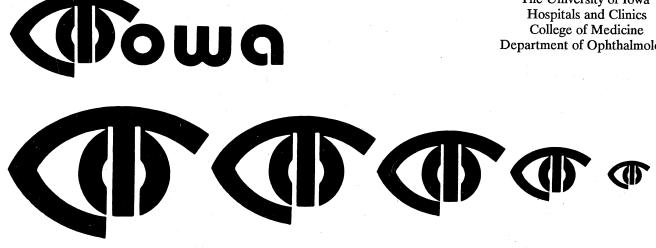
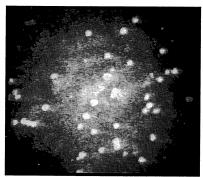
The University of Iowa Hospitals and Clinics College of Medicine Department of Ophthalmology



February 1995, Series 2 No. 26

Confocal Identifies Acanthamoeba





Left: Dr. John Sutphin examines a patient with the confocal microscope; the Acanthamoeba is visible on the monitor next to the patient. Right: A clear view of Acanthamoeba as seen through the confocal.

Acanthamoeba Keratitis -**Epidemic or Underecognized Pathogen?**

Ophthalmologists are familiar with Acanthamoeba as a cause for keratitis in contact lens wearers. In the 1980s, an epidemic was linked to homemade saline used in the sterilization process for soft contact lenses. Even after salt tablets were removed from the market and homemade saline was no longer popular, ophthalmologists have continued to see Acanthamoeba. Since January 1993, the cornea service at The University of Iowa has seen 45 cases, and most were not associated with contact lenses.

Acanthamoeba is a unicellular, free-living parasite found in water, e.g. swimming pools, contact lens solutions, and tap water, and in soil. The trophozoite measures 5-30 microns in diameter, is motile, and may be recovered on non-nutrient agar overlaid with killed gram negative rods. The cyst form shows a double wall configuration that is 10-25 microns in diameter. In the presence of a noxious environment. the Acanthamoeba encysts, thus becoming resistant to extreme temperature changes including freezing, pH changes, standard chlorination of water, and many antibacterial agents. Early in the course of the disease, the features often resemble herpetic keratitis with punctate epithelial keratitis, dendritiform keratitis, and then a ring-shaped stromal keratitis.

In June 1993, our department acquired a confocal microscope from the Tandem Scanning Microscope Company (Reston, Virginia), one of only ten units in the United States. At that time William Mathers, MD, associate professor and director, and John Sutphin, MD, associate professor, Corneal

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Acanthamoeba Keratitis

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and External Diseases Service, began using the instrument in the clinic on patients with keratitis, both unexplained and of known cause, attempting to characterize the cell types and follow the progression of the disease. Drs. Mathers and Sutphin first noted Acanthamoeba keratitis where they saw bright spots through the confocal microscope, subsequently confirmed by epithelial biopsy. The same bright spots of the proper size were seen on agar plates overlaid with trophozoites and in similar distribution to that seen beneath the epithelium of the cornea. This exciting discovery led to more explorations with the confocal, which has been found to allow positive diagnosis in all Acanthamoeba cases and also shows typical hyphal keratitis and crystals in infectious crystalline keratitis. Robert Elgin, MD, cornea fellow, has devised a grading system for the confocal microscopy and correlated it to the clinical presentation, pathology findings and results of treatment.

The large number of patients with Acanthamoeba concentrated in one clinic led Drs. Mathers and Sutphin to involve Richard Wenzel, MD, professor of internal medicine, director, General Medicine, Clinical Epidemiology, and Health Services Research, and professor of preventive medicine. Dr. Wenzel and his fellow, Patricia Meyers, MD, have organized a case-control study to evaluate the risk factors in our first 30 patients. Our doctors were concerned that the increase in frequency might be related to the 1993 Iowa flood and subsequent clean-up.

Several strategies have been developed to confirm the clinical diagnosis of Acanthamoeba keratitis. A rapid cytological screening for organisms is available in the

F.C. Blodi Eye Pathology Laboratory, (Robert Folberg, MD, professor of ophthalmology and pathology, director). Ophthalmologists can sample the corneal epithelium in their offices and submit the scrapings to the laboratory for rapid diagnosis. (Please contact the laboratory for information concerning sampling techniques: 319-335-7095.) Edwin Stone, MD, PhD, associate professor and director of the Molecular Ophthalmology Laboratory, and his laboratory colleagues are developing a polymerase chain reaction DNA test, with the aid of Michael Pfaller, MD, professor of pathology, director of Special Microbiology, co-director of the Clinical Microbiology Laboratory. Dr. Pfaller is also working on improving isolation techniques so we may recover and speciate these organisms and determine their sensitivities.

With this large outbreak, we have had some failures of the standard treatment, which has included polyhexylmethylbiguanide 0.02% (PHMB), Brolene (propamidine), and either Humatin or Neosporin with oral itraconazole. In concert with Professor Colin Kirkness of Glasgow, Scotland, Drs. Mathers and Sutphin have begun using chlorhexidine 0.02% in combination with Brolene as our initial therapy with improved success. (William Fisher, Department of Pharmacy, worked with us in acquiring the chlorhexidine powder and obtaining approval for its use on our patients from the Pharmacy and Therapeutics Committee.)

So far, our key findings are that any form of unexplained keratitis, either superficial or stromal, may be caused by Acanthamoeba. Confirming the value of early diagnosis with the aid of the confocal microscope, the overwhelming majority of those patients with a positive diagnosis treated within four weeks of onset of symptoms have regained 20/20 vision. Those seen after six weeks and those on steroids at the time of diagnosis have not fared as well.

From 1983 to July 1993, 20 cases (or 2 cases/year) of Acanthamoeba keratitis were diagnosed at The University of Iowa on our very busy cornea service. From July 1993 to November 1994, we have had 45 cases (or about 30 cases/year). This large increase suggests that Acanthamoeba is probably underdiagnosed, and that many patients considered to have herpetic diseases in particular or perhaps adenoviral diseases may, in fact, have disease caused by this organism. It is a great advantage to have this new technology of confocal microscopy at The University of Iowa. If its utility continues to be proven, this instrument may be in every ophthalmologist's office in the future.

NEW RESIDENTS & FELLOWS

NEW RESIDENTS

New to the department are Nicole Boynton and Brad Katz, while Rick Neahring has been in the department as a fellow in Neuroophthalmology.



Nicole Boynton
Education: BA in French, Duke
University; MD, Vanderbilt,
Nashville, Tennessee
Internship: William Beaumont
Hospital, Royal Oak, Michigan

Dr. Boynton is a native of Baltimore, Maryland. She previously studied art in France and completed an ophthalmology rotation in Paris. She enjoys art, lacrosse, swimming, tennis, squash and plants. Her fiance, Brad Mulder, is currently living in Michigan and works in business and engineering.



Bradley J. Katz
Education: BS in Electrical
Engineering and a BS in Biomedical

Engineering, Northwestern University; MD, PhD in Neuroscience, University of Illinois-Urbana Internship: University of Illinois-Urbana

Dr. Katz has a strong research background and has several publications to his credit in neurophysiology journals. He is married to Tracey Conrad-Katz, a free-lance writer. They have a son, Sam, and are expecting another child in April.

Richard (Rick) Neahring is a familiar face, having been in our Neuro-ophthalmology Service since July 1994, as a fellow.

Education: BA in Premedicine.

Augustana College, Rock Island, Illinois; MD, Northwestern University, Chicago Internship (medicine): UIHC Neurology Residency: UIHC Neuro-ophthalmology fellowship (6-month): UIHC

Dr. Neahring's wife, Jennifer, is a nephrologist at Mercy Hospital in Iowa City. She also received all her training at the UI.

NEW FELLOWS

Three physicians began training as fellows in January. Keith Yap is new to us, while the other two have been with us for some time, Johane Robitaille as a fellow in Pediatric Ophthalmology and Norman Zabriskie as a resident.

Glaucoma (6-month)

Norman Zabriskie just completed his ophthalmology residency (see page 6, "Graduates") here at UIHC.

Education: BA in chemistry, Brigham Young University, Provo, Utah; MD, University of Utah, Provo

Internship: Salt Lake City, Utah Ophthalmology Residency: UIHC

Neuro-ophthalmology (6-month)

Johane Robitaille
is another familiar face, having just
completed a one-year fellowship
here in Pediatric Ophthalmology.
Education: DEC, Champlain
Regional College, St. Lambert,
Quebec, Canada; MD, McGill
University, Montreal, Quebec,
Canada

Internship and Residency: University of Laval, Quebec Pediatric ophthalmology fellowship (1-year): UIHC

Pediatric Ophthalmology (1-year)



Keith D. Yap
Education: BMSc and MD, The
University of Alberta, Edmonton,
Alberta, Canada
Ophthalmology Residency:
University of Alberta Hospital,
Edmonton, Alberta, Canada

Dr. Yap was born in St. John's, Newfoundland, Canada. He and his wife, Mandy, a family doctor, have a son.



DEPARTMENT NEWS

FACULTY RECEIVE AWARDS AND APPOINTMENTS

In October 1994, co-investigators Dr. W.L.M. Alward, Dr. Val C. Sheffield, and Dr. Edwin M. Stone were awarded a 5-year grant of \$1,064,824 from the National Eye Institute for studies dealing with the molecular genetics of hereditary glaucoma. Dr. Lee Alward is associate professor of ophthalmology and director of the Glaucoma Service; Dr. Sheffield is associate professor of pediatrics; Dr. Ed Stone is associate professor and director of the Molecular Ophthalmology Laboratory and the Carver Diagnostic Laboratory for Ophthalmic Diseases.

Dr. Lee Alward, associate professor and director of the Glaucoma Service, received a \$15,000 unrestricted research grant from the Glaucoma Foundation to pursue studies dealing with the diagnosis and treatment of glaucoma. Dr. Alward was recently named to the editorial board of the *Journal of Glaucoma*.

A set of color slides of the clinical photographs and Lee Allen's drawings is now available from Dr. Alward's recently published (Mosby, 1994) *Atlas of Gonioscopy*.

Dr. Randy Kardon has received a 5-year VA Career Developmental Award for \$600,000. The award will pay his salary as clinical investigator on the project "Using the pupillary light reflex to measure visual dysfunction." This is actually a renewal of a previous 5-year grant which began in 1990 and will now extend through the year 2000. This prestigious award was one of only seven given in the U.S. and was ranked number one. "The reviewers believe that this work is original" and that Dr. Kardon "employs a

state-of-the-art approach." The Career Development Committee, in recommending approval, also stated that "the environment at The University of Iowa is excellent for this investigator."

To further support the research and equipment, Dr. Kardon has been awarded a 5-year VA Merit Review Grant.

On another front, Dr. Kardon was awarded \$5000 by the Advisory Committee to the Office of Consultation and Research in Medical Education at the UI for his educational grant proposal, "The Building of a Computerized Video Library of Eye Movement and Pupillary Disorders," for use by students and staff. Randy Verdick, Dr. Stan Thompson, and Dr. Michael Wall will be working with him on this project.

Dr. Ronald Keech, associate professor in Pediatric Ophthalmology, has been elected to the editorial board of the *Journal of Pediatric Ophthalmology and Strabismus*.

Dr. Edwin Stone recently received a \$55,000 award from the Grousbeck Foundation for studies on the pathogenesis of Leber's congenital amaurosis. Dr. Stone was the recipient of the Dolly Green Special Scholars Award from Research to Prevent Blindness in 1994.

Dr. Stone has been named to the editorial board of Archives of Ophthalmology, where he will focus his efforts on molecular genetics in ophthalmology. He will also serve as a contributing editor for a clinical section, "Morning Rounds," of Ophthalmology World News.

Dr. Thomas A. Weingeist has been re-elected to a 3-year term as senior secretary for Clinical Education for the American Academy of Ophthalmology and a 3-year term on the Board of Trustees.

Dr. Weingeist is currently president-elect of the Association of University Professors of Ophthalmology and will become president during its 29th annual meeting in February 1995. The purpose of the AUPO is "to support and strengthen departments of ophthalmology and thereby enhance education, research, and patient care, to assure the best possible vision for the public."

In addition, Dr. Weingeist was also named vice chairman of the Editorial Board of the new clinical newspaper of the AAO, *Ophthalmology World News*, which had its premier issue in January and will be published monthly by J.B. Lippincott.

DEPARTMENT AWARDED RESEARCH DOLLARS

Research to Prevent Blindness (RPB) has given a \$100,000 unrestricted grant to the Department of Ophthalmology to support eye research. Since the inception of the RPB grant program, the department has received over \$1.1 million and numerous special awards: Senior Investigator Awards - Sohan S. Hayreh, MD, PhD, DSc, and Robert Folberg, MD; Dolly Green Special Scholars Awards - Edwin M. Stone, MD, PhD; James S. Adams Special Scholars Award -Randy H. Kardon, MD, PhD; and numerous awards in support of international investigators for basic and clinical research.

STAFF HONORED

Lynn Gardner, supervisor of the F.C. Blodi Eye Pathology Laboratory, was awarded the Dezna C. Sheehan Memorial Educational Scholarship Award by the National

(continued on page 5)

DEPARTMENT NEWS

Kolder Begins Retirement

In January 1995, Hansjoerg Kolder, MD, PhD, became professor emeritus and reduced his clinic involvement to half-time. He will now dedicate his efforts to teaching residents in the UIHC Primary Eye Care Clinic and the Veterans Administration Medical Center in Iowa City.

During his long tenure here (he joined the department in 1968 as associate professor), he has been a pioneer in the electrophysiology of the eye; an admired and much emulated teacher and clinician; and an able and efficient administrator, serving as vice-chairman of the department, as chair and member of the UIHC Utilization Review Subcommittee, and as a member of the Board of Iowa Foundation for Medical Care.

Dr. Kolder has made a lasting impression on many of his colleagues and students. Dr. Alan Kimura, associate professor and director of the Electrophysiology Laboratory, stated, "It was an honor

for me to work with Dr. Kolder, a world-class physiologist who very generously shared his knowledge with me and enabled me to develop my own research and expertise in electrophysiology."

In 1992, Dr. Kolder received the first Ernest O. Theilen Award for Teaching and Service from the University of Iowa College of Medicine. In 1994, the Hansjoerg Kolder Award for Excellence in Ophthalmology was established in honor of Dr. Kolder's long career of service, teaching and research. The award, which is funded through the generosity of alumni and friends who established a UI Foundation fund, is to be presented annually to the most deserving graduating medical student.

Dr. Thomas A. Weingeist in recognition of Dr. Kolder stated that he "personifies the virtues which Ernie Theilen lived by and we hope all physicians will strive to achieve . . . a champion of our patients and students, and above all, modest and self-effacing."

Staff Honored

(continued from page 4)
Society of Histotechnology at its annual meeting in October 1994, in Nashville, Tennessee. Dr. Robert Folberg, director of the Blodi Lab, stated, "This is a very prestigious award from a national society and recognizes Lynn's achievement in histotechnology while also focusing the spotlight on our lab."

Randy Verdick, coordinator of Ophthalmic Video Services and Education Media, recently won the Don Wong Award at the 1994 annual Ophthalmic Photographer's Society meeting in San Francisco. Entitled "Infrared Video Meibography" and co-authored with Dr. William Mathers, the paper was cited as the best of many receiving high praise. Over the past 3 years, Verdick has made 3 presentations to the OPS and has been cited all 3 times for "Best Paper." The papers/presentations are reviewed by a 5-judge panel.

Department Offers Videos

The University of Iowa Department of Ophthalmology is now offering educational videotapes produced "in house" to Iowa Eye members. Available tapes include the following:

"Fundamentals of Slit Lamp Biomicroscopy," Thomas A. Farrell, MD; W.L.M. Alward, MD; Randall E. Verdick . 22-minute program for the beginning slit lamp user, \$50

"Combined Phacoemulsification, PC IOL Implantation and Trabeculectomy with Intra-operative Mitomycin C," Paul M. Munden, MD; W.L.M. Alward, MD; Randall E. Verdick. 13-minute program. \$75

"Current Methods for Culturing Serious Ocular Infections,"
John E. Sutphin, MD; H. Culver Boldt, MD; Randall E. Verdick.
14-minute program. \$35

"Temporal Artery Biopsy for Giant Cell Arteritis," Sean Donahue, MD; Jane Mizener, MD; Randall Verdick; Randy Kardon, MD, PhD. 11-minute program. \$35

"Technique and Complications of Penetrating Keratoplasty," Jay Krachmer, MD, et al. 58-minute program. \$50

To order any of the above tapes, please send a check for the amount specified plus \$5 for shipping and handling. (Shipping and handling is \$5 no matter how many tapes are ordered.) Checks should be payable to University of Iowa Foundation, Department of Ophthalmology.

For more information or to place an order, please contact

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ALUMNI NOTES

AWARDS

The following alumni and former faculty received awards from the American Academy of Ophthalmology in 1994:

Senior Awards

Richard L. Anderson, MD, completed his residency in 1975 at The University of Iowa, and after fellowship training in New York and San Francisco, started the Oculoplastic and Reconstructive Surgery Service at Iowa, which he ran from 1976 to 1984. He is now professor and director, Division of Oculoplastic, Orbital, and Reconstructive Surgery, Department of Ophthalmology, at the University of Utah in Salt Lake City, UT.

Henry J. Kaplan, MD, completed his residency at Iowa in 1978, after which he trained in a retina fellowship at the Medical College of Wisconsin. He was on the faculty at Emory University in Atlanta until he became professor and chairman of the Department of Ophthalmology at Washington University, St. Louis, Missouri, in 1988.

Honor Awards

Christopher F. Blodi, MD, a former assistant professor and Vitreoretinal Diseases and Surgery fellow, is currently in practice in West Des Moines, Iowa. He was also recently named secretary-treasurer of the Iowa Medical Society's Political Action Committee.

Thomas A. Farrell, MD, a former assistant professor in General Ophthalmology, is now a member of the faculty of the University of Wisconsin, Madison, Wisconsin.

Wayne F. March, MD, is a former fellow in Vascular Disease (1978). He is now professor and chairman of Ophthalmology at the University of Texas at Galveston.

Jose S. Pulido, MD, formerl assistant professor on the Vitreoretinal Service, is now associate professor of Ophthalmology at the Medical College of Wisconsin in Milwaukee. He is also on the national committee for the AAO Diabetes 2000 project and was recently named a contributing editor of the "Journal Roundup" for the clinical newspaper of the AAO, Ophthalmology World News.

Robert Whinery, MD, who completed his residency at Iowa in 1962, recently announced his retirement after 33 years in practice in Iowa City. As a member of Ophthalmic Associates, he worked with Dr. Arthur Wise (1954), who retired in 1984. Bob was very active on the national as well as local level. He served as chief of staff at Mercy Hospital, president of the Johnson County Medical Society, and head of the Iowa Medical Society (1990-91). He was a delegate from Iowa to the AMA for 18 years and received a special honor from the American Academy of Ophthalmology for his services. Drs. Stephen Wolken (1975), Robert Goffstein (1983), Lyse Strnad (1986), and John Stamler (1987) are continuing in the practice.

Obituary

Roger S. Kirkegaard, MD, died December 17, 1994 at the age of 64. Dr. Kirkegaard completed his undergraduate, graduate science, and medical degrees at The University of Iowa and then graduated from the UI ophthalmology residency training program in 1963. He practiced in Topeka, Kansas, and was a loyal alumnus and generous supporter of the department.

GRADUATES

Four residents and 3 fellows graduated from training at the end of December 1994.

Kenneth Neu, MD, has joined Eye Surgeons of Southwest Missouri in Springfield, Missouri.

Michael VandenBosch, MD, has joined a private practice in Mason City, Iowa.

Leslie Weil, MD, has joined The Permanente Medical Group, Inc., in South San Francisco, California.

Norman Zabriskie, MD, is remaining in the department for six months as a fellow on the Glaucoma Service, before beginning a fellowship in angerior segment, glaucoma, in July 1995, at The University of Utah with Dr. Alan Crandall.

Elise Héon, MD, (one-year molecular ophthalmology fellow) is remaining until March 31, to complete her research. She will then return to a fellowship in pediatric ophthalmology/ocular genetics at the Hospital for Sick Children in Toronto, Ontario, Canada.

Richard Neahring, MD, (sixmonth neuro-ophthalmology fellow), has begun ophthalmology residency training here.

Johane Robitaille, MD, (oneyear pediatric ophthalmology fellow) is remaining in the department for 6 months as a fellow in neuro-ophthalmology.

CALENDAR OF EVENTS 1995-96

Clinical Conferences & Professional Meetings

1995

March 3

Douglas D. Koch, MD, Cullen Eye Institute, Baylor - Cataract

April 7

Gerald J. Harris, MD, Medical College of Wisconsin - Orbit and Oculoplastics

June 8-10

Iowa Eye Meeting - Iowa Memorial Union

Speakers:

Alan S. Crandall, MD, University of Utah Health Sciences Center, and H. Kaz Soong, MD, Kellogg Eye Center, University of Michigan

Topics:

Cataract, refractive and other anterior segment surgeries (Thursday all day, Friday a.m.); retina, plastics and pediatrics (Saturday a.m.)

Panels:

If you or a member of your group would like to present a complicated anterior segment case and participate in a panel discussion with our visiting professors, please call Dr. Jeff Nerad at 319-356-2590.

Special Invitation:

Alumni from classes of 1990, 1985, 1975, 1965, 1955, and 1945 - Plan to attend with your classmates.

Kolder Party:

Plan on bringing your family to a party for Dr. Hansjoerg Kolder on Saturday afternoon. For more details, call Dr. Kristen Wells at 319-322-0923 or Dr. Lyse Strnad at 319-338-3623.

September 15

Clinical Conference - Cornea

October 13

Clinical Conference - Glaucoma

Oct. 29 - Nov. 2

American Academy of Ophthalmology

December 1

Clinical Conference - Neuro-ophthalmology

1996

February 2

Clinical Conference - Oculoplastics

March 1

Clinical Conference - Cataract

April 12

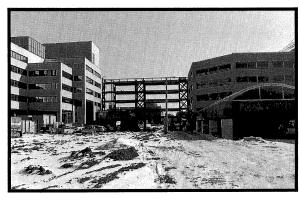
Clinical Conference - Retina

1996 Iowa Eye Association Meeting

September 19-21, 1996 Iowa City, Iowa



UPDATE



Skywalk connecting the Pomerantz Family Pavilion, where the Eye Institute will be located, and the Pappajohn Pavilion

Construction of the new Eye Institute is progressing. Unlike other major eye centers, the UIHC Department of Ophthalmology will remain an integral part of the medical center and will not stand alone. Ophthalmology will maintain stong ties with medicine, both clinically and structurally. The department clinics will reside on the main floor of the Pomerantz Family Pavilion. The C.S. O'Brien Resource and Learning Center and the Braley Conference Room, along with departmental support facilities, will be on the lower level. The building, which will be a major

ambulatory center of the UIHC, will also be occupied by the Department of Family Practice, which is expected to move into the facility next, followed by Otolaryngology - Head and Neck Surgery and Hospital Dentistry. A women's health center, a geriatric center, and other programs will occupy the building later.

The Pomerantz Family Pavilion will be connected to the John Pappajohn Pavilion to the north by a three-story skywalk from the second floor and to a new parking ramp on the east. We anticipate

moving into the new building in about one year.

Plans are already underway to celebrate the opening of the Eye Institute. We hope many alumni and friends of the department will return for this occasion. Instead of having the annual Iowa Eye Association meeting in June, we are planning a scientific symposium to be held **September 19-21, 1996**, which will commemorate the opening of the Eye Institute. By that time, we should be settled in the new building and prepared to have a gala celebration.

Thomas A. Weingeist

Mowa Eye Association, inc.

Department of Ophthalmology University of Iowa Hospitals and Clinics 200 Hawkins Drive Iowa City, Iowa 52242-1091



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