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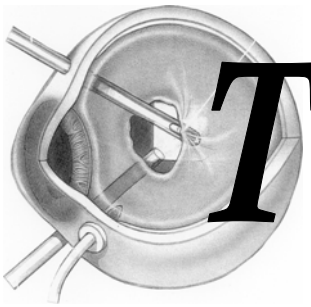

The Light Pipe

The newsletter of Georgia Retina, P.C.

Radial Optic Neurotomy for CRVO - an Exciting New Treatment

Because of the dismal prognosis for patients with poor visual acuity related to a CRVO, a new concept has been developed to explain the pathophysiology of this condition. Very recently, Opremcak et al have published a pilot study of radial optic neurotomy for central retinal vein occlusion in the journal RETINA. The paper describes 11 patients who had an incision created with a 20-gauge MVR (microvitreoretinal) blade through a pars plana approach at the nasal edge of the optic nerve. Cadaver studies showed that this type of incision would cut through the scleral ring and cribriform plate, without creating an externalized incision. The rationale behind this is to eliminate the bottleneck configuration at the level of the cribriform plate, where the optic nerve narrows from 3 mm to 1.5 mm, to decompress the constricted central retinal vein.

Opremcak has subsequently presented the results of a total of 30 patients at two retina meetings. Over 80% of the patients who underwent this procedure had *dramatic* improvement in their vision. Both perfused and non-perfused central retinal vein occlusion patients benefited. He postulates that incising the scleral ring relieves a "compartment syndrome."

This is a new but very promising procedure which may be helpful in patients with ischemic optic neuropathy as well. We are offering this procedure to patients who have no other effective treatment options.

Vitamin and Antioxidant Supplementation for ARMD: *The Latest Scoop*

The topic of nutritional supplementation for the prevention of ARMD has evoked passionate debate. David Newsome from New Orleans published a small, randomized study in 1988, using zinc supplementation, that was the topic of pro and con arguments from podiums at all the hot meetings at the time. Many companies commercialized on patients' hope that they could do something to prevent vision loss. The proliferation of products – I Caps, Ocuvite, Ocuvite with lutein, "eye-vitamins" of all kinds, bilberry, Juice Plus and others – attests to the market that was recognized in these desperate patients. Up until recently, we have reserved judgment, and suggested to patients that the "jury was still out" on whether these supplements were of any benefit. Finally, we have the results of the randomized prospective trial sponsored by the NEI, which gives some statistically reliable guidance on some of these issues.

The **AREDS (Age Related Eye Disease Study)** was a double masked, multicenter trial of 3640 participants aged 55 to 80 years. They were randomized to receive oral tablets

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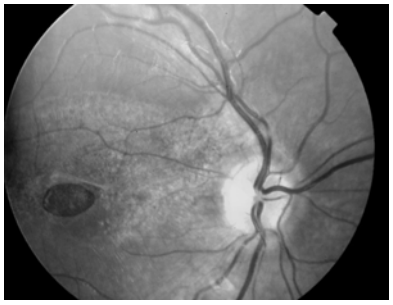
Georgia Retina Welcomes Mark J. Rivellese, M.D.

A board certified Ophthalmologist, Dr. Rivellese was raised in Long Island, New York and received his undergraduate and medical education at the State University of New York at Stony Brook. After completing a general surgery internship and a residency in ophthalmology at Rush Presbyterian - St. Luke's Medical Center in Chicago, Illinois, he studied medical retina and vitreoretinal surgery at the New England Eye Center at Tufts University in Boston. Prior to joining Georgia Retina Dr. Rivellese was in private retina practice in Kansas City.
Dr. Rivellese has participated in multiple clinical trials for the investigation of photodynamic therapy and in the STOP ROP trial for the prevention of retinopathy of prematurity. His particular areas of interest include the diagnosis and treatment of ocular tumors including plaque radiotherapy, retinopathy of prematurity, and ocular trauma. Dr. Rivellese and his wife, Sabrina, live in the Atlanta area and enjoy spending time with their family. He enjoys listening to jazz and playing the alto saxophone.



What's your diagnosis?

See page 3

Update on Choroidal Melanoma

Posterior uveal melanoma is an uncommon disease with approximately six new cases for every one million people per year. It is, however, the most frequently diagnosed primary intraocular malignancy in adults, and in our practice. The incidence increases with age, and the median age at diagnosis is 55 years.

Posterior uveal melanomas include tumors of both ciliary body and choroidal origin. Melanomas may produce symptoms by impinging on surrounding structures. For example, ciliary body melanoma may present with elevated intraocular pressure or a sector cataract, while tumors near the posterior pole may cause blurred vision secondary to exudative retinal detachment.

The widespread use of binocular indirect ophthalmoscopy has led to more frequent detection of asymptomatic tumors and small suspicious lesions on routine examinations. This is particularly true of tumors near the equator that may remain asymptomatic longer than tumors near the optic nerve or fovea.

If left untreated, choroidal melanoma has the ability to invade the sclera and orbit eventually metastasizing to distant sites, frequently the lung and liver. There is no known effective therapy for metastatic melanoma. Early detection and treatment before local extension and metastatic spread is essential.

For most of the last century, enucleation was considered to be the only viable treatment for globes believed to be harboring melanomas. The emergence of radiation therapy either by external beam or plaque brachytherapy presented another viable method of treating small and medium-sized melanomas. Zimmerman suggested that surgical trauma during the enucleation procedure may actually increase the risk of systemic seeding and lead to an increase in mortality. A handful of published reports detailed the unnecessary enucleation of globes thought to contain melanomas that were actually benign pseudomelanomas and this added to the debate.

The obvious need for a controlled trial comparing enucleation to some form of radiotherapy led to the design of the Collaborative Ocular Melanoma Study (COMS). Both Dr. Jacobson and Dr. Stallman were participating investigators in the COMS, for a period of time. Between 1987 and 1998, 1317 patients with unilateral choroidal melanoma were enrolled and randomized to either enucleation or I^{125} plaque radiotherapy. All of the patients enrolled had primary medium-sized choroidal melanoma with no evidence of distant metastasis. The tumors had to be primarily choroidal with a maximum thickness between 2.5 and 10 mm and a maximum basal diameter of 16 mm or less. Tumors that were within 2 mm of the optic nerve were excluded. Tumors that were primarily in the ciliary body were also excluded because they tend to have a worse prognosis than tumors primarily of choroidal origin.

The COMS recently published its initial mortality findings for medium-sized primary choroidal melanoma in the July 2001 issue of Archives of Ophthalmology. **The report suggests no statistical difference between enucleation and radiation, for survival between 2 and 12 years.** Both groups had a 5-year survival rate over 80%, and the 5-year combined survival rate for both groups was 82%. Furthermore, the study found that the overall mortality rate was 19%. This is more encouraging than the 30% mortality rate suggested by previous studies. The study is ongoing and will have completed at least 5 years of follow-up for all patients in 2003.

Best Wishes for a Happy and Healthy 2002 !

Most clinicians using brachytherapy in the United States, including ourselves, now use I^{125} plaques. Another alternative, which was outlined by Dr. Jacobson in the last newsletter, is TTT (transpupillary thermotherapy). We use this modality as well, sometimes in combination with radiotherapy. This technique was not studied in the COMS.

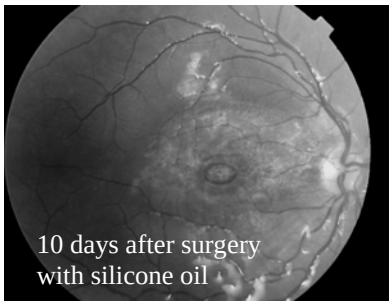
The COMS provides us with controlled data that is pertinent when we are faced with the difficult task of counseling a patient with a choroidal melanoma. The applicability of the findings are of course limited to those lesions that meet the entrance criteria of the study. Patients respond uniquely when presented with the diagnosis of eye cancer. We have seen patients with relatively small tumors demand removal of the eye despite a relatively high cure rate using radiation therapy. Conversely, we have treated large melanomas with brachytherapy because the patient preferred to accept the complications of radiation rather than consent to removal of the eye.

Frequently, the realization of a potentially fatal condition causes shock. Some patients do not hear any of the discussion after the word "malignant". It is extremely important to make sure that melanoma patients fully understand their alternatives. Patients who are properly informed are more likely to make an educated decision rather than a strictly emotional one. For some patients, the concept of leaving an eye with cancer in place is too disturbing to accept. For these patients, enucleation is still a viable option.

I feel that the greatest reward for doing is the opportunity to do more.

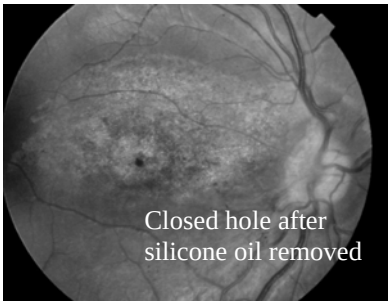
James E. Salk

Case Presentation: Traumatic Macular Hole


10 days after surgery with silicone oil

RW is a 3-year-old young boy who was struck in the right eye by a tennis ball that was propelled by a baseball bat on 7/16/2000. He developed a non-clearing vitreous hemorrhage and was referred for a retinal consultation. His visual acuity was hand motion only. Tension was 19 mm Hg. Slit lamp examination showed no cataract. There was vitreous hemorrhage overlying the entire posterior pole. B-scan ultrasound showed a vitreous hemorrhage and no retinal detachment. Examination had been facilitated by the use of oral chloral hydrate.

Approximately three weeks later, the vitreous hemorrhage had cleared significantly, and his visual acuity had improved to the 20/30 level. Because we were concerned that he could have a peripheral retinal tear or detachment which had resulted in the vitreous hemorrhage, we performed examination under anesthesia on 9/12/2000. A 4 disc diameter chorioretinal scar that involved most of the macula was found, but no peripheral retinal pathology was noted. Residual vitreous hemorrhage was found inferiorly.


Closed hole after silicone oil removed

When he returned six weeks later, he was found to have a macular hole of the right eye, and his visual acuity had dropped to hand motion at 2 feet. With his mother's consent, vitreous surgery was undertaken on 1/16/2001. Because we could not depend on a child for postoperative positioning, silicone oil was used as a tamponade to close the macular hole, instead of gas. During the surgery, internal limiting membrane peeling was accomplished, but the membrane came off in pieces rather than a single sheet.

The silicone oil was removed three months later, and remarkably, by 5/2001 he had recovered visual acuity of 20/40 +1. By 11/8/2001, his vision was 20/20. He still had significant granular macular pigmentary changes, but the macular hole was no longer visible. There was hypopigmentation in the area of the macular hole, and a hyperpigmented spot in the center. He had 1+ PSC changes, and will be re-examined in six months.

Discussion: Macular hole surgery has been a revolutionary breakthrough. Prior to this decade, no treatment was available for macular holes. Since this revolutionary macular hole closure procedure was described by Wendel and Kelly, the procedure has been refined to the point where over 80% of macular holes can be closed with surgery. Employing techniques of ILM peeling, the success rate continues to improve. Even eyes with traumatic or old macular holes have been able to regain vision with vitreous surgery.

Toxoplasmosis Update

A 22 year-old Georgia Tech student presented with blurred vision in the right eye. Fundus exam showed a patch of retinitis in the papillomacular bundle with foveal involvement. There was mild vitritis present. Serology for *Toxoplasma gondii* was positive. He was treated with Bactrim and Prednisone with resolution of the retinitis, and there was no recurrence after six months of follow up. His vision improved as the foveal edema cleared.

Toxoplasma gondii is an obligate intracellular parasite that is transmitted by ingestion. Most of the parasites are destroyed with the development of host immunity. Within the cells of the brain, heart, and skeletal muscle the trophozoites produce a protective membrane and continue to multiply. The cysts may rupture and produce a relapse later in life.

Human infections are found globally, with a higher incidence in the tropics. By adulthood, 50% to 70% of Americans are serologically positive. 1% of domestic cats shed oocysts. Children who play in areas with cat feces, and adults responsible for changing kitty litter are at risk. Tissue cysts are most frequently found in pork and mutton and less so in beef and chicken (less than 1%). These cysts are killed at normal cooking temperatures, but eating undercooked meat is another risk factor. Human infection can also stem from direct inoculation via blood transfusion and organ transplantation.

One in five hundred pregnant women acquire acute toxoplasmosis, and in 50% of these, the infection spreads to the fetus. While fetal involvement occurs in only 17% of first trimester infections, it occurs in 65% of third trimester infections. Conversely, the earlier the fetal infection, the more severe the disease. Twenty percent of fetuses develop severe consequences, 20% have a milder course, and 60% remain asymptomatic.

If the organism reaches the eye, a focus of infection is established which progresses from a retinitis to secondarily involve the choroid. If you see vitreous cells, look for a pigmented lesion with an adjacent white, creamy area, indicating active retinitis. Anterior segment reaction can be granulomatous or non-granulomatous. Large mutton-fat keratic precipitates may be seen. Acquired toxoplasmosis may be subclinical or associated with mild disease characterized by fever, lymphadenopathy, myalgias and a maculopapular skin rash sparing the palms and soles. In more severe cases there can be hepatosplenomegaly and lymphocytosis, thus mimicking infectious mononucleosis. In immunocompromised hosts, life-threatening encephalitis, pneumonitis or myocarditis may occur. Very few of people with systemic clinical disease develop ocular

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Our Physicians

Michael S. Jacobson, M.D.
Scott I. Lampert, M.D.
Jay B. Stallman, M.D.
Haris I. Amin, M.D.
Mark J. Rivellese, M.D.

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containing: 1) **antioxidants** (vitamin C, vitamin E and beta carotene), 2) **zinc oxide and copper**, 3) **antioxidants plus zinc**, or 4) **placebo**. Average follow up was 6.3 years with 2.4% lost to follow up. Patients were included if they had extensive small, intermediate or large drusen, or non-central geographic RPE atrophy or pigmentary abnormalities, in one or both eyes, or advanced loss of vision in one eye. At least one eye had to have vision of 20/32 or better. Eyes were categorized by severity of macular degeneration in stages from "1 to 4b". Fundus photographs were analyzed by a central reading center. Serum zinc and antioxidant levels were measured confirming a serum response to each of the substances administered.

The **results** do show that there is a statistically significant risk reduction for the development of advanced ARMD (neovascularization or central geographic atrophy) with antioxidants plus zinc (about 25% risk reduction) or with zinc alone (about 21% reduction) in category 3 and 4 patients, but not category 1 or 2 patients. Too few advanced ARMD events occurred in category 2 patients to make any statement as to whether the progression from milder drusen and RPE abnormalities to advanced ARMD could be prevented or slowed. This is important because many patients with extremely mild drusen want to know if they should take vitamins, and this study does not tell us the answer. Intuitively, one might think they should; but technically, there is no evidence to prove it.

In the category 3 and 4 patients, there was a 27% odds reduction in the likelihood of a 15 letter or greater decrease in visual acuity, with antioxidants combined with zinc. This is a relatively modest benefit, and certainly cannot be interpreted as reliably preventing vision loss.

Benefit was not significant for antioxidants alone. Advanced ARMD was defined as the development of neovascularization, or geographic atrophy in the foveal center. The benefit applied mainly to the development of neovascular ARMD, rather than the progression of atrophy into the center. No statistically significant adverse effects were found in any of the treatment groups, although there was a non-statistically significant *increase in mortality in smokers who used beta-carotene. This increased mortality and increased incidence of lung cancer with beta-carotene has been shown in other studies.* It may be prudent for smokers to avoid taking beta-carotene.

There was no statistically significant effect of the supplements on the development of cataract.

The study does not tell us whether it is more or less beneficial to be taking supplements at an earlier age, or for a greater duration than 7 years. That is, the benefit could be greater, or there could be a cumulative toxicity after extended use, which would not have been detected in this population. The beneficial effect could also wane with more extended use. The study does not tell us whether or not there may be any benefit in patients with both eyes already affected by choroidal neovascularization. The study does not give us information about any other substances introduced more recently, such as lutein or xantholutein. It also does not address the benefit or lack of benefit of changing one's diet to include green, leafy vegetables, once one has already reached more advanced age.

Still, even with the relatively modest risk reduction shown, there is the potential for a major impact on a serious public health problem, if these supplements are widely used. Hundreds of thousands of cases of severe visual loss may be prevented, and we are recommending them to patients. Bausch & Lomb will be producing Ocuvite "PreserVision", a new formulation of vitamins to match the preparation used in the AREDS study.

Coding Corner… Extended Ophthalmoscopy Reimbursements Drops Precipitously

Unfortunately, Medicare reimbursement for extended ophthalmoscopy, both initial and subsequent, will be dropping dramatically—almost greater than two thirds. Medicare reimbursement was $69.01 and now in the year 2002 is $22.99 for 92225, initial.

Apparently, Medicare, behind closed doors, has complained that this code is an over-utilized code, and then apparently, because of glitches in computer software a few years ago, the code which was targeted for reduction was instead increased. Therefore, the new level of reimbursement planned for this year was instituted to reflect the original level of reimbursement that Medicare had originally desired. You may want to review your own coding profile from 2001, to see how often you used this code. This can help you anticipate the magnitude of effect this will have on your practice.

While attending the Vitreous meeting in Fajardo, Puerto Rice, Dr. Jacobson spoke with William Rich, Director of AAO Medical Affairs, and while the Academy has fought against this in the past, the AAO is not going to continue to fight this reduced level of reimbursement because of the aforementioned history.

On a personal note...
The tragic events of September 11 have served to remind us at Georgia Retina how much we have to be thankful for, how fragile life is and how vulnerable we are. Many of our lives were touched in very personal way with friends and loved ones in the area of ground zero and now in the armed forces. Our old friend, Ed Fineberg, is often in our thoughts and prayers. You will all be happy to know that we are in frequent communication with him, he is doing well in his home in Netanya, Israel and recently added his fourth granddaughter to his family.

Practice News!

We are very pleased to welcome our newest surgeon, Dr. Mark Rivellese, whose excellent credentials appear on the front of this issue. He and his wife, Sabrina, moved to Atlanta at the first of the year from Kansas City. Excitedly looking forward to living in the southern climate, they were greeted with the biggest snow storm we have had in years!

Dr. Jacobson was invited to speak at the Atlanta Diabetes University in November on Diabetic Retinopathy and over 170 people attended the course. On December 12 he was interviewed on "Good Day Atlanta" (Fox 5) when he updated the public on recent breakthroughs in macular degeneration.

Dr. Stallman recently had an article accepted for publication in the journal Retina. It is entitled Pars Plana Vitrectomy for Vitreoretinal Traction associated with combined hamartoma of the retina and Retinal Pigment Epithelium. It reported a case of surgical peeling of the epiretinal component of the combined hamartoma in a young girl who recovered 20/40 vision from the 5/200 level.

Thanks! We continue to enjoy our annual Retinal Pearls seminars and thank you for supporting our academic efforts. Please let us know how we can improve these for you or if there is a particular topic you would be interested in.

The physicians and staff of Georgia Retina sincerely appreciate the opportunity to share in the care of your patients. We strive to set the standards that will exceed your expectations.

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involvement and it is usually unilateral, if they do.

Congenital toxoplasmosis occurs in between 1:1000 to 1:10,000 live births. Ocular lesions occur in about 3/4 of these. Retinitis has a predilection for the posterior pole and especially the macula.

The average age of reactivation of congenital toxoplasmosis is 25 years, with a 4 month average duration of attack. The average patient gets 2-3 attacks in his lifetime.

There are three variants of the retinal lesion. *Large destructive retinal lesions* are greater than one disc diameter in size and are elevated. Over half of cases with such a lesion have anterior uveitis. When such a lesion occurs near a large retinal vessel, a BRAO or BRVO may occur. *Punctate inner retinal lesions* are single or multifocal gray areas of retinitis with mild edema. There is mild vitritis. A peripheral lesion in this category requires no treatment. *Punctate outer retinal lesions* are multifocal gray-white lesions located in the deep retina or RPE. There is no associated vitritis in these cases.

The decision to treat is based on the nature and location of the lesion. Small peripheral lesions will usually heal spontaneously and may be observed. Lesions in the posterior pole threatening the optic nerve or fovea, and lesions of the large destructive type in any location, can cause significant visual loss and are usually treated. Treatment is given for 4 to 6 weeks, but has never been proven to be effective in a randomized controlled trial.

"Traditional" treatment employs pyrimethamine, sulfadiazine and steroids. Pyrimethamine (Daraprim) is a folic acid antagonist that acts at a different site in folic acid metabolism than sulfa drugs and so is synergistic with them. Daraprim should be given with leucovorin rescue. Sulfadiazine works synergistically with pyrimethamine. Trisulfapyridmines (triple sulfa) is a mixture of sulfadiazine, sulfamerazine, and sulfamethazine and may be given instead of sulfadiazine alone. These sulfa drugs are difficult to obtain and may have to be custom compounded. Clindamycin is effective and readily available, but does not cross the blood-brain barrier, and so cannot be used alone if cerebral toxoplasmosis is present or if the host is immunocompromised. Trimethoprim sulfamethoxazole (Bactrim) is often used in combination with clindamycin, with or without steroids, with good efficacy.

Side effects of traditional therapy can be serious. Daraprim can cause a dose-related bone marrow suppression, and patients must be monitored with a CBC every two weeks. We reserve this for more serious cases. Trisulfapyridmines can cause a skin rash but the most serious is crystalluria. The most serious side effect of clindamycin is pseudomembranous colitis. We often use Bactrim and Clindamycin as the only antibiotics, and advise patients to watch carefully for the development of diarrhea or bloody stool, as well as any skin rashes.

We may combine this with systemic steroids to suppress the host immune response, so as to minimize damage to the surrounding retina and choroid, when the degree of inflammation is severe. Steroids should not be used without concomitant antibacterial therapy. We usually avoid depot steroids. Studies have shown that "traditional" treatment does not prevent or decrease the number of recurrences.

Recently, atovaquone (Mepron) has been used as the sole antibiotic agent to treat ocular toxoplasmosis. Atovaquone has activity against the encysted form of the organism and may lead to fewer relapses. It has been shown to be safe and effective in preliminary studies, but is quite expensive.

We participate in the following insurance plans :

Aetna US Healthcare
Aetna Select Choice HMO, Elect PPO
Aetna Managed Choice POS
Aetna Open Choice PPO
AHI Healthcare Systems
American Preferred Provider
BCBS of Georgia
Beech Street
Blue Choice PPO, POS and HMO
Caduceus Healthcare
CCN Managed Care, Inc.
Champus Tricare
(Humana)
Cigna (PPO & HMO)
Companion Work Place
Corvel
Coventry Healthcare
Evolutions Healthcare System
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Georgia Better Healthcare
Healthcare, Inc.
Healthstar
Health Network America
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Medicaid - EDS
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Medicare Railroad
Medical Resource Network
One Health Plan
Preferred Plan of GA PPO, EPO
Private Healthcare Systems PHCS
Pro American
Promina Health Systems
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Prudential Emory & Select Care
Southcare PPO
State Health Benefit Plan
Unicare
United Healthcare
(Metrahealth PPO, EPO, POS)
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