The 45th Annual Meeting of the American Association for Pediatric Ophthalmology and Strabismus, San Diego, California, March 27-31, 2019

Costenbader Lecture

001 Making the superior oblique great again. David A. Plager
Purpose: To review the history and bring up to date clinically relevant knowledge about the anatomy and physiology of the superior oblique.
Current practice: Varies widely among strabismologists according to their training and personal experience.
Best practice: Evaluation and treatment algorithms based on the author's 30 years of learning from others, personal experience and mistakes. There will be emphasis on the importance of relative tendon laxity, how it is easily evaluated and how it can be applied to surgical decision making. When torsion should be specifically addressed or perhaps can be willfully ignored will be discussed.
Expected outcomes: Audience will have an appreciation of the history of strabismologist attitudes toward operating on the superior oblique, the evolution of knowledge about its structure and function, and the author's approach toward formulating individual surgical plans based on a combination of clinical and intraoperative findings.
Format: Lecture supplemented with illustrations and videos.
Summary: The superior oblique is by far the most complicated extraocular muscle and the source of more angst and controversy when learning how best to approach its dysfunction than all the other EOMs combined. However, by applying a few basic principles and avoiding a few common pitfalls, surgeons can have many grateful patients whose annoying or even debilitating symptoms they have relieved.

Helveston Lecture

002 Cataract surgery in children from birth to less than 13 years of age in the PEDIG registry: status three years following surgery. Michael X. Repka, MD, MBA, for the Pediatric Eye Disease Investigator Group
Introduction: To describe visual outcome and complications three years following lensectomy in children.
Methods: Prospective observational study in children <13 years of age at time of lensectomy with follow-up between 30 and 42 months after surgery. Review of registry data for 789 eyes of 611 children for visual acuity, rates of amblyopia, change in refractive error, glaucoma and glaucoma suspect, and other intraocular surgery.
Results: Lens surgery was bilateral in 274 (45%; 95% CI, 41%-49%) children and unilateral in 337 (55%; 95% CI, 51%-59%). An intraocular lens (IOL) had been implanted in 414 (56%; 95% CI, 52%-59%) eyes. Amblyopia was identified in 390 (64%; 95% CI, 60%-68%) children. In 488 children 3 years of age and older at follow up, the mean VA was 0.53 (about 20/63) in bilateral aphakic eyes, 0.28 (about 20/40) in bilateral pseudophakic eyes, 0.90 (20/160) in unilateral aphakic eyes, and 0.54 (about 20/63) in unilateral pseudophakic eyes. Age-normal visual acuity was reported for 117 (32%; 95% CI, 27%-37%) pseudophakic eyes and 45 (27%; 95% CI, 20%-35%) aphakic eyes.

A myopic shift in refractive error was found with a mean change of −6.87 D (95% CI = −8.45 to −5.28) in bilateral aphakia, −1.28 D (95% CI, −1.57 to −0.98) in bilateral pseudophakia, −10.66 D (95% CI = −13.43 to −7.90) in unilateral aphakia, and −1.41 D (95% CI, −1.75 to −1.06) in unilateral pseudophakia.

A new diagnosis of glaucoma or glaucoma suspect was made in 97 (13%; 95% CI, 10%-15%) eyes. Additional intraocular surgery was performed in 259 (33%; 95% CI, 30%-37%) eyes, most commonly vitrectomy or membranectomy to clear the visual axis.
Discussion: About one-third of the eyes with IOLs achieved normal VA for age by 3 years post-lensectomy. Management of visual axis obscuration was the most common surgical intervention, also affecting one-third of eyes.
Conclusions: Myopic shift was minimal with the placement of an IOL, about 0.50 D per year. This finding will affect the ultimate refractive outcomes and may require adjustment of guidelines for IOL power selection.

Young Investigator Award Paper

003 The functional impact of strabismus. Stacy L. Pineles
Introduction: Despite strabismus being common, little is known about its effect on functional vision and associated systemic morbidity in children. Common pediatric eye diseases often have a negative effect on children's depth perception, visual field, and binocular summation but it is unclear how this affects a child's ability to function.
Methods: Review of studies related to the functional impact of strabismus on children.
Results: Strabismus in children significantly diminishes stereopsis and binocular summation, while increasing binocular inhibition, which has been associated with a decrease in patient quality of life. In most cases, strabismus surgery improves binocular summation in children. However, in some cases such as infantile esotropia, binocular summation does not improve. Although there are no published studies in pediatric patients, claims data in adults reveals that the presence of strabismus increases the risk of fractures, falls and musculoskeletal injuries by 27%. This increased risk is presumably due to the functional limitations induced by strabismus. Data from our ongoing studies on the risk of injuries in children with strabismus will be presented.
Discussion: Binocular summation is significantly decreased in children with strabismus. This impact, combined with other functional and psychosocial effects, lead to diminished scores in quality of life. In addition, there is evidence in adults that the functional impact of strabismus leads to an increased risk of injuries. It is not clear how strabismus affects a child's risk of physical injuries.
Conclusions: Continued claims-based studies will focus on the risk of physical injuries in children with various eye diseases. We will also evaluate the effect of strabismus surgery on the risk of physical injuries.

Papers

004 Can fluorescein angiography retinal findings predict the late-onset risk of recurrence post intravitreal bevacizumab for ROP? Swati Agarwal-Sinha, Andres Gonzalez
Introduction: Fluorescein angiography (FA) use has documented retinal vascular changes in eyes treated with Intravitreal bevacizumab (IVB) for retinopathy of prematurity (ROP). We studied the retinal vasculature post IVB with FA and assessed features imposing risk for sight threatening complications.
Methods: Retrospective study of 25 infants treated with IVB between 7/2014 to 08/2018 was performed.