



4th Global Pediatric Ophthalmology Congress

March 07-08, 2019 | Berlin, Germany

Workshop Day 1

Pediatric Ophthalmology 2019

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Scientific Tracks & Abstracts Day 1

Pediatric Ophthalmology 2019

SESSIONS

Pediatric Ophthalmology | Age-related macular degeneration (AMD) | Retina and Retinal Disorders Pediatric Neuro-Ophthalmology

Moderator: Wendy Strouse Watt, DuBois Vision Clinic, USA

SESSION INTRODUCTION

- Title:** Treating Stargardt's disease with non-invasive electrical stimulation (NI-ES)
Wendy Strouse Watt, DuBois Vision Clinic, USA
- Title:** Hands on: Strategies to improve the access of children to visual evaluation
Hélio Pancotti Barreiros, Serra dos Órgãos University, Brazil
- Title:** Results of the treatment of the active stage of retinopathy of prematurity in the regional children's ophthalmological center 'Bonum' in Ekaterinburg during the year 2015-2017
Mikhail Kariakin, Ural State children`s ophthalmological center, Russia
- Title:** Retinopathy of prematurity in infants' gestational age more than 30 weeks
BekimTateshi, University Eye Clinic, Macedonia
- Title:** Treating dry macular degeneration with non-invasive electrical stimulation (NI-ES)
Wendy Strouse Watt, DuBois Vision Clinic, USA
- Title:** Report on retinoblastoma in Russia
Ekaterina Nadbitova, Russia

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Treating Stargardt's disease with non-invasive electrical stimulation (NI-ES)

Wendy Strouse Watt
DuBois Vision Clinic, USA

Statement of the Problem: Stargardt's disease is the predominant form of all of the juvenile-onset macular dystrophies. Inherited as an autosomal recessive trait, it is a severe form of a bilateral progressive eye disease affecting the macula and the retina surrounding it. Prevalence is estimated to be 1 per 8-10,000. There is no treatment for Stargardt's disease.

Purpose: The purpose of this study is to demonstrate that transpalpebral non-invasive electrical stimulation (NI-ES) is beneficial in treating Stargardt's disease.

Methodology & Results: Four patients underwent one treatment session of ten minutes to both the eyes daily for three consecutive days with the eye stim device. At the end of 3 days of treatment, the mean distance ETDRS VA (Visual Acuity) improved markedly (mean+20 letters), with 63% improving more than 11 ETDRS letters and 50% improving more than 15 ETDRS letters.

Conclusion & Significance: The positive effect of the electrical stimulation on VA occurred quickly, after one session, demonstrates that NI-ES is beneficial for treating Stargardt's Disease. It is non-invasive and was well tolerated with no side effects reported. The positive effect continues with monthly sessions. Gene therapy and stem cell therapy treatments so far have not shown comparable resultant gain in useful vision, are much more invasive, and especially stem cell therapy has resulted in cataract formation and serious adverse events. Based on the very promising results with NI-ES, its investigation in a larger group of patients with Stargardt's disease is indicated and gives hope of a new therapeutic option.

Recent Publications

1. Klein R et al. (2007) Fifteen-year cumulative incidence of age-related macular degeneration: the Beaver Dam eye study. *Ophthalmology* 114(2):253-262.
2. Wang J et al. (2007) Ten-year incidence and progression of age-related maculopathy: the Blue Mountains Eye Study. *Ophthalmology* 114(1):92-98.
3. Shinoda K et al. (2008) Transcutaneous electrical retinal stimulation therapy for age-related macular degeneration. *Open Ophthalmol Journal* 2:132-136.
4. Anastassiou G et al. (2013) Transpalpebral electrotherapy for dry age-related macular degeneration (AMD): an exploratory trial. *Restorative Neurology Neuroscience* 31(5):571-578.
5. Korb C A et al. (2014) Prevalence of age-related macular degeneration in a large European cohort: results from the population-based Gutenberg Health Study. *Graefes Archive for Clinical and Experimental Ophthalmology*. 252(9):1403-1411.

Biography

Wendy Strouse Watt graduated from Pennsylvania College of Optometry and pursued her Master's Degree work through Nova Southeastern University College of Optometry's Clinical Vision Research Graduate Program. She is currently involved in private practice at DuBois Vision Clinic, Pennsylvania (USA). Her research work deals with the treatment for dry macular degeneration. Her passion is to get the treatment to the people in need. Over the years, she has fine-tuned the protocol, the methodology and process of non-invasive electrical stimulation (NI-ES) of the retina.

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Hands on: Strategies to improve the access of children to visual evaluation

Hélio Pancotti Barreiros

Serra dos Órgãos University, Brazil

Statement of the Problem: It is important to access the visual acuity of children before the age of six or seven, when the connections of the central neural pathways related to vision enter into another stage of development. If one finds a decrease in vision before this age, it is easier to conduct the necessary corrections. After these, the strategies for improving the acuity become less effective. But most of the scales that are used to access such ability, like Snellen, Landolt, etc., are of difficult understanding for them because they are in the early years of education. So, it might be useful to have a scale easier of comprehension for children.

Methodology & Theoretical Orientation: The hands from Evaldo (Mãos de Evaldo) were designed by a Brazilian university professor, Evaldo de Mendonça Campos (1915-2003), who draw a hand with only four fingers which size and form are related to the visual scales available. The examiner is going to turn the picture to different positions and is going to ask the child to reproduce the hand of the picture with its own hand.

Findings: Children in preschool age can understand and perform the test in a manner easier than it would do with other scales.

Conclusion & Significance: This test is easy to perform, cheap to acquire, maybe easier and cheaper than the others, and should be used for screening of children at the critical visual period.



Figure 1: Picture of the 0, 1 hand



Figure 2: Picture of the 0, 6 hand

Recent Publications

1. Khan T (2015) Is there a critical period for amblyopia therapy? Results of a study on older anisometropic amblyopes. Journal of Clinical and Diagnostic Research 9(8):NC01–NC04.
2. Hussaindeen J R, Rakshit A and Negiloni K (2015) Amblyopia: what else beyond patching and critical period? Sci J Med Vis Res Found. 132-134

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3. Powell C and Hatt S R (2009) Vision screening for amblyopia in childhood. Cochrane Database of Systematic Reviews (3):CD005020.
4. Carlton J, Karnon J, Czoski-Murray C, Smith K J and Marr J (2008) The clinical effectiveness and cost-effectiveness of screening programmes for amblyopia and strabismus in children up to the age of 4-5 years: a systematic review and economic evaluation. Health Technol Assess 12(25):iii, xi-194.
5. Wong, Agnes et al. (2012) New concepts on visual cortical plasticity: Multiple critical periods and implications for amblyopia. Journal of American Association for Pediatric Ophthalmology and Strabismus 17(1):e40.

Biography

Hélio Pancotti Barreiros has completed his first Postgraduate studies in Ophthalmology in 1998 at Serra dos Órgãos University, and the second in 2009 at Fluminense Federal University. After passing a selecting exam in 2007, he has entered the public service in Teresópolis, RJ, where he has had the task of providing ocular care for the poor. After exam once again, he has been a medicine teacher at Serra dos Órgãos University for five years, but later on he has left this position to dedicate more attention to the care of the unfortunate.

Notes:

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Results of the treatment of the active stage of retinopathy of prematurity in the regional children's ophthalmological center 'Bonum' in Ekaterinburg during the year 2015-2017

Mikhail Kariakin¹, Stepanova E A² and Elkin I O³¹Ural State children's ophthalmological center, Russia²Ural State Medical University, Russia

Population in Sverdlovsk region is around 43,00,000 people. And here more than 55,000 babies are born every year, of which about 7.5% are premature. The development of nursing technologies for very premature infants leads to an annual increase in the number of surviving premature infants with low and extremely low body weight (<1000 g); these children are at risk of developing severe forms of ROP (retinopathy of prematurity). The main goal is to evaluate the effectiveness of the treatment of patients with an active ROP stage who received laser and vitreoretinal surgical treatment at the regional children's ophthalmological center 'Bonum' in Yekaterinburg during the period 2015-2017. In that period, 4214 premature babies turned to the center 'Bonum'. 1620 (38.2%) of them have different stages of ROP. 1331 patients (82.2%) have stage I-II, 273 (16.9%) - stage III and 16 patients (1.0%) have stage IV-V. Panretinal laser coagulation of the avascular zones of the retina was performed in 174 patients (325 eyes) with severe stages of ROP, the effectiveness was 81.3%. Vitreoretinal surgical interventions were performed in 35 patients (58 eyes), efficiency – 65.7%. Surgical treatment at stage IV ROP was performed in 31 patients (88.6% of those who needed surgical treatment) on 48 eyes (84.2%, respectively). In 12 patients (34.3%) the disease was in AP-ROP (aggressive posterior ROP). The effectiveness of the surgical treatment was 47.9%. 174 patients with severe stages of ROP were treated (4.1% of all premature babies in the region) in the Sverdlovsk region during 2015-2017. The effectiveness of laser treatment was 84.6%. The effectiveness of vitreoretinal surgery was 65.7%. The development of total blindness was prevented in 161 patients (92.5%) who underwent laser and surgical vitreoretinal treatment at the medical center 'Bonum'. Visional disability due to the development of the left ventricle was established for 25 children (1.5% of children with ROP).

Biography

Mikhail Kariakin, pediatric ophthalmologist, PhD. I work at Regional children's ophthalmological center "Bonum", Yekaterinbur. I'm a vitreoretinal and cataract surgant. I'm interest in ROP, congenital cataract, congenital glaucoma.

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Retinopathy of prematurity in infants' gestational age more than 30 weeks

Bekim Tateshi¹ and Ana Oros²

¹University Eye Clinic, Skopje, Macedonia

²University Eye Clinic, Novi Sad, Serbia

Purpose: The purpose of this paper is to analyze the possibility of developing retinopathy of prematurity (ROP) and need for treatment in premature babies born between 30 and 36 weeks of a gestational age and birth weight over 1500 g.

Method: In this retrospective study were analyzed data of premature babies which followed in period from May 2012 to May 2017. In Republic of North Macedonia for screening of ROP is used recommendations from the American Association for Pediatric Ophthalmology and Strabismus where clearly defined inclusion for the screening program for ROP of all pre-matures with a birth weight (BW) of 1500 g or less and/or born at 30 gestational weeks (GW) or earlier and selected infants with a birth weight between 1500 to 2000 g with unstable clinical course.

Results: In this retrospective study were included 130 premature babies treated with laser photocoagulation in the period from May 2009 to May 2014 performed by two eye surgeons. 52 treated neonates are with gestational age more than 30 gestational weeks and 37 infants are with BW over 1500 g.

Conclusions: The results concluded that premature infants with unstable clinical course, born between 31 and 36 weeks of a gestational age and birth weight over 1500 g should be screened for ROP.

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Treating dry macular degeneration with non-invasive electrical stimulation (NI-ES)

Wendy Strouse Watt

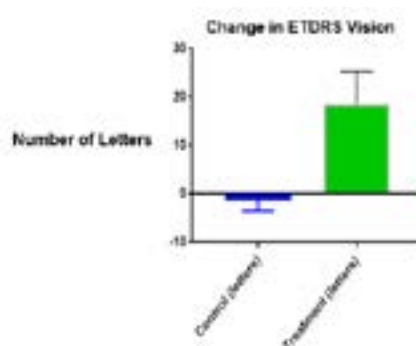
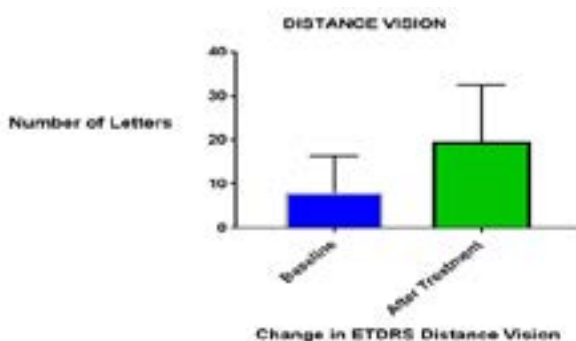
DuBois Vision Clinic, USA

Statement of the Problem: Macular degeneration (MD) is the leading cause of irreversible vision loss in people over 50. Without effective treatment, those with some signs of MD will increase upto 70% by 2030. Currently, there is no treatment for dry macular degeneration.

Purpose: The purpose of this case series is to demonstrate that transpalpebral NI-ES, is beneficial in treating dry MD.

Methodology & Results: Twelve patients were randomly divided into two groups. In the treatment group, 6 patients underwent one treatment session of ten minutes to both the eyes daily for three consecutive days with an active eye stim device. The second group of 6 patients acted as the control group. This group underwent one sham treatment session for 10 minutes with a non-functional eye stim device treating both eyes daily for three consecutive days during week 1. Followed by one active treatment session for three consecutive days with an active eye stim device during week 2. At the end of 3 days, the eyes treated with the eye stim in the treatment group improved on average 3.9 lines (or 19 ETDRS letters). The control eyes lost on an average about 1 line (6 ETDRS letters).

Conclusion & Significance: This case report demonstrates that NI-ES is beneficial for those with dry MD. It is non-invasive and was well tolerated in each case with no one reporting any side effects. The positive effect on VA occurred quickly, after 1 ten minute session, and continued to improve after 3 days of treatment. The changes observed indicate the potential efficacy of microcurrent electrical stimulation to improve vision, slow progression, and possibly stabilize dry MD. Based on the very promising results, studying a larger group of patients is needed and gives hope of a new therapeutic option.



Recent Publications

1. Klein R et al. (2007) Fifteen-year cumulative incidence of age-related macular degeneration: the Beaver Dam eye study. *Ophthalmology* 114(2):253-262.
2. Wang J et al. (2007) Ten-year incidence and progression of age-related maculopathy: the Blue Mountains Eye Study. *Ophthalmology* 114(1):92-98.

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3. Shinoda K et al. (2008) Transcutaneous electrical retinal stimulation therapy for age-related macular degeneration. *Open Ophthalmol Journal* 2:132-136.
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Notes:

SESSIONS

Pediatric Ophthalmology | Age-related macular degeneration (AMD) | Retina and Retinal Disorders Pediatric Neuro-Ophthalmology

Moderator: Wendy Strouse Watt, DuBois Vision Clinic, USA

SESSION INTRODUCTION

Title: Exploring the causes and secondary procedure choice of consecutive esotropia after surgery in intermittent exotropia

Qiao Tong, Shanghai Children's Hospital - Shanghai Jiaotong University, China

Title: Prevalence and causes of visual impairment among persons living with diabetes in Sub-Saharan Africa, Ghana

Mandela Owusu kumi, Ghana

Title: The relation between refractive error and learning achievement among elementary students at Surakarta

Muhammad Ilham Malda, Indonesia

Title: Ocular findings and strabismus surgery outcomes in Chinese patients with Angelman syndrome: case series and literature review

Qiao Tong, Shanghai Children's Hospital - Shanghai Jiaotong University, China

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Exploring the causes and secondary procedure choice of consecutive esotropia after surgery in intermittent exotropia

Qiao Tong, Wang Siyin, Ye Haiyun, Zheng Wenjing, Zhang Yidan and Di Yue

Shanghai Children's Hospital - Shanghai Jiaotong University, China

Objective: To investigate the cause and secondary procedure choice of consecutive esotropia after intermittent exotropia surgery, while to find individual procedure to avoid the occurrence of consecutive esotropia corresponding to the causes.

Methods: The medical records of 40 patients who underwent surgical correction of consecutive esotropia, which was conducted between June 2014 and June 2017, were retrospectively reviewed. Consecutive esotropia was defined as residual manifest esodeviation of 15 prism diopter (PD) at 6 months postoperatively. Successful correction of consecutive esotropia was defined as the lack of manifest or intermittent tropia and esophoria/exophoria within 8 PD. Patients were analyzed for the cause of consecutive esotropia. Unilateral lateral rectus advancement into the original insertion site was designed before surgery in all patients.

Results: In our procedure, we found 24 in 40 cases (60%) consecutive esotropia after intermittent exotropia correlated with the abnormal insertion of inferior oblique muscle in the main squint eye; 10 in 40 cases (25%) without any reason, 6 in 40 cases with slipper of recessed lateral rectus and scar. Unilateral lateral rectus advancement was successful in the correction of consecutive esotropia in 37 of 40 cases (92.5%). 30 of 37 (81.1%) patients obtained binocular fusion and stereopsis improvement.

Conclusion: Unilateral lateral rectus advancement generally provides enough correction for most consecutive esotropia. Surgeons should consider the vertical deviation, especially in patients with oblique overreaction. Consecutive esotropia after intermittent exotropia correlated with the abnormal insertion of inferior oblique muscle in the main squint eye, which reminds us change the amount of surgery once we find the abnormal insertion of inferior oblique muscle when lateral rectus recession procedure is done.

Biography

Qiao Tong is a Senior Consultant and Head of Ophthalmology Department, Children's Hospital of Shanghai. She is also a member of American Academy of Ophthalmology. Her main interest is in Paediatric Ophthalmology, including management of a range of eye problems in children, such as refractive errors, amblyopia, retinopathy of prematurity, congenital and acquired children eye diseases. She is an experienced surgeon and specializes in microsurgery treatment for refractory children and adult's strabismus, nystagmus and Crouzon syndrome.

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Prevalence and causes of visual impairment among persons living with diabetes in Sub-Saharan Africa, Ghana

Mandela Owusu kumi
Ghana

Worldwide more than 415 million people have diabetes. This number is expected to double by 2035. According to International Diabetes Federation (IDF), there were 266,200 cases of diabetes in Ghana in 2015, with total adult population (20-79 years) being 13,880, with the prevalence of diabetes in the same age group in Ghana being 2%. The prevalence of visual impairment and blindness in diabetic patients is on the rise worldwide and more specifically in Ghana. Diabetes is among the leading causes of visual impairment in many developed nations. Diabetic retinopathy, as one of the complications of diabetes, has been found to be the leading cause of visual impairment among adults aged between 20-79 years. Diabetic retinopathy results from damage to the capillary walls of retinal blood vessels due to chronic hyperglycemia. This damage may lead to aneurysms, rupture of which results in retinal hemorrhage, ischemia and micro-infarctions that lead to vision loss. DM affects most of the organs of the body including the eye. Almost all parts of the eye may be affected including the extra ocular muscles, intraocular lens, the optic nerve, and the retina. Diabetes is the leading cause of blindness between the ages of 20-79 years and individuals with diabetes are 25 times more likely to become legally blind than individuals with no diabetes. There is not enough information available on the causes of visual impairment among persons living with diabetes in Ghana. Visual impairment has broad implication on ocular health care because of its potential for causing disability, suffering and loss of productivity. Early detection and treatment of visual impairment among persons living with diabetes, especially with the use of spectacle intervention is essential to maintain full functional activities. It is the lack of available data on the causes of visual impairment among persons living with diabetes and its impact on the society and other activities that arouse my interest to investigate into the topic; Prevalence and causes of visual impairment among persons living with diabetes. The main objective of the study is to determine the prevalence and causes of visual impairment among persons with diabetes in Ghana. The specific objectives are: To determine the prevalence of visual impairment among persons living with diabetes in Ghana; to determine the magnitude of visual impairment caused by uncorrected refractive error; to establish the relationship between disease status and visual impairment; and to predict the age and gender distribution of visual impairment among persons living with diabetes in Ghana. To determine these specifics, the author conducted a study. It was revealed that, uncorrected refractive error was the leading cause of visual impairment among persons living with diabetes (31.7%), followed by cataract 16.2%, corneal opacity 3.0%, and retinopathy 3.0% and other 3.3%. The overall prevalence rate was 58.5%. The results of this research will provide guidelines for stakeholders in the health sector in terms of policy formulation and allocation of resources. The study will help heads of health institutions to add a mandatory eye examination to the health assessment plan of all persons living with diabetes who visit their various health centers. Furthermore, the study will provide a comparable data to facilitate the planning of further studies into this area and add to existing knowledge.

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The relation between refractive error and learning achievement among elementary students at Surakarta

Muhammad Ilham Malda and Atika Sri Raharjani
Sebelas Maret University, Indonesia

Background: Refractive error is eye disorders in processing a vision due to an imbalance of optic eye, resulting in a blurry shadow. Nowadays, refractive error is one of the most prevalent eye disorders, especially in children. This health problem is faced seriously by the world, especially developing countries such Indonesia. Vision is the main information pathway and important factor in the learning process. Vision ability develops optimally until 9 years old, so delay in correction of refraction can lead reduction ability to absorb learning material. This condition will have impact on learning achievement. Because there are still contradictions from several studies that have been conducted and absence of similar research in Surakarta city, further research is needed.

Research Methods: Design of this research is observational analytic with a cross-sectional approach and conducted in one of the primary schools in Surakarta City with total of 599 students. Sampling was done by total sampling technique that meets the inclusion and exclusion criteria.

Results: Myopia simplex is refractive error found mostly in the right eye, 42 students (56.8%) and left eye in 46 students (62.2%). Other types that suffered quite a lot were astigmatism myopia simplex in right eye as many as 16 students (21.6%) and left eye 15 students (20.2%). The remaining types were astigmatism, myopia, composites, astigmatism and simplex hypermetropia with proportions ranging from 1.4%-16.2%. Based on statistical tests, no significant association was found between refractive abnormalities toward learning achievement ($P=1.00$).

Conclusion: Visus examination is used to detect refractive errors and school ranking is used as learning achievement reference. Prevalence of refractive errors was found at 16%. Results of statistical tests didn't show differences on learning achievement of children with/without refractive errors. Therefore, this research concluded that there was no effect of refractive errors on learning achievement.

Recent Publications

1. Toledo C, Paiva A, Camilo G and Maior M (2010) Early detection of visual impairment and its relation to academic performance. *Rev Assoc Med Bras.* 56(4):415-419.
2. Fauzi L, Dan T. Skrining Kelainan Refraksi Mata pada Siswa Sekolah Dasar Menurut Tanda dan Gejala. *J Heal Educ.* 2016;1(1):78-84.
3. Fauziah MM, Hidayat M. Hubungan Lama Aktivitas Membaca dengan Derajat Miopia pada Mahasiswa Pendidikan Dokter FK Unand Angkatan 2010. *J Kesehat Andalas.* 2014;3(3):429-434.
4. Juneti, Nukman E, Bebasari E. Gangguan Tajam Penglihatan pada Anak Sekolah Dasar Kelas V dan Kelas VI di SDN 017 Bukit Raya Pekanbaru tahun 2014. *JOM FK.* 2015;II(2):1-10.
5. Sofiani A (2016) Faktor-faktor yang Mempengaruhi Derajat Miopia pada Remaja di SMA Negeri 2 Temanggung. *Unnes J Public Heal.* 5(2):176-185.

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Ocular findings and strabismus surgery outcomes in Chinese patients with Angelman syndrome: case series and literature review

Qiao Tong, Haiyun Ye, Qingyu Liu, Xiaoping Lan, Yidan Zhang, Zheng Ce and Di Yue
Shanghai Children's Hospital - Shanghai Jiao Tong University, China

Purpose: Angelman syndrome (AS) is a rare genetic disorder characterized by severe mental retardation and ocular anomalies. We aim to identify the ophthalmological features, diagnose and outcomes of strabismus surgery in four such patients and to highlight the gene factors.

Patients & Methods: We identified four children with exotropia who had associated clinical features suggestive of AS. All AS patients underwent bilateral rectus recession surgery with the assistant of intravenous combined inhalation anesthesia.

Results: All patients with strabismus cannot cooperate with vision test. Retrospective review of medical records of patients with strabismus due to AS was done. Presenting features, ocular findings and ocular motility were noted. All patients underwent different degrees lateral rectus recession and exotropia relieved significantly.

Conclusion: The authors observed the ocular findings and strabismus surgery outcomes of four exotropic Angelman syndrome children. Moreover, writers reviewed the literature of AS anesthetics and gene diagnose. Besides of strabismus surgery, these cases also need measures to improve the intelligence and rehabilitation nursing.



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