Advancements in Treating Pediatric Vision Disorders

When you think of childhood eye disorders, you might imagine a myopic first-grader sporting glasses or a preschooler with misaligned eyes, wearing a patch.

And indeed, conditions such as myopia, amblyopia (commonly called “lazy eye”) and strabismus (crossed or misaligned eyes) continue to be “the bread and butter” pediatric eye disorders, says Col. Martha Schatz, M.D., a pediatric ophthalmologist at Wilford Hall Medical Center, who also is clinical adjunct professor of pediatric ophthalmology at the University of Texas Health Science Center San Antonio (UTHSCSA).

While corrections of these disorders have been refined and treatments expanded in recent years, the biggest advancements in children’s eye care have been realized in cataract and refractive surgery in premature babies, according to Schatz and other eye doctors who treat children in San Antonio.

“There have been a lot of advances in surgical procedures in children,” notes Carlos Rosende, M.D., chairman of UTHSCSA’s ophthalmology department.

For instance, doctors can now use laser surgery to treat babies and children with detached retinas.

Retinopathy of prematurity (ROP) is a disease of low-birth-weight infants, and babies weighing less than 1,500 grams are especially vulnerable. “If a child is born too early, eyes have not vascularized yet,” Rosende explains. This can lead to retinal detachment.

Years ago, children with this disease ended up blind or with very low vision. Today, that has all changed. “If it is caught very early, it is treated aggressively,” Schatz says. “The visual prognosis for eyes that need surgery is still quite guarded, but many children who are treated with laser have very useful vision.” Screening for ROP is now routine in hospital neonatal intensive care units, she adds.

Premature babies who do not develop ROP immediately still have an increased risk of a lesser form of ROP later in life and should be seen regularly by an eye doctor to check for this, Rosende warns. Even after babies are treated, they need to be closely monitored.

“That is the biggest challenge, especially in children of teen mothers,” Rosende says. “A lot of the parents we see here at the university are young moms who haven’t had good prenatal care and who have no clue how to take care of a child with medical challenges.”
Surgery for Children’s Cataracts

Another somewhat recent advancement is implanting intraocular lenses in children with cataracts.

“Although we think of cataracts as an older person’s disorder, they can develop in children, though for different reasons,” Rosende says. “Usually, they are congenital.”

It once was common practice to remove cataracts from babies and then prescribe glasses or contacts to correct the vision. “Of course, it was really difficult for the parent to insert the contacts in the baby’s eyes,” Rosende says.

Starting in the 1980s, the ophthalmology profession started using implants in children, and in the past 10 years developed an artificial lens that has been quite successful.

“Now with the advent of better intraocular lens material and better surgical technology, implants can be placed at the time of surgery in some infants and toddlers,” Schatz says. “The decision to place an implant or not is made on an individual basis, considering the size and health of the child’s eye, as well as surgical risks.”

As with many childhood eye disorders, cataracts that are impeding vision should be treated as early as it’s feasible. Surgery can actually be performed as early as six weeks of age.

Charles McCash, M.D., of the Children’s Eye Center of South Texas, says he performs about 30 cataract surgeries a year. “You end up with better vision with the implants than you would with contacts or glasses,” McCash says. “We’ve made big strides here.”

And the risk? “The biggest risk to children is getting an infection following surgery, the same as it would be for adult,” Schatz says.

Eye surgeries conducted on children are outpatient and considered safe, McCash emphasizes, though he adds that surgery should be the last option.

“By and large, though, when people get to my office, they have tried other options,” he says.

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Getting Eyes to Align

One of the most common pediatric eye disorders, amblyopia, is caused by mixed brain signals and results in one eye doing all the work.

“What happens is the brain picks up the better of the two images sent to it by the eyes but disregards the blurry or cloudy image,” Rosende says. Often, you cannot tell by looking at a child that he has amblyopia. It also can manifest itself in one eye turning inward or eyes aiming in different directions, and occurs in two to three percent of babies per year, though older toddlers can develop it as well.

Typically, to treat it, children wear a patch over the eye that has been overcorrecting. “The idea is to force a child to use the weaker eye,” McCash explains. “Once you do, the nerves get stimulated and you play catch up to get the vision back.”

For most childhood eye disorders, such as this one, early intervention is key.

“You’ve got to do treatments pretty early on because around age six or eight, eyes make their own corrections to compensate for the problem and they are set in stone,” Rosende says.

In the last few years, some ophthalmologists have prescribed atropine drops instead of the patch. Used daily, the drops dilate the stronger eye to make the other eye work harder. According to McCash, this is one of the major pediatric eye care advancements in recent years.

“A lot of children are less than enthusiastic about wearing an eye patch,” McCash says, “especially once they get into school.”

With the patch, children often must wear it for weeks or months.

In a recent study that appeared in the Archives of Ophthalmology, 215 children with amblyopia were randomly assigned to either the patch or the atropine drops, and 79 percent receiving the eye patch were successful, compared with 74 percent of those receiving atropine drops.

However, some doctors, such as Dr. Schatz, still view patching as the gold standard of treatment. “Sometimes with the drops, you can’t get the good eye bad enough,” Schatz says.

Rosende concurs that patching is still a great method for addressing amblyopia and

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strabismus, adding, “You don’t have to worry about the side effects of the drugs (the drops).”

When a child has strabismus, doctors aim to get both eyes to work together to send one fused image to the brain. The child with strabismus may wear a patch or glasses or even undergo surgery. And none of the choices are automatically a quick fix, Schatz points out.

Childhood strabismus is more of a condition of the brain than the eyes. “There are some exceptions to that rule, but for the most part, the brain’s signals are telling the eye to cross. The muscles themselves are usually normal,” Schatz says. “Since we cannot rewire the brain, we operate on the eye muscles as a secondary fix to the problem.”

It works 75 percent of the time, but in some cases, the strabismus is incompletely corrected, or the condition recurs.

“When I care for a child with strabismus and amblyopia, I stress that this project will last throughout the child’s developmental years and beyond.” — Col. Martha Schatz, M.D., pediatric ophthalmologist

For many years, treatments after the age of seven have been viewed as mostly cosmetic.

However, Rosende says the consensus on that is beginning to change, though he stresses early intervention is always preferred when you can do it.

Indeed, studies conducted in pediatric ophthalmology worldwide over the past five years have demonstrated successful treatment of amblyopia through the early teen years, Schatz says.

“All the literature says that after age eight or nine, it doesn’t do any good to do surgery because the brain is already locked in,” Scholze notes in amazement. “Oddly, at age 14 and a half, she had the surgery and now she is using her other eye.”

Scholze credits Schatz’s diligence in treating Alexandra so closely to her latest success.

“We have had a lifelong relationship with her,” she says.

Early Treatment Is Essential

Case in point is one of Schatz’s patients, Alexandra Scholze, who at 14 years old just had her third surgery to align her eyes. According to her mother, Cheryl Scholze, this latest surgery has produced the best results.

“Her eyes have lined up nicely,” Scholze says. “We’re really pleased.”

Alexandra was diagnosed with eye problems as an infant. Believed to be legally blind as a preschooler, she was grouped with visually impaired children.

“With this type of vision, she started using the stronger eye all the time and wasn’t using the other eye,” Scholze explains.

Through the years, she’s tried patching, but it didn’t have a lasting effect. Surgery was performed when she was eight. The eye continued to turn and then she had another.

Now, with glasses, Alexandra’s vision is 20/60. She still has to work on improving her vision. Schatz suggested she dive into close-up reading this summer to help strengthen the eye. But she is definitely not legally blind, her mother says.

Alexander also bucks the long-held belief that treatment for amblyopia and strabismus does not work in older children and teens.

ABOVE According to Col. Martha Schatz, M.D., detached retinas and ROP in children used to result in blindness. Now, such conditions are treated aggressively with success. Photo by Master Sergeant Kimberly Yearyean-Siers.