agents and the types of projectiles may have numerous affects on people both physiologically and obviously within the eye. It is imperative that at this stage we as clinicians and future clinicians have knowledge about different type of possible attacks and how they would affect the eye I particular and the kinds of immediate and long-term treatments that would need to be administer as we would be the ones who would have to deal with the consequences. Different agents have different implications. I aim to give information on the various types of more common agents, their physiological especially ocular affects and treatment plans, posing the question, how would hospitals for example the Eye and Ear hospital deal with such a circumstance with masses of patients needing immediate attention but preventing the spread of disease or chemical affects onto clinicians and other patients.

## **Screening for diabetic retinopathy: Expanding the role of orthoptists.**

**Adam Fenton, Zoran Georgievski (NH)**

As the number of people diagnosed with diabetes escalates globally, the need to increase the currently low rates of diabetics being screened for diabetic retinopathy (DR) has received much attention, as it is the leading cause of blindness and partial-sightedness in people under the age of sixty.

Forty five (n=45) Victorian orthoptists of various clinical backgrounds were surveyed to assess their abilities to discriminate fundus images/photographs exhibiting DR from firstly, those with normal fundi and secondly, those with other retinal pathologies. Each orthoptist was mailed a folio or CD containing 36 fundus images, along with a questionnaire that they were asked to return.

The results have been encouraging. The overall sensitivity for detecting DR was 86% (SD  $\pm 11\%$ ) with specificity of 91% (SD  $\pm 11\%$ ). Twenty percent of orthoptists (n=9) scored above the rigorous screening recommendations of the British Diabetic Association of greater than 80% sensitivity and 95% specificity. However, this number increases to nearly half of orthoptists, with a maintained sensitivity of 80% but a slightly reduced specificity of 90%. On average, orthoptists correctly diagnosed 62% of the images exhibiting DR.

These results compare well with other studies examining the abilities of general practitioners, optometrists and endocrinologists at evaluating 45-degree fundus photographs. Given orthoptists' position in the eye health care system, they are well placed to potentially become major contributors in DR screening programs, albeit with a minimal amount of supplementary continuing education. This must become a focus for the Orthoptic Association of Australia Inc. and the training schools over the next few years.

## **A parents and health professionals guide to retinoblastoma.**

### **Adele Ibrahim**

Retinoblastoma is a congenital tumour which occurs in the retina. It may present at birth or during the first 2 years of life. It can be unilateral or bilateral and can also be hereditary or non-hereditary. It occurs due to loss of genetic material on chromosome 13. The mutation on chromosome 13 occurs in the tumour suppressor gene RB1. Common signs that indicate a child may have retinoblastoma include: leukocoria, strabismus, nystagmus and red-rimmed eyes. These signs are common in other ocular conditions which indicate that thorough and careful examination of the patient must be employed. Treatment of retinoblastoma will vary in accordance to each patient's condition, stage and laterality. The various methods employed are, enucleation, external beam and localized plaque radiation therapy, laser treatment, cryotherapy and chemotherapy. The main aims are to eliminate the tumour, save the eyes and preserve best vision in the affected eye. In addition to medical therapies, counseling is also apart of the treatment plan to assist and support both the child and parents. As orthoptists we are involved in the detection and diagnosis of the tumour, rehabilitation and follow up examinations of the child. Education, early detection and diagnosis would all assist in a better prognosis and understanding of this condition.

## **The multi-sensory room.**

### **Joanne Rooney**

Within the general mainstream schooling system there is always the challenge of meeting the individual needs of the 'normal' child, so what happens when a child of multiple disabilities attends school? The Teachers of Werribee Primary School were presented with this very problem when a young boy who was totally blind with slight light perception and intellectually disabled enrolled at their school.

This presentation will demonstrate the concept and the construction of what the Teachers at the Werribee Primary School now call the Multi-Sensory Room. This room allows children with handicaps, language barriers, visual impairments and even those with hyperactive problems to explore and learn with all of their senses.

The Multi Sensory Room offers a wide range of activities, games, stimulation, relaxation and fun to arouse all of a child's senses, helping them to learn relevant skills so that they can become relatively independent adults.

This presentation will also cover who is involved in the running of the room, the funding involved, progress results of the children participating and the future plans for the Multi- Sensory Room.

## **Corneal Transplants. From donor to recipient.**

### **Marios Constantinou**

A corneal transplant is the replacement of a diseased cornea by a donor cornea. The donor corneal tissue comes from individuals who die and donate their organs for the benefit of others. The Lions Eye Bank procures and distributes eye tissue for transplantation.

Corneal transplants are performed for several reasons: optical, reconstructive and therapeutic. Important factors for the selection of the donor are age, cause of death, length of time between death and transplant, and the presence of donor eye disease or previous eye surgery. In order for the cornea to function, the cornea must remain in an intact, viable and living state. The cornea needs to be retrieved by the Eye Bank and stored within 12 hours of a donor's death, while storage is generally limited to 7 days. The success of a corneal graft is further dependent on the quality of the donor cornea.

The cornea is evaluated by slit-lamp microscopy for stromal and epithelial clarity, foreign bodies, scarring and folding. Further analysis and evaluation of the donor cornea by Specular Microscopy, ensures the viability and adequacy of endothelium cell density and area and variation of cell size and shape. Corneal endothelial cells do not replicate. In order for the cornea to function this layer must be intact, living and metabolically active. Therefore low cell density or changes in cell morphology will generally exclude a cornea from transplantation.

Corneal transplantation is successful in 90% of all cases and usually restores vision completely. The generally high rate of success of corneal transplantation is attributable to many factors, including the avascularity of the cornea. Another important factor is the effectiveness of the immunosuppressive drugs used to treat graft rejection. Until the eye heals completely, vision improves slowly, which can take up to a year before vision is stabilized.

## **POWERREF II: A new standard in refraction.**

### **Aleksandar Jakovljevic**

The POWERREF II is a new videoretinoscope, which records and displays various measurements. For example: binocular refraction, accommodation, IPD measurement and pupil size. The main advantage of the new Photorefractor is the fact that it is used at a distance of one metre, making it very suitable for testing infants and unco-operative patients. Refraction measurements are obtained without cycloplegia and are performed simultaneously on both eyes, therefore, increasing the speed and repeatability of the test. Recently, a study has been published comparing the new POWERREF II to a common autorefractor. Firstly, a laboratory study was done where the photorefractive measurements were compared with the spectacle prescriptions of the subjects. In a clinical study photorefraction, autorefraction and subjective refraction were performed on subjects and the results compared (the ophthalmologist performing subjective refractions was blind to the purpose of study). The Power refractor was shown to have "comparable or slightly better reliability and accuracy than a modern autorefractor". However, its has major advantages over the ordinary autorefractors in that it is faster, measures both eyes at once, and gives IPD, pupil size , and information on the alignment of the eyes at the same time.

## **Botulinum toxin as a diagnostic and therapeutic tool in strabismus.**

**Gary Price (Liverpool, UK)**

A brief History of the development of the use of Botulinum Toxin (BT) in the treatment of strabismus. How Botulinum toxin (BT) works as to reduce extra ocular muscle action.

Uses of BT for the assessment and treatment of Orthoptic patients.

Selection and assessment of patients for BT therapy. Intraoperative procedures and techniques.

An audit of patients who received BT therapy at the Royal Liverpool University Hospital and Royal Liverpool Children's Hospital, Alder Hey.

What we have learned from our use of BT.

## **The extraocular muscle uses of Botox at the RVEEH.**

**Robyn Wallace (RVEEH)**

The availability of BTX has increased the diagnostic and therapeutic options for clinicians treating strabismus. An outline of the literature and the OMC clinic experience with intramuscular BTX will be presented.

## **The occlusion dose monitor.**

### **Natalia Dawson**

For intensified occlusion treatment compliance has been a consistent problematic factor. A new research being conducted by Dr. Catherine Stewart at St. Mary's Hospital in Paddington England, involves the use of a device known as the occlusion dose monitor, which monitors compliance. A novelty patch is used which has skin electrodes attached to its surface. The electrode wire travels from the skin electrode to be plugged into the occlusion dose monitor, which is either carried around the neck or is clipped onto the glasses.

This study investigates whether six hours of occlusion is sufficient or has any difference in obtaining maximum results of occlusion when compared to twelve hours.

The current 92 children participating in this study all have anisometropic and/or strabismic amblyopia with no past ocular history of amblyopic treatment.

## **Case study: The invasiveness of diagnosing Tolosa-Hunt syndrome.**

### **My Tran**

Tolosa-Hunt Syndrome is a relatively rare condition, common in the fifth decade of life. It affects both sexes equally and is characterized by severe peri- or retro-orbital pain.

This presentation focuses on an atypical case study of a patient in his teens, diagnosed with Tolosa-Hunt Syndrome. It reviews the primary roles of diagnostic testing in excluding other clinical possibilities and the accuracy of these procedures in detecting Tolosa-Hunt.

## **Visual field defects caused by Sabril (Vigabatrin).**

### **Stephanie Tsonis**

Epilepsy is a very common neurological disorder which affects approximately 3% of Australians. The most common anti-epileptic drug often prescribed is Sabril (Vigabatrin), which was released on the Australian market in October 1993. Although Vigabatrin is often useful in treating seizures that have not been controlled by other medications, it does have significant ocular side effects.

The most common ocular side effects include retinal changes and the development of visual field constriction. These visual field defects are often distinctive and progression should be monitored regularly. When tests for the detection of visual field defects are performed, a simple protocol should be followed to ensure all results are reliable and adequate.

## **Syndromes found in the paediatric setting and their ocular implications.**

### **Tania Crlenjak**

The paediatric setting allows for observation of numerous syndromes, not otherwise as common in other clinics. Often, this is due to the decreased mortality rates of such patients. My observations at Adelaide Women's and Children's Hospital have led me to explore three case studies, on three different syndromes I saw there.

Marfan Syndrome is a more common condition characterised by long extremities and little subcutaneous fat. Ocular implications with this condition are mainly the high occurrence of dislocated lenses (both unilateral and bilateral) and high degrees of myopia.

Apert's Syndrome is predominately characterised by abnormal craniofacial features, caused by premature closure of cranial sutures. Also syndactyly of the fingers and toes is seen, as well as anti-mongoloid palpebral fissures. Ocular implications include strabismus, often superior oblique underaction and infantile cataract.

Angelman's Syndrome is not evident at birth as it is more obvious in developmental features and typical behaviours. An Angelman child is often quite difficult to examine because of their characteristic developmental delay, speech impairment, balance disorder and unique behaviours such as frequent laughter and short attention span. They experience a high chance of strabismus and hypopigmentation of the skin and eyes, similar to that of albinism, and are thus often quite photosensitive.

In exploring these syndromes, we will look at techniques and tactics that can be implemented to better evaluation children with special needs.

## **The clinical examination of a patient with head trauma.**

### **Luke Skilbeck**

In routine orthoptic and ophthalmic practice, clinicians commonly treat and examine orthoptic and ophthalmic problems only from the signs and symptoms that they observe. There are however times when specific investigations are indicated because of the nature of the patient's situation, rather than their signs and symptoms.

When a history of head trauma is given, there are a multitude of tests that need to be performed. Regardless of the need to adequately investigate a patient's problems for legal reasons, a comprehensive examination is vital for their correct treatment and rehabilitation to be undertaken.

Many of the symptoms of head trauma can be vague and therefore may easily go unnoticed. However, a wide range of problems are common after such an event: accommodative and convergence abnormalities, ocular motor problems, cranial nerve palsies, visual field defects, vitreo-retinal problems (including optic atrophy) and unexplained non-specific visual disturbances.

It is therefore important for patients with a history of head trauma to undergo a comprehensive orthoptic and ophthalmic examination to investigate any occurrence of these problems.

## **Central retinal vein occlusion at a glance.**

**Nardia Clark**

This will be an overall look at central retinal vein occlusion and the secondary complications that can arise from this sudden vascular event. This will be examined in reference to a case study of a teenage girl who suffered this and the treatment and management she underwent to attempt to preserve the health of her eye.

## **Long-term visual outcomes of occlusion therapy for amblyopia.**

**Pam Garoufalis (MCEC)**

**Introduction:** The long-term effectiveness of amblyopia therapy was questioned by a report released by the National Health Service Centre for Reviews and Dissemination (Snowden & Stewart-Brown, 1997). The authors concluded that due to the lack of evidence that amblyopia treatment is effective, preschool screening for amblyopia should be ceased. Analysis of the literature revealed that quality studies investigating the long-term effectiveness of amblyopia therapy and the factors influencing these results are indeed lacking.

**Purpose:** To investigate the long-term visual outcomes of occlusion therapy for the treatment of amblyopia in successfully and unsuccessfully treated amblyopes, at least 1 and up to 18 years after cessation of therapy. To investigate whether factors such as the type of amblyopia, age at commencement and cessation of therapy, visual acuity at cessation of therapy, type of fixation and ocular deviation for near and distance influence the long-term visual outcomes for these two groups.

**Method:** In a partially retrospective study the visual function of 42 participants, who had been previously treated for strabismic or mixed amblyopia were examined 1 and up to 18 years after cessation of therapy. The successfully treated group (Group 1, n=26) had achieved a level of vision of 6/7.5 or better. The unsuccessfully treated group (Group 2, n=16) had achieved a level of vision of 6/9 or worse. Visual acuity was analysed by calculating an interocular score (difference in visual acuity between the two eyes).

**Results:** At follow-up examination, 62% of overall participants revealed a deterioration of visual acuity over time. The mean amount of visual deterioration was less than one logMAR chart line. This deterioration failed to reach statistical significance,  $F(1,39) = 3.361, p=0.074$ . No significant difference in visual acuity over time was found between Groups 1 and 2,  $F(1,39) = 0.031, p=0.860$ . A significant difference was found in the type of fixation, visual acuity at cessation of therapy and size of ocular deviation between Groups 1 and 2. There was no significant difference in the type of amblyopia, age at commencement and cessation of therapy found between these two groups.

**Conclusion:** Visual acuity was essentially stable, 1 to 18 years after cessation of occlusion therapy for successfully and unsuccessfully treated amblyopes. The type of fixation, size of deviation and visual acuity at cessation of therapy has minimal or no influence on the long-term visual outcomes of occlusion therapy for amblyopia. However, these factors can be used to predict short-term success of amblyopia therapy.

References: Snowden, S.K., Stewart-Brown, S.L. (1997) Preschool vision screening results of a systematic review. Report No 9. York: NHS Centre for Reviews and Dissemination, University of York.

## **Strabismus Inheritance Study in Tasmania (SIST).**

### **Nicola Hunt**

Albinism, caused by a deficiency of melanin pigment in the skin, hair, and eye (oculocutaneous albinism [OCA]), or primarily in the eye (ocular albinism [OA]), results from mutations in genes involved in the biosynthesis of melanin pigment. The lack of melanin pigment in the developing eye leads to fovea hypoplasia and abnormal routing of the optic nerves. These changes are responsible for the nystagmus, strabismus, and reduced visual acuity common to all types of albinism. Untreated strabismus leads to significant loss of vision and, even with treatment, true binocular vision may never be attained.

The Strabismus Inheritance Study in Tasmania (SIST) aims to elucidate the genetic factors that predispose individuals to hereditary squint. Their study screened three albinism candidate genes, in 32 sib-pairs, for mutations involved in congenital esotropia. No causative mutations were found in these candidates, indicating these genes do not play a role in the susceptibility to hereditary squint.

In this seminar, I will present an in-depth review of this study. More specifically, I will critique their study design, discussing the methodology used and the conclusions drawn from their results, in comparison to other similar studies.

## **Thyroid eye disease: A 'global' condition.**

**Nathan Jones**

A presentation based on an 8 week clinical placement at Alder Hey Children's Hospital and The Royal Liverpool University Hospital, Liverpool, United Kingdom.

A brief review of the signs and symptoms of TED, and their aetiology. A review of the current treatments for TED, with particular reference to those being used most commonly in the United Kingdom. Definition and explanation of a new treatment pathway/protocol for patients with TED, developed during an 8 week period of clinical placement. These new guidelines are now being implemented at The Royal Liverpool University Hospital by Dr Arvind Chandna and his orthoptic team. A synopsis of the results obtained to date, and the likely future development of treatment paths based on current findings.

## **Visual assessment of children with amblyopia.**

### **Michelle Tawadros**

Clinical placements around Melbourne allows you to see a wide variety of patients, in particular children. The orthoptic assessment of children is a somewhat different experience. Those children with amblyopia require several follow-up consultations. This presentation will present my experience in the way of dealing with children with amblyopia. I will also discuss amblyopia and its management as it is seen through parents' eyes. The management of amblyopia is quite a daunting experience for parents who have never heard of a "lazy" eye. Thus proper information and education regarding this condition is imperative so that the treatment plan that is implemented will be of maximum effect.

## **The journey.**

### **Julie-anne Haschek**

One day, three years ago, a conglomeration of individuals came together to be known as Orthoptic Students and were invited to embark on a journey. This journey had a mission and that mission was to transform naive orthoptic students into qualified and competent orthoptists. No easy task when the students themselves did not fully know what an orthoptist was. All through first year, they grappled with anatomy and physiology with the question still hanging over them "what is an orthoptist?" Then came second year and an introduction into the world of clinics and real patients, not fellow students pretending to be patients. They tentatively put drops in eyes and practiced their subjective refraction skills and all became pros at the Humphrey Visual Field machine. Finally they began to understand what it meant to be an orthoptist. Third year arrived and the students were sent packing. And gradually, as the journey continued so did their learning of new skills and the perfecting of old ones. Skills that can not be found in a text book but only through experience and listening to those who had gone before and completed the journey. The initial journey into orthoptics may be coming to a close and the mission nearing completion but a new journey is soon to begin.

## **AMD - Treatment options.**

### **Cathie-anne Jane**

Age-related macula degeneration (AMD) is currently the leading cause of vision loss in Australia, and affects nearly one third of people 75 years and older.

Most patients who are diagnosed with AMD are classified as having the dry form, while treatment is not considered effective at this stage; the symptoms are often milder with a slow progression of the disease.

In its wet form however, the damage to the visual system may be quite pronounced due to the growth of abnormal blood vessels under the retina.

Wet AMD is often treated with laser coagulation, where a laser is used to seal the leaky blood vessels. However this treatment also damages the overlying retina meaning that the treatment will not improve the patient's vision.

Other treatments such as Photodynamic Therapy (PDT) and anti-oxidants are being looked to in order to prevent further progression of the disease while also preserving an acceptable level of vision.

With no cure currently available, it is of importance to find the most effective and appropriate treatment options for the individual.

## **Treatment of macular degeneration through photo dynamic therapy (PTD).**

**Chris Logan**

At present macular degeneration is the leading cause of legal blindness in elderly people. It primarily affects central vision. Symptoms include distortion, decrease in acuity and contrast sensitivity, leading to a rapid decrease in a persons ability to perform day to day activities, such as reading or recognising faces. PDT is the most recent advancement in treatment of this disease. It is a treatment that requires certain criteria to be met before a patient is decided to be suitable. One very important criteria to be met, is the patient must have neo-vascular AMD which is characterised by new vessel growth beneath the retina. PDT is able to target and treat areas of new vessel growth without damaging or affecting healthy areas of the retina. The process of PDT involves the patient being injected with verteporfin (Visudyne) which is a light reactive drug, which after a period of time accumulates in the abnormal vessels at the back of the retina. The drug is then activated through a non-thermal laser. Once the drug is activated it will occlude the abnormal blood vessels. PDT consists of multiple treatments aimed at maintaining a patient's vision, not to restore it. It is important to make this distinction to the patient, and also inform them of post treatment precautions.

## **ARMD update.**

### **Aarti Adhvaryu**

Age-related macular degeneration (ARMD), is a debilitating condition that is a major cause of vision loss in Australia's population. At present, techniques such as photodynamic therapy (PDT) are utilized in the management of this condition. However, trials are also being conducted for new treatments, in an effort to reduce the impact of ARMD in the future. This presentation will detail some of these treatments and their outcomes if the trials are successful.

## **Visual fatigue in children with low vision.**

**Kerry Fitzmaurice**

Whilst visual fatigue is noted anecdotally in children with low vision it is not well documented. Data from a pilot study indicate that specific symptoms of visual fatigue can be identified and an increased frequency of some symptoms can be related to particular activities associated with study.

**Motivation can prevent severe proliferation. The importance of an orthoptist's role in early management of diabetic retinopathy.**

**Ruth Kelly**

This presentation aims to educate the audience about the prevention of severe vision loss associated with diabetic retinopathy. It will exemplify the orthoptists role in promoting the importance of early management and constant motivation through out the treatment of diabetic patients.

The message will be conveyed through real life case histories of two patients, patient "A" and patient "B". These patients will first be introduced to the audience prior to treatment for Proliferative retinopathy with the photocoagulation laser.

Patient "A" and "B" were selected for this presentation, upon the basis that they make an adequate comparison. Both patients are female of similar ages and have type 1 diabetes (IDDM). Furthermore, they were both administrated under the laser treatment of the same Ophthalmologist at the same clinic, last year.

Patient "A" aged 33, has good control of her diabetes, and been attending the clinic since 1995. She has attended routine examinations since first presenting with non-proliferative diabetic retinopathy which in late 2002 progressed to the early stages of proliferative retinopathy.

On the contrary, patient "B" aged 34, was first seen by the clinic in the "Advanced stage" of proliferative retinopathy and has had poor control over her blood sugar levels from a young age. Furthermore, she has failed to attend various consultations and keep up with the treatment.

In order to demonstrate to the audience the importance of early management, I will review the current recommendations as set out by the Australian Diabetes Society in regards to retinal examinations. Included will be an Orthoptist's view on the significance of these recommendations in the outcome of treating patients "A" and "B".

Furthermore, various studies on "the effectiveness of laser treatment", undertaken by the "Diabetic Retinopathy Study" (DRS) and the "Early Treatment Diabetic Retinopathy Study" (ETDRS) will be explored to predict the possible visual outcomes for each patient. Moreover, the orthoptist's role in ensuring the patient complies with the laser treatment despite its drawbacks will be emphasised.

Additionally, the presentation will review how control of diabetes and also type of diabetes can impact the patient's visual result.

In conclusion patient "A" and "B"'s visual outcome to date will be revealed to the audience.

## **In praise of effective communication.**

**Catherine Devereux**

Everyday we participate in many interpersonal exchanges. This presentation will highlight some of the skills important to "effective communication" and consider their application to the clinical environment and beyond.

## **Apert syndrome.**

### **Hulya Kolay**

Apert syndrome, also known as acrocephalosyndactyly type I (ACS1), is a rare genetic disorder that is apparent at birth. It occurs with a frequency of one in 160,000 live births. The disorder is primarily characterized by distinctive malformations of the head and facial (craniofacial) region and defects of the hands and feet.

In infants with Apert syndrome, the fibrous joints between certain bones in the skull (cranial sutures) close prematurely (craniosynostosis), causing the head to appear abnormally pointed at the top (acrocephaly). Affected infants also have characteristic facial abnormalities, such as widely spaced eyes (ocular hypertelorism), abnormal protrusion of the eyes (exophthalmos), underdevelopment of midfacial regions (midface hypoplasia), and/or a narrow roof of the mouth (palate).

Some other features commonly seen in this condition are visual disturbances related to an imbalance of the muscles that move the eyes, a hearing loss due to recurrent ear infections, and varying degrees of acne. Children with Apert's have fusion of the bones of their fingers and toes, characterized by the "mitten-like appearance of their hands. This is called syndactyly.

The eyes usually appear prominent and may slant downward. There is a high incidence of strabismus, and congenital abnormalities or absence of multiple ocular muscles has been reported. There are multiple dental abnormalities, including malocclusion, crowding of teeth, delayed tooth eruption, high arched narrow palate, and thickened alveolar ridges.

Treatment of the Apert syndrome is surgical, and patients often require multiple operations. Craniosynostosis is released surgically, and later procedures such as an advancement of the midface typically follow. Such procedures may be needed to improve the upper airway, address severe eye problems, or correct dental issues.

## **Ocular coherence tomography.**

### **Ursula Richards**

#### WHAT IT IS

An Ocular Coherence Tomographer allows one to see a digital representation of the layers of a patient's/ subject's retina. It can be described as an instrument that performs an optical biopsy. OCT imaging can be carried out at virtually any site in the body using non-invasive or minimally invasive procedures.

#### HOW IT WORKS

It essentially scans the retina by performing high-resolution (1 to 15 micron), high-speed, cross-sectional tomographic imaging. This then enables visualisation of the layers of the retina almost at a cellular level.

OCT is based on optical ranging. Precise measurements of structures are performed by shining a beam of light onto the object and measuring the echo time delay of light, which is reflected or backscattered from different internal structures.

Cross-sectional images of internal structures are generated by scanning the transverse position of the incident optical beam. This results in a two-dimensional array that represents the backscattering of the tissue in a cross-sectional plane.

#### WHAT IT CAN BE USED FOR

- Medical diagnostics,
- Materials science
- Microscopy
- Fundamental research
- Providing one, two, and three dimensional images
- Depicting the layers of the retina

#### TAKE HOME MESSAGE

Even though the fundamentals of the OCT is an example of excellent medical research and largely assisted in my understanding of the retinal mechanics, it falls short from providing essential information to us in the clinical world. The OCT assists in diagnosis of retinal disease by confirming ailed physiology already depicted via the use of

ophthalmoscopy, angiography and fundal imaging. Therefore it, as yet, does nothing to change the outcome for treatment of retinal disease.

## **Plaquenil and ocular side effects.**

### **Natasha Popovic**

Few patients consider visual symptoms as being related to their medication. However, when you realise that the eyes are an extension of the brain, an organ that is extremely sensitive to most drugs, it is not surprising that vision can be impaired by a host of medications. One such medication, known as Plaquenil (Hydroxychloroquine Sulfate), is capable of causing severe visual damage, particularly in those patients who are taking high doses of the drug and who are not regularly screened for toxicity by their eye specialist. Plaquenil is an anti-malarial agent and is one of the most commonly used drugs in the treatment of Rheumatoid Arthritis. Plaquenil can rarely cause a retinal problem involving the central visual area, or macula, but when it does it becomes irreversible. Visual changes may include blurred vision, blind spots (scotomas), decreased night and colour vision, distorted vision, as well as light flashes. The retina may take on a specific appearance when it is being adversely affected by Plaquenil. If the maximum daily dosage recommendations are followed, then the likelihood of toxicity is small. Nevertheless, it is recommended to have an eye examination at least once a year. Monitoring the vision between examinations with an Amsler grid, Ishihara color test and Perimetry may help an individual pick up any early warning signs of toxicity. Discontinuing the drug at the earliest sign of toxicity may help prevent visual loss.