Canaloplasty is an innovative alternative to traditional surgeries for patients with open-angle glaucoma

Christian Albers, of Sterling Heights, Michigan, was 14 years old when he was diagnosed with juvenile open-angle glaucoma (OAG) during a routine eye exam. “The exam showed that Christian’s pressure was elevated in the left eye,” says Jeff Albers, Christian’s father. “And, he wasn’t seeing many of the blips of light during the visual field test.”

While his right eye was healthy, the pressure in Christian’s left eye was a concern. “My thoughts were, how does this happen with someone so young, and how do we stop this pressure from destroying what is left of the sight he has,” says Mr. Albers.

When vision is lost from OAG, it is because the optic nerve, which carries visual signals from the eye to the brain, becomes damaged. Because glaucoma appears gradually with no warning signs, by the time individuals are aware of compromised sight, the disease is usually at advanced stages.

In the form of OAG that Christian has, the disease affected the eye’s natural drainage route—known as Schlemm’s canal—so that fluid could not drain out of the eye in a normal fashion. As a result, his eye pressure increased.

In the months that followed, Christian saw an area ophthalmologist who treated him aggressively with medication and laser therapy in his left eye—neither of which consistently lowered his eye pressure. Christian was referred to Kellogg glaucoma specialist, Sayoko E. Moroi, M.D., Ph.D. Examination confirmed a dangerously high pressure in the left eye.

Dr. Moroi recommended that Christian undergo an innovative surgical approach called canaloplasty. Approved by the FDA in 2008, canaloplasty utilizes a microcatheter, or small, flexible tube, placed in a portion of the eye’s natural drainage system—Schlemm’s canal—to help reduce eye pressure by improving flow.
From the Chair

Recently, our specialists in children’s eye disease had the opportunity to spend a Saturday morning with parents of visually-impaired children. This was our first family support group designed to bring parents together to share their experiences. Small group discussions and presentations by both physicians and parents helped us better understand the care and support our patients and families need.

Future sessions will be shaped by parents’ feedback. Thanks to Drs. Brenda Bohnsack, Sayoko Moroi, and Christine Nelson who organized the event, and a special thanks to the parents who took time out of their busy schedules to attend.

We are also committed to bringing innovative technologies and surgical advances to help our patients achieve the best vision possible. A retinal implant—the bionic eye—has attracted nationwide attention for its ability to restore light perception to people with retinitis pigmentosa. Kellogg is one of 13 centers in the country able to offer this device to patients in the end stage of the disease.

Meanwhile scientists like Drs. Steven Abcouwer and David Antonetti continue their search for new treatments for eye disease associated with diabetes. They have identified yet another novel protein that shows great promise for treating diabetic retinopathy, a potentially blinding eye disease.

Our residency and fellows programs attract bright individuals whose curiosity drives their clinical and research training. A new program offers career development awards to support their exceptional projects—and our faculty stand by to support them as they develop these projects and their careers. We’ll tell you more about these awards in our annual report.

We are also fortunate to have a talented group of new faculty join the department. They come to us with a range of subspecialties and research interests, and all are passionate about their dedication to our patients.

I hope you’ll have a chance to meet them on your next visit to the Kellogg Eye Center.

Paul P. Lee, M.D., J.D.
F. Bruce Fralick Professor and Chair
Ophthalmology and Visual Sciences
Director, W.K. Kellogg Eye Center

HONORS & AWARDS

Terry J. Bergstrom, M.D., professor emeritus, ophthalmology and visual sciences, has been awarded the University of Michigan Medical School Lifetime Achievement Award in Medical Education. This award recognizes outstanding faculty educators for lifetime achievement in Medical School educational programs.

Alan Sugar, M.D., professor and vice chair, ophthalmology and visual sciences, was awarded the University of Michigan Medical School Outstanding Clinician Award. This award recognizes the exemplary performance of a practicing clinician or program leader of innovation in clinical care.

Jonathan D. Trobe, M.D., professor, ophthalmology and visual sciences, and of neurology, has been awarded the 2013 Kaiser Permanente Award for Excellence in Teaching in clinical sciences. The most prestigious clinical teaching award granted by the U-M Medical School, this honor recognizes exemplary commitment to the education of medical students.

Residents Earn Career Development Awards

To encourage residents and trainees to pursue projects that spark their passion, the department provides grants through the Michigan Ophthalmology Trainee Career Development Award. These residents (with the titles of their winning projects) are our newest awardees:

Ryan J. Fante, M.D.
Vitreous Cytokine and Chemokine Profile in Macular Edema Secondary to Diabetes and Central Retinal Vein Occlusion

Monica Michellotti, M.D.
Analysis of Healthcare Delivery Systems in the US and UK through the Prism of Ophthalmology

Ira H. Schachar, M.D., M.Sc.
Laser Retinectomy for the Treatment of Glaucoma
Diabetic retinopathy, a leading cause of blindness in the United States, is characterized by changes in the blood vessels of the retina. In some patients, blood vessels leak fluid leading to retinal swelling and, in others, new blood vessels grow on the surface of the retina.

To combat the decline in vision that inevitably follows, Kellogg scientists Steven F. Abcouwer, Ph.D., and David A. Antonetti, Ph.D., have received a grant from Novo Nordisk, a global healthcare company focusing on diabetes care, to develop new treatments for diabetic retinopathy.

The grant supports studies on the role that a novel protein plays in the development of diabetic retinopathy. The Kellogg scientists have observed that patients with leaking vessels tend to have high levels of this particular protein in the eye. They also note that the protein can attract inflammatory immune cells to diseased or damaged tissue and can act directly on blood vessels to cause leakage.

Drs. Abcouwer and Antonetti are working to produce new drugs that will block the action of this protein and reduce leakage, swelling, and inflammation.

A significant twist is the plan to engineer so-called humanized mice to produce a human rather than mouse form of the protein. Thus, the safety and effectiveness of protein-targeting drugs can be tested in mice, paving the way for clinical trials for patients. In this manner, the scientists hope to improve chances that the preclinical drugs translate to human cures.

“To keep working toward better treatments for diabetic retinopathy, we need to find multiple means of support,” says Dr. Abcouwer. “This grant represents a new trend in which industry supports academic science to help move along discoveries that can lead to better health care.”

Cover story, continued

Treating Glaucoma with Canaloplasty

of fluid from the eye. The goal is to maintain low eye pressure and to reduce further pressure-related damage to the optic nerve. A less invasive alternative to conventional surgeries for patients with OAG—which involve making an incision in the eye or inserting a drainage tube or implant—canaloplasty can provide exceptional views of the eye’s natural drainage system, and can be considered for the appropriate candidate.

“During the introduction of the microcatheter in Schlemm’s canal, I inject a dye called fluorescein, which illuminates the eye’s natural drainage system and provides clues to the location of the blockage,” says Dr. Moroi, one of just a few physicians in Michigan who perform this innovative procedure. “In Christian’s case, I was able to identify a significant blockage in the entry site or beginning part of the outflow drainage pathway into Schlemm’s canal.”

Today, and throughout the past year’s careful follow up, Christian, now 16, is doing exceedingly well, with pressure in his left eye at normal levels without medical treatment. “I feel really great about the outcome, since my pressure has remained extremely low,” says Christian, a straight-A student who hopes one day to become an engineer.

“I have nothing but high praise for Dr. Moroi and the staff at the Kellogg Eye Center,” says Mr. Albers. “She has explained every procedure with great detail, and we are overjoyed with the results.”

You can contact the Glaucoma Clinic at 734.763.5874.
Jill Ibsen recalls her difficulty in processing the information that her first child, her beautiful daughter Ella, was born without eyes, a condition called anophthalmia. “I didn’t know that this was even possible,” she says. “I could see the doctor’s mouth moving, but I couldn’t take in anything he was saying.”

Jill eventually turned to the web to learn about her daughter’s condition, where she connected with another mother whose family was much like hers. Together, they created the online support group called MAPS for parents of children with microphthalmia (abnormally small eyes) and anophthalmia. Shared knowledge about these conditions, they believed, could go a long way toward reducing the feelings of isolation experienced by many parents.

And, last spring, Jill enthusiastically shared her experience with other parents at a new support group held at the Kellogg Eye Center for parents of children who are blind or visually impaired.

Kellogg oculoplastics surgeon, Christine C. Nelson, M.D., who has cared for Ella, now 7, since she was an infant, understands the dilemma. “As physicians we can help you understand the medical aspects of your child’s eye disease, but it’s the other parents who know exactly what you’re going through.”

Also on the program, Kellogg low vision specialist Donna M. Wicker, O.D., described aids—lenses, magnifiers, readers, and apps—available to help children with impaired vision. And genetic counselor Kari E. Branham M.S., CGC, explained the pros and cons of genetic testing, including considerations when no treatments are available.

Brenda L. Bohnsack, M.D., Ph.D., a specialist in pediatric glaucoma who also studies the genetics of congenital eye disease, encouraged parents to form a Facebook page to continue conversations started at the meeting. “We know parents have many questions,” she says. “We can begin to answer some of them in gatherings like this, but social media sites will enable them to support each other.”

Dr. Bohnsack hopes that every parent can make the transition that Jill and her family have made. “Vision is just one of your five senses,” says Jill. “Ella thrives and has taught us to see without judgment. You don’t have to have sight to have beautiful vision.”

Upcoming meetings are posted under Pediatric Ophthalmology at www.kellogg.umich.edu.

Resources for Parents and Children

MAPS: Microphthalmia/Anophthalmia Parent Support. Link to the Facebook page at www.wonderbaby.org/maps

National Association for Parents of Children with Visual Impairments (NAPVI) www.spedex.com/napvi

Seedlings.org: Braille books for children

Learn about our Low Vision clinic and find resources, including a list of apps, at: www.kellogg.umich.edu/lowvision

To make an appointment in Kellogg’s Pediatric Ophthalmology clinic, call 734.764.7558
Interests in Science, Vision, and Health Inspire Donors to Increase Giving

Reading is a passion for former librarian Donna Estry, who often has five books going at a time. It’s easy to see why she treasures her sight. She and her husband, Hal, who has dry age-related macular degeneration, are patients at the W.K. Kellogg Eye Center in Ann Arbor and its Ypsilanti office. They keep careful tabs on their visual health and take proactive steps to protect it, such as eating well and taking vitamins shown to benefit eyesight.

The couple, both of whom retired on the same day in 1996, also do what they can to help others maintain their vision. They give to the Kellogg Eye Center Annual Fund, which is used to support promising research projects each year, and have transferred a gift of securities to the Eye Center. The securities transfer had tax benefits, they explain.

“My eyes are very precious to me, so anything Kellogg can do to help improve problems with eyes—for adults and for children—is something we want to support,” says Mrs. Estry.

Care for his age-related macular degeneration at the Eye Center has impressed Mr. Estry. “This place is very organized, and my diagnosis—with retinal photography—was very well done,” says Mr. Estry. “That Kellogg is a part of the University of Michigan Health System is especially meaningful.” Growing up 40 miles outside of Ann Arbor, Mr. Estry earned a bachelor’s degree in electrical engineering at U-M, and went on to spend his career at the University, working in radio astronomy, materials science, and electron microscopy before retiring. “I’m all U-M,” he says.

Mrs. Estry attended the University of Wisconsin, earning degrees in chemistry and library science, and worked as head of the Kimberly-Clark corporate library for years before moving to Ann Arbor to marry Mr. Estry. In Michigan, she led the research and engineering library at Ford Motor Company.

Mr. and Mrs. Estry place a high value on learning and are amazed at the pace of research and knowledge—in medicine and elsewhere. In addition to Kellogg, they support U-M’s Matthaei Botanical Gardens and other organizations that are important to them.

As they think about the future, those causes play an important role in the couple’s estate planning. “We’re not Bill Gates, and our primary consideration is the protection of our health,” says Mrs. Estry. “But if we are fortunate enough not to have health catastrophes, we would like to be sure our resources go to organizations that help others.”

“Supporting Kellogg through an estate gift can be done by making the U-M Kellogg Eye Center a partial or full beneficiary of a 401K plan or other savings or insurance plan. You can also designate funds through a will. For more information on planned giving or the Annual Fund, please contact Becky Spaly at 734.763.0874 or bsp@umich.edu.”

Mr. and Mrs. Estry have supported promising vision research through Kellogg’s annual fund.
The Retinal Implant brings light to people with RP

Patients with end-stage retinitis pigmentosa (RP) may benefit from an innovative device known as the bionic eye. The Kellogg Eye Center is one of 13 centers nationwide to offer the Argus® II Retinal Prosthesis System, an FDA-approved retinal implant that allows patients to perceive light and shapes.

Retinitis pigmentosa is a degenerative eye disease that causes slow but progressive vision loss—and, ultimately, blindness.

The device is a retinal prosthesis surgically implanted in one eye. After surgery, the patient wears glasses equipped with a camera system that transmits images to the prosthesis, which uses electrodes to relay images to the optic nerve and on to the brain.

“This is a breakthrough for patients with advanced RP,” says Kellogg retina surgeon Thiran Jayasundera, M.D. “The implant will bring light back into these patients’ worlds, allowing them to detect shapes of people and objects in their environment.”

Recent clinical studies captured national attention when the system allowed previously blind participants to locate lights and windows, follow lines in a crosswalk, and avoid running into objects while walking. Some could sort laundry, and about half of the subjects were able to read 9-inch letters.

“The implant will bring light back into these patients’ worlds, allowing them to detect shapes of people and objects in their environment.”

—Thiran Jayasundera, M.D.

The Implantable Miniature Telescope: Magnifying vision for people with advanced AMD

Patients with advanced age-related macular degeneration (AMD) could regain some vision with a tiny telescope implanted in one eye. The telescope magnifies images onto the healthy areas of the retina to improve central—straight ahead—vision that is lost with AMD. The device, developed by VisionCare, was approved by the FDA in 2010.

Paul R. Lichter, M.D., immediate past chair of the department, led the Kellogg arm of an earlier clinical study to evaluate the Implantable Miniature Telescope (IMT). Nearly ten years later, one of his patients, Briana Daudert, is still pleased with the vision she gained from the device.

Though Ms. Daudert was initially afraid of having pain from the procedure, her fears were diminished when Dr. Lichter explained that the IMT is the size of a pea and the procedure is similar to cataract surgery.

“I breezed right through it all,” she says.

Ms. Daudert still has some double vision, the result of having highly magnified vision in one eye and using the other eye for distance. But she has adapted to her new vision and is perhaps happiest that she can see the faces of her 17 grandchildren and 2 great-grandchildren.

Kellogg retina surgeon, Grant M. Comer, M.D., M.S., is evaluating patients for the IMT. “The device is not a cure for AMD, but it can improve vision and quality of life for individuals with the condition,” he says. Following the procedure, patients will work with Kellogg’s low vision specialists to learn how to adapt to their new vision.

Dr. Comer advises candidates to have realistic expectations about the level of vision they can achieve. “You won’t be able to drive, but you might be able to read, watch television, and pursue hobbies,” he says.

And, if Ms. Daudert had it to do over, would she agree to have the telescope implant? “Yes,” she says. “I would do it again in a second.”

To learn whether you are eligible for the IMT or the retinal implant, please visit www.kellogg.umich.edu
César A. Briceño, M.D., assistant professor, has joined the faculty of the Eye Plastic, Orbital and Facial Cosmetic Surgery section. Dr. Briceño received his medical degree from Johns Hopkins University and then completed his residency at the Doheny Eye Institute at the University of Southern California. In 2013, Dr. Briceño completed a fellowship in oculoplastics at Kellogg. He sees patients in our Ann Arbor and Canton offices.

Lindsey B. De Lott, M.D., clinical lecturer, has joined the faculty of the Neuro-Ophthalmology section. She earned her medical degree from Ohio State University and completed her residency in neurology at the University of Michigan. In 2013, Dr. De Lott completed a two-year fellowship in neuro-ophthalmology at Kellogg. She is the recipient of a Department of Neurology Training Grant. Dr. De Lott sees patients in Kellogg’s Ann Arbor office and in the Neuro-Ophthalmology suite at U-M Hospital.

Blake V. Fausett, M.D., Ph.D., clinical lecturer, has joined the faculty of the Comprehensive Ophthalmology and Cataract Surgery section and sees patients in Kellogg’s Ann Arbor office. Dr. Fausett earned his medical degree and a Ph.D. in biochemistry from the University of Michigan and completed his residency at Kellogg. In addition to seeing patients, Dr. Fausett serves as the residency program’s first Graduate Chief Resident.

Jonathan B. Greene, M.D., assistant professor, has joined the faculty of the Comprehensive Ophthalmology and Cornea sections. Dr. Greene earned his medical degree from the University of California, San Francisco. In 2013, Dr. Greene completed a fellowship in cornea and refractive surgery at Kellogg. He sees patients in Ann Arbor.

Vanitha I. Jeyaraj, M.D., clinical instructor, has joined the faculty of the Comprehensive Ophthalmology and Cataract Surgery section and sees patients in Kellogg’s Milford office. Dr. Jeyaraj earned her medical degree from the University of Chicago in 2009 and completed her residency at the Baylor College of Medicine in 2013.

Paula Anne Newman-Casey, M.D., assistant professor, has joined the faculty of the Glaucoma, Cataract, and Anterior Segment Disease section and sees patients in Kellogg’s Canton office. Dr. Newman-Casey earned her medical degree at the University of Michigan and went on to complete her residency and a fellowship in glaucoma at Kellogg. She is a recipient of the department’s National Eye Institute grant, which provides support for training clinician-scientists. Dr. Newman-Casey’s research focuses on patient decision-making, health behavior change, and patient education.

Rajesh C. Rao, M.D., assistant professor, has joined the faculty of the Retina and Uveitis section and sees patients in Kellogg’s Ann Arbor office. Dr. Rao earned his medical degree at Yale University and completed his residency at the Massachusetts Eye and Ear Infirmary. While completing a fellowship in vitreo-retinal surgery at Washington University in St. Louis, he was one of 10 scientists nationwide to win an award from the National Eye Institute for “Audacious Goals in Vision Research.” He is also a recipient of the Department’s National Eye Institute grant, which provides support for training clinician-scientists. Dr. Rao’s research is based on reprogramming skin or blood cells to be transplanted into the retina to battle degenerative retinal diseases.

Anjali Shah, M.D., clinical instructor, has joined the faculty of the Retina and Uveitis section and sees patients in Kellogg’s Ann Arbor and Brighton offices. Dr. Shah earned her medical degree from the University of Michigan and completed her residency at the Baylor College of Medicine. She then completed a medical retina fellowship at the Tufts/New England Eye Center.

Linda Zhang, M.D., clinical lecturer, has joined the faculty of the Glaucoma, Cataract, and Anterior Segment Disease section and sees patients in Kellogg’s Ann Arbor and Brighton offices. Dr. Zhang earned her medical degree at the University of Michigan and then went on to complete her residency and a fellowship in glaucoma at Kellogg.

To request an appointment with our new clinicians, please call 734.763.8122. Referring physicians can reach these clinicians through M-LINE at 800.962.3555.
Blake V. Fausett, M.D., Ph.D.
Appointed First Kellogg Graduate Chief Resident

Blake V. Fausett, M.D., Ph.D., who completed his residency at the University of Michigan Kellogg Eye Center in June 2013, has been appointed Kellogg’s first Graduate Chief Resident. “As the graduate chief, I have administrative responsibilities such as organizing resident lectures, scheduling conferences, and acting as a liaison between the faculty and residents. But what I really enjoy is the opportunity to teach and mentor,” says Dr. Fausett.

Dr. Fausett also spends two days a week at Ann Arbor’s VA Hospital working with residents, in addition to providing resident staffing for the Kellogg Comprehensive Ophthalmology Clinic. “I think the real advantage to having a graduate chief resident is that the residents have another dedicated advocate on the faculty, in addition to our program director, Shahzad I. Mian, M.D.,” says Dr. Fausett. “I have protected time to work with faculty and residents to improve our didactic curriculum, collect and analyze resident surgical outcomes, and work on other projects—all in an effort to improve the residency program.”

Kellogg’s purpose is to improve lives through curing, preventing, and treating eye disease.

If you would like to receive Kellogg’s newsletter, Advances in Ophthalmology, please call 734.763.4660.

The Regents of the University of Michigan
Mark J. Bernstein, Julia Donovan Darlow, Laurence B. Deitch, Shauna Ryder Diggs, Denise Ilitch, Andrea Fischer Newman, Andrew C. Richner, Katherine E. White, Mary Sue Coleman (ex officio)