Reflections from the President
Mimis N. Cohen MD, FACS, FAAP
University of Illinois at Chicago

This year marks an important milestone for our society. The first issue of our Maxillofacial News was published 25 years ago during the late Dr. Stuart J.F. Landa’s presidency. Dr. Victor L. Lewis served as the first Editor. Dr. Landa stated that this publication was introduced: “to increase and better relationships and communication among members of our society, sister societies and our own and allied profession.” In the following years, our newsletter fulfilled these goals and also provided a forum for further education of our readers with selected panels, socioeconomic information and other relevant material. Our current Editor, Dr. Arun Gosain and the members of his committee have done a superb job in preparing another outstanding issue and they deserve our thanks.

ASMS remains strong and committed to providing its members with the highest quality programs and educational opportunities. The existing programs are continually improved and new ones are being added to our growing list of activities. Despite the economic crisis and the major problems in health care and reimbursement, we have been able to stabilize our finances and maintain and even expand our programs without interruption. This is primarily due to significant financial support from industry, support by our members, and cautious financial management.

We just completed another successful Basic Maxillofacial Course at UCLA, supported by KLS-Martin, LP. We are actively planning for the summer course that will take place August 13-15 in Chicago at Northwestern University. The summer course is supported by Biomet Microfixation, Dr. Warren Schubert, Education Committee Chair, continues to do a great job organizing superb courses with oversight of every detail, recruitment of highly qualified faculty and coordination with local hosts to ensure a superior learning experience for all participants. He is to be congratulated for an outstanding job.

A new opportunity, the “Advanced Multi-Specialty Maxillofacial Course” was held at the Lorenz Skills Academy in Jacksonville, FL in February. It was supported by Biomet Microfixation, MicroAire, Biomet3i, and Medical Modeling. The multidisciplinary faculty offered specific lectures and participated in fresh cadaver dissections. With this success, the course will be offered again in 2011; we hope it will become another great annual event. Program directors should make note of these exceptional educational opportunities and encourage attendance of their residents.

In an effort to expand cooperation with our European Maxillofacial colleagues, the board endorses the XX Congress of EACMFS that will take place in Bruges, Belgium September 14-17, 2010. We are also endorsing the meeting “Orbit 2011: Ten Years Later” organized by Dr. Luigi Clauzser, that will be held October 14-16, 2011 in Ferarra, Italy. EACMFS members have been invited to attend our annual meeting in Toronto.

The Visiting Professor program now in its fourth year; is supported through a generous educational grant from Stryker. The program runs from July to June to coincide with the training programs academic year. The program was recently modified and now supports lodging as well as travel expenses. Dr. Delora Mount and her committee finalized the 2010-2011 Visiting Professors. The brochure is included with this newsletter. This is another great opportunity that ASMS offers to the training programs.

The Plastic Surgery Hyperguide is growing fast. This web-based educational activity is made possible through an educational grant from Stryker with CME activity sponsored by Vindico Medical Education. It is offered free of charge to all plastic surgeons and residents. New modules recently added include safety, case of the month, multimedia and basic science. Participants can earn up to 20 CME category one credits while reviewing chapters and other materials at their leisure.

With Dr. Jim Ferraro’s approval, a group of board members are proceeding with the second edition of his book Fundamentals of Maxillofacial Surgery. These board members are Drs. Peter Taub, Pravin Patel, Steven Buchman, Joseph Losee and myself. We hope to complete the table of contents and sign the contract with the publisher, Springer Verlag shortly. This publication will provide solid information to residents and practitioners interested in maxillofacial surgery. It will become a valuable reference for the Basic Maxillofacial Course participants.

Your Board is making strong efforts to maintain and expand our mission, not only in the areas of education and research but in advocacy as well. We are thankful for the strong corporate support we receive each year, but that is not enough. This year, we started a membership drive campaign and are already receiving a number of applications for active membership. This is a good time for our members to assist our Secretary and Assistant Secretary, Drs. Bill Hoffman and Peter Taub in their efforts for recruitment by promoting our activities, identifying and recommending prospective members from their communities and institutions. In addition, I have requested that our members consider supporting the Maxillofacial Surgeons Foundation (MSF) with a tax deductible contribution. As you may know, MSF is the educational arm of ASMS. I truly hope that all members will consider including MSF in their charitable plans and I would like to thank you in advance for your generosity.

Dr. Robert Havlik, our First Vice President, and the Program Committee are finalizing plans for what appears to be a great program for our Pre-Conference Symposium and ASMS day program being held in conjunction with the ASPS/PSEF annual meeting. Great panels and lectures with experienced speakers have been assembled. In addition to vast educational opportunities at the annual meeting, Toronto is a beautiful and exciting city, rich in culture and arts. It offers a perfect venue for a memorable convention. PS2010 is designed to become the premier international meeting for the entire specialty and I hope that you plan to attend.
Editor’s Column
Arun K. Gosain, MD
Case Western Reserve University

Maxillofacial News is now celebrating its 25th anniversary. While some may feel this to be of interest only to history buffs, the evolution of our newsletter is a parallel to the evolution of our specialty. The initial newsletter announced the annual meeting would be in Kansas City, Missouri, with the Kazanjian Lecture to be given by Hugo Obwegeser. Courses that year were offered by figures who remain active leaders in the field 25 years later, including Jonathan Jacobs, Bill Magee, Jim Ferraro, Jeff Marsh, Bahman Guyuron, Ken Salyer, Paul Manson, Burt Brent, Ian Munro, Foad Nahai, Tony Wolfe, and Henry Kawamoto. The ASMS leaders represented on its Board of Trustees included Henry Kawamoto, Tony Wolfe, Ed Luce, and Doug Ousterhout. It is clear that these members have continued to give back to our specialty to the present day. In an effort to preserve the rich history of ASMS, the newsletter has instituted the “Historian’s Corner,” with a contribution by Mutaz Habal in this issue. Dr. Habal eloquently outlines a 40-year relationship with the maxillofacial society. Dr. Habal now serves as the Editor of the Journal of Craniofacial Surgery. His ongoing commitment to ASMS is reflected in his generous offer to provide the Journal of Craniofacial Surgery at a 50% reduction to active members. When subscribing, members should indicate their active member status in order to receive this benefit.

These experiences illustrate the uniqueness of ASMS. The society serves as the vanguard of development for our specialty and an inspiration through which our young leaders develop and maintain loyalty throughout their careers. One such initiative is reflected in Dr. Robert Havlik’s article in this issue regarding the RVU value assigned to two common CPT codes that all of us utilize in mandibular and maxillary fractures. It is our society that has the data by which these CPT codes are valued, and it is our membership that shapes the practice of maxillofacial surgery in this country. I ask each of you to complete this assignment so that the codes assigned to these procedures remain relevant. I have no doubt that Dr. Havlik and the other current Board members will continue to be leaders in our specialty 25 years from now. It behooves us all to follow their lead in key initiatives that are basic to the practice of maxillofacial surgery.

The newsletter remains a chronicle that maps the history of our society. With such a rich history, it is clear that all surgeons involved in the practice of maxillofacial surgery should belong to ASMS. However, every year graduates of plastic surgery training programs equivocate over the value of membership in ASMS. Much of this information is distributed to our members. Both the newsletter and the website continue to evolve with our members’ needs. You can each influence the shape of these media outlets by sending suggestions to the ASMS Office (asms@plasticsurgery.org).

One initiative that we must all remain aware of is expanding technology and the evolving means by which we communicate. For this reason, our newsletter is “going green” with the 2010 Winter Issue. This will serve to curb printing and postage costs to ASMS, which will be better utilized to distribute needed services to our members. We welcome any other suggestions from our membership so that the newsletter remains a relevant source of information for each of you.

Call for Committee Volunteers!

The American Society of Maxillofacial Surgeons has numerous committees that contribute to the various activities of ASMS and Maxillofacial Surgeons Foundation. Committee members are needed to contribute to serve on these committees and to provide valuable input to the ASMS. Members are invited to serve in all areas – the only requirements are that you desire to contribute, and have a willingness to work constructively for the betterment of our society and our specialty.

If you are interested in serving on one or more of these committees, please contact the ASMS Administrative Office at asms@plasticsurgery.org or by phone at 800-849-4682 for more information.

- Constitution & Bylaws Committee
- Membership Committee
- Ethics Committee
- Maxillofacial News Committee
- Web Page Committee
- Best Paper Award Committee
- Education Committee
- Educational Grants Committee
- Scientific Program Committee
- Visiting Professor Committee
- Development Committee
- Task Force on Socioeconomic Issues/Reimbursements

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All New Advanced Multi-Specialty Course

Warren Schubert, MD, FACS
University of Minnesota

On February 27-28, ASMS offered its first Advanced Multi-Specialty Maxillofacial Course, held in Jacksonville, FL. Although it was originally promoted as an Advanced Mandible Course, the content of the lectures and laboratories evolved into what is the natural progression for participants who have taken the Basic Maxillofacial Course.

For the first time, fresh cadaver heads were used in an ASMS course. There was a cadaver head available for every two participants, and one instructor for each cadaver, which enabled the opportunity for a ‘hands on’ experience with various procedures. There was a multitude of instructors from the specialties of Plastic Surgery and Oral and Maxillofacial Surgery. This program was Co-Chaired by Dr. Robert Marx, from the University of Miami; Dr. Don Mackay from Penn State; and Dr. Warren Schubert from the University of Minnesota.

The Basic Maxillofacial Course introduces participants to the principles of making dental models, dental planning, and using Saw Bones Models for orthognathic surgery and maxillofacial trauma and reconstruction.

This new Advanced Course went to the next step to give the participants experience with bilateral split osteotomies of the mandible, advancement genioplasty, and LeFort I and III osteotomies. For the first time, participants had exposure to the placement of osteo-integrated implants for the use of dental rehabilitation, as well as an option for support for the placement of nasal, orbital, and ear prosthesis. Lectures included an update on mandibular trauma with exercises for soft tissue approaches for subcondylar fractures and various options of mandibular reconstruction in patients with significant defects.

Our plans are to make this an annual event for surgeons who have taken the Basic Maxillofacial Course and want to proceed to the next step with more realistic exercises using cadaver models.

The next Advanced Course will be offered in Jacksonville, FL on February 19-20, 2011. We’re looking forward to another excellent program.

Victor Lewis, MD appointed to AMA CPT Editorial Panel

Victor Lewis, MD becomes the first plastic and maxillofacial surgeon appointed to AMA CPT Editorial Panel. Dr. Lewis was appointed by the AMA Board of Trustees in April to serve a 4-year term, beginning in October 2010. The panel meets three times each year to discuss issues associated with new and emerging technologies – as well as the difficulties encountered with procedures and services and their relation to CPT codes.

Dr. Lewis serves as the ASMS Delegate to the AMA, he is a past ASMS president, as well as a past chair of the ASPS CPT Committee.

“I’ve also had extensive experience with the Relative Value Scale Update Committee (RUC) and the related forms, particularly for maxillofacial surgery. I understand both plastic surgery issues and the documentation needed to justify bringing in a new CPT code or modifying a code or group of codes," Dr. Lewis says. "I’m hopeful that the breadth of my chronological and surgical experience will make me a resource for the committee.”

Visiting Professor Program continuing its tradition of excellence

Delora Mount, MD
University of Wisconsin

Since its establishment in 2007, the Visiting Professor Program has sent 12 highly skilled plastic surgery leaders to scores (and counting) of plastic surgery training programs. Each year, the committee has increased the complement of visiting professors, further illustrating the success of the program and the growing demand for this plastic surgical expertise.

To gain maximum efficacy for the institutions as well as the surgeons, the committee targets plastic surgeons who focus on cranio-maxillofacial surgery – cleft and craniofacial surgery, maxillofacial trauma, head and neck reconstruction, and aesthetic surgery.

Visit criteria

Visits are recommended to be two days in duration. They may include lectures, discussion groups, patient evaluation and ward rounds. If applicable, the local host institution will be responsible for working with the visiting professor to obtain the specific privileges necessary for operative procedures.

The program is fully funded annually through a generous educational grant from Stryker. New in the 2010-2011 Academic Year, ASMS will now cover more visiting professor travel expenses while visiting the respective programs.

ASMS Visiting Professors are eligible to visit ACGME-accredited plastic surgery training programs and attend Society meetings. The program brochure is included with this newsletter. Programs interested in hosting a Visiting Professor may find information on the ASMS website at www.maxface.org or by contacting the ASMS office at (800) 849-4682 or asms@plasticsurgery.org.

2010-2011 Visiting Professors

Mimis N. Cohen, MD, FACS, FAAP
University of Illinois at Chicago

Malcolm Lesavoy, MD, FACS
UCLA School of Medicine

Jeffrey Lowell Marsh, MD
St. Louis University School of Medicine

Eduardo D. Rodriguez, MD, DDS
Maryland & John Hopkins School of Medicine

John A. Van Aalst, MD
UNC Chapel Hill
Reflections from a Senior Surgeon with more than 40 years of affiliation with ASMS
Mutaz B. Habal, MD, FRCS, FACS

When I was asked to put together a few lines about my time with ASMS, as a senior member, I had to go back to memory lane and visualize old times, when I started, and how close my affiliation over the years has developed. I thought it would be best to start from the beginning perhaps my younger colleagues would have a good time reading about the good old days, and how great it was not to have the other specialties encroach on our work on a daily basis.

My first encounter with maxillofacial surgery was in the late sixties as a house officer at the Boston Children Hospital, at that time named Peter Bent Brigham Hospitals. I was also the only house officer in plastic surgery in the entire Boston metropolitan area, so I was able to participate in every surgical group in the area. Past President Mel White, MD invited me to the society’s annual meeting. This was my first attendance at the annual meeting and encounter with the maxillofacial surgeons group. I was most impressed with the meeting and this intensified my interest in the field of maxillofacial surgery. The meeting took place in downtown Boston at the Sheraton, the room was small and the attendance was sparse. During the presentations, Dr. Kazanjian came to the meeting. I had just finished reading his book and to see him right in front of me as a house officer was a very impressive and humbling experience. It was a great honor that took several days to recover from the excitement. I sat beside him and he took interest when he found that I was from his old country in the Middle East. I immediately wished I had his book with me for him to autograph. The discussions at the meeting were all new and innovative material. The activities were primarily in maxillofacial surgery with the attendees being all plastic surgeons with dual degrees. In the subsequent years, I attended a few meetings and through those I became well acquainted with Dr. Converse. He also took interest in me and my country of origin and as time passed and friendships developed we became increasingly close. I have greatly enjoyed all of my experiences with ASMS.

When I moved to Florida, we invited Drs. Converse and Murray to speak at an event. Shortly thereafter, I was invited to talk at NYU, that presentation was subsequently published into a book edited by Dr. Joseph McCarthy. During this time, primary work was on the optic nerve and its relation to craniofacial surgery, which was thought to contain the most informative details of the optic nerve structure done under microscopic magnification. Dr. Converse was very happy to visit Florida during the colder months in New York. We spent time by the pool discussing different aspects of life from the war, to his activities in New York, to how he started serving the various new hospitals, as well as his early experiences and relationship with the Chairman General.

In more than forty years, I have witnessed many changes in the society. The most important, being the collegiality and the ability to interact with each other. The annual meeting became a great pleasure to attend because we were not only able to see and socialize with long time friends, but we could witness the clinical progress and how we could work to improve our outcomes. During the meeting, we discussed our complications, difficult patient issues, and exchanged advice with one another. Additionally, we freely discussed the unusual mishaps we encountered. The meeting was initially maxillofacial but as we progressed doing more and more craniofacial surgery, we combined the two together and became a Cranio–Maxillofacial society until the creation of the Craniofacial Society in the mid eighties. ASMS continued as a separate society with more of its activities in conjunction with the plastic surgery society.

Another interaction I will never forget is when Dr. Don Wordsmith came to guide Dr. Fred Epstein and me in my early years of craniofacial procedures. Later, I assisted Dr. Bob Brown with his first craniofacial procedure. We were such an interwoven group almost like working together and having our hospital all over the country without walls or a roof. They were all ASMS members and very active in communication and networking. When I was asked to start a series of advances in plastic surgery, I found myself using many of the contributions from my colleagues in this unique specialty. The most impressive being the evolution of fixation of the cranio-maxillofacial skeleton. I think the advances in this field as well as the in depth understanding of the myo–functional analysis and reviewing the outcomes of many innovations urged us forward with all the mechanics to help our patients. The “skull wars” continued around who described what cuts in the bone has been interesting to witness over the years. The maneuvers are nice to note but with the frequent changes, few last forever. That in mind, I would like to review and divide the fixation of the craniofacial skeleton into four different eras for the young plastic surgeons in the field:

a) Non Fixation Era: The patient has simple or complicated fractures. The surgeon simply reduces the fractures and leaves them alone. The Gilliss technique was the standard and prominent primarily for the orbital fracture. We continued to see patients with reparative procedures that did not stand the test of time having poor outcomes. Then a study, published in JAMA, came showing a large percentage will collapse without fixation.

b) The Crown Era: We learned that if we put an external device on the patient, called the crown (a halo-like external fixture) at that point, fix the patient’s face to the crown, and then take the crown off, that would probably suffice. Then we witnessed, as we were now starting to follow up with patients to maintain what they have and monitor their growth and development, that this really did not do much because in six months everything collapses.

c) Wire Fixation Era: Wire fixation became so popular particularly as we became aware that some general surgeons were using small wire fixation for repairing hernia patients. They thought, at that time, if you put in a wire the hernia would have a zero recurrence rate, which proved not be true because it tore up the tissue and the patient ended up having the same problem without using the wire.

d) Rigid Fixation Era: The beginning of the eighties brought rigid fixation with plates and screws. We tried the old system and almost all our patients extruded their huge plates before they left the hospital, at that time they stayed in the hospital for about a week. I personally abandoned plates and screws in the late seventies until the mini plates and screws were introduced in the early eighties. This became revolutionized in time from using the plates and screws, the vitallium that came first with Howmedica, to the small plates and screws with mini fragment Synthes, Lorenz, Anspech and Champy. They were all stainless steel with the initial one and then everybody changed to titanium and some to vitallium. We had many patients with the plates and screws floating in their craniofacial region after two and three years with utility of the systems in use as the stainless steel was abandoned; now it is all titanium with different labels. In the mid nineties, the resorbable plates came through and a group of us from the maxillofacial society and craniofacial society gathered in Warsaw, Indiana to witness the FDA release of the resorbable plating system for clinical use in the maxillofacial region excluding the man (fig 1). At that time, we were advised by the Lorenz Corporation president to form the Circle of Surgeons, to give courses free of charge to those interested, that in using this system it is a little different than using metallic plates. Also our charge was to give advice to the industry to keep the momentum of innovation and advancement going. That system has taken charge and is the standard of care now for children, infants and neonates. In patients over the age of twelve, it is a toss up between using resorbable plates, if a surgeon is familiar with it, or using metallic plates.

Another important advancement in the face of plastic surgery is the evolution of the materials we use to fixate craniofacial fractures. The first generation of resorbable plates and screws were the Synthes plates and screws that came out in the mid nineties. These plates and screws were floating in the craniofacial region after two and three years. In the late nineties, we started using titanium plates and screws with different labels. In the mid nineties, the resorbable plates came through and a group of us from the maxillofacial society and craniofacial society gathered in Warsaw, Indiana to witness the FDA release of the resorbable plating system for clinical use in the maxillofacial region excluding the man (fig 1). At that time, we were advised by the Lorenz Corporation president to form the Circle of Surgeons, to give courses free of charge to those interested, that in using this system it is a little different than using metallic plates. Also our charge was to give advice to the industry to keep the momentum of innovation and advancement going. That system has taken charge and is the standard of care now for children, infants and neonates. In patients over the age of twelve, it is a toss up between using resorbable plates, if a surgeon is familiar with it, or using metallic plates.
A high percentage of ASMS members perform volunteer surgical work overseas. This laudatory work is fraught with potential problems that may not be encountered at home institutions. In order to determine how complications during surgical volunteer trips overseas could be minimized, I read Atul Gawande’s The Checklist Manifesto. The primary question I wanted to answer was whether use of a checklist could improve outcomes during these overseas surgical volunteer trips?

The Checklist Manifesto is 193 pages, and a quick read. It is peppered with stories from the airline industry, 5-star restaurants, and the building industry; with these stories Gawande builds an argument that many industries have built checklists into their routine — and that they do work. The airline industry started the idea of the checklist when planes became too complex for a single person to fly. The checklist is a list of all the mundane things that can go wrong with a plane: it needs to be brief and well written, and then tested carefully before implementation. The premise of the checklist in the building industry is that the idea of the master builder (someone who designs, engineers and constructs the entire building from start to finish) is long gone because of the complexity of modern buildings. Everyone in the building industry expects and relies on these checklists. Despite the accumulation of evidence that checklists work, there has been a resistance in surgery to their implementation -- somehow we are trapped by the idea of the master builder: as surgeons, we want to be in control from start to finish.

In 2004, the World Health Organization (WHO), noting that 230 million major operations were being done worldwide, was interested in decreasing the morbidity and mortality from these operations. A checklist* was created and tested at 6 world-wide centers: The University of Washington Medical Center in Seattle, WA; Toronto General Hospital in Canada; St. Mary’s Hospital in London; Auckland City Hospital in New Zealand; Philipsen General Hospital in Manila; Prince Hamza Hospital in Amman, Jordan; St Stephen’s Hospital in New Delhi; and St. Francis Designated District Hospital in Ifakara, Tanzania. Before application of the checklist, three months was spent documenting major complications and deaths; the following three months were spent utilizing the checklist and collecting data. By October 2008, the tabulated results showed a decrease in infections of nearly 50%, a decrease of 36% in major complications, and a 47% decrease in deaths. These decreases were noted in all the hospitals in the study. Based on these results, Gawande strongly argues that the checklist should be adopted universally. This has largely been accomplished in developed nations; yet, in developing nations, namely many of the countries where ASMS members volunteer their surgical services, these checklists are not routinely utilized.

The Checklist
As most of you know, the checklist takes approximately 2 minutes to execute, and involves 19 items that require a check, 7 at a pre-operative timeout, another 7 immediately before incision, and the last 5 after the operation.*

Implementing the Checklist during Volunteer Surgical Trips Overseas
If a checklist has become standard of care at our home institutions, we may want to consider using similar checklists overseas during volunteer work. In fact, it may be argued that these checklists are especially critical overseas because the environment is unfamiliar, often performed with a group of health care workers made up of both local and foreign practitioners, with whom we may not be familiar. Lastly, despite efforts to provide optimal translation services, language may continue to be a barrier.

Decisions that need to be made about the checklist would be how (based on the circumstances of the host country) the list may need to be modified, who should administer the checklist, and what language (s) it is administered. If the list is administered by a local practitioner, it may empower the surgical trip hosts. It could be administered by a combination of a local practitioner and trip member, in both the language of the host institution and the language of the visiting group.

The ultimate value of the checklist would be to align practices at the host hospital with global standard of care that WHO hopes to implement.

*The Check List

Pre-op (7): 1) Patient identity, 2) Consent for procedure, 3) Surgical site is marked, 4) Pulse oximeter is working, 5) Patient medication allergies, 6) Risk of airway problems, 7) Appropriate equipment/assistance is available, including blood loss possibilities addressed with lines, blood, and fluids.

Pre-incision (7): 1) Team member introductions, 2) Correct patient (including left or right), 3) that antibiotics have been given, that 4) Radiology images needed are present, and briefing as a team, including 5) Length of operation, 6) Amount of blood loss expected, and 7) Anything else of which team member should be aware.

Post-operation (5): 1) Name of procedure, 2) Correct labeling of specimen for pathology, 3) Needle, sponge and instrument count, 4) Equipment problems to address for next case, and 5) Plan for recovering the patient.

Update on Synthetic Bone Substitutes
Fernando D. Burstein MD, FACS, FAAP
Atlanta, GA

Over the last twenty years there have been several exciting advances in the field of clinically applicable synthetic bone substitutes. Porous hydroxyapatite in both granular and block form was one of the first materials to display biocompatibility, bone inductive properties and volume retention. Encouraging clinical reports from Salzer, Rosen and many others have encouraged the use of porous hydroxyapatite for many maxillofacial and craniofacial applications. The brittle nature of the blocks and tendency of the granules to flow with gravity made certain applications challenging. In order to improve ease of handling, moulding and use in wet fields numerous companies subsequently developed a variety of hydroxyapatite cements. With these products a dry hydroxyapatite powder is mixed with an activator to produce putty like cement which can be molded in situ to the desired contour.

The physical properties of the final mix can be altered by varying the amount of activator mixed with the powder resulting in a faster or slower curing time, more powder or putty texture and varying degrees of bone adherence. Friedmand, Burstein, Durham and others have reported on large series of patients undergoing craniofacial and maxillofacial reconstruction with hydroxyapatite cement. This material has been shown to be biocompatible, provide stable volume and some degree of osteoconduction at the bony cement interface. The generally accepted complication rate with the use of hydroxyapatite cements is around 10%. Most were due to micro fragmentation with subsequent seroma, abscess or chronic granuloma formation necessitating removal of the material. Attempts have been made to make the cements less prone to micro fragmentation without adversely impacting their handling characteristics but none have been demonstrated to be significantly less prone to micro fragmentation.

Careful attention to technique, indications and avoiding potentially contaminated areas such as open paranasal sinuses has been shown to result in fewer complications. Hydroxyapatite cements have been shown in laboratory studies to absorb and then slowly release a number of biologically active substances such as antibiotics and bone morphogenic protein. The possibility of a biologically active bone substitutes may become a reality in the next few years. Recently, another variant of hydroxyapatite cement has become clinically available sold under the KRYPTONITE brand name. This material combines calcium carbonate with a fatty acid (Prepolymer), a mixture of water, catalyst and a fatty acid (Polyl). This three component mixture produces osteoconductive adhesive putty.

Mixing the Polyl and Prepolymer releases carbon dioxide to increase the materials porosity. It is reported to have excellent strength, be osteoconductive and can be drilled to insert hardware. The manufacturers also claim that it is osteoconductive and provides stable volume. The time to application and curing is much longer than with currently available hydroxyapatite cements with a “taffy like” feel during
application. There has been very little clinical data to date to determine the applicability of this material to maxillofacial and craniofacial application but it could be very useful.


**ASMS Podcast/Teleconference:**

**The Management of Orbital Fractures**

**Moderator:**

Robert Havlik, MD

Professor of Plastic Surgery at Indiana University

**Participants:**

Paul Manson, MD, Professor of Surgery at Johns Hopkins University

Glenn Jelks, MD, Associate Professor of Surgery, Division of Plastic Surgery and Associate Professor of Ophthalmology at NYU School of Medicine

**Robert Havlik:** I would like to welcome both of you to participate in this call on the management of orbital fractures. Based on the track record of accomplishment in the area of orbital fractures, I’d like to try and glean some of your expertise to bring to the ASMS membership. We’d all like to have Level I evidence in whatever areas we practice in, but we all know how limited that is and how few questions can be answered with that evidence. So we need the expertise of people like you who have made substantive contributions in the field. There are many controversies in the area of orbital fracture management. And I’d like to begin a discussion regarding some of those. Dr. Jelks, a patient presents following traumatic injury with an orbital fracture. What are the essential components of ocular evaluation? And when should ophthalmological consultation is obtained?

**Glenn Jelks:** Clinical evaluation of the orbit really has to include a complete history and detailed examination. The incidence of ocular injuries can vary from 10% to 40% with orbital fractures. It is mandatory to have an ophthalmological evaluation in every orbital fracture to determine the extent of visual consequences. A qualified clinician can easily perform this evaluation. At some point in time it usually requires a formal evaluation that rules out problems with the anterior or posterior components of the eye. Retinal damage and rupture of the globe are rare, but can be missed during the evaluation of significant orbital trauma.

The ophthalmological consultation should be part of the evaluation and documentation of the visual status in the total management of a patient with orbital fracture.

**Robert Havlik:** I want you to elaborate a bit. If a patient presents with findings consistent with orbital fracture, such as tenderness of the orbital rim, and a history consistent with that and no other injuries – the physician then performs a screening exam and their visual acuity is appropriate on an eye chart. In that setting would you still move forward in terms of formal ophthalmologic consultation and evaluation of both the anterior chamber and the retina? Is that what you’re saying?

**Glenn Jelks:** It’s important to establish documentation in the chart that an evaluation of the eye beyond visual acuity has been performed; in other words, the status of the media of the eye. This can be done with a direct ophthalmoscopic evaluation. The three things that you’re looking for in the initial ophthalmological evaluation are the presence of double vision, any significant enophthalmos (or sinking in of the eye), and whether there is anesthesia or hypesthesia in the maxillary division of the trigeminal nerve distribution. Those three clinical factors direct you to a significant amount of orbital trauma that may have involved the ocular system as well.

**Robert Havlik:** Dr. Manson, did you have anything to add in terms of the initial evaluation in the above patient?

**Paul Manson:** The diagnosis of any facial fracture is able to be suspected by a good clinical examination. The wonderful thing about the face is you can figure out what the patient has if you’re alert and look for signs. Immediately after the injury the patient almost always has a little conjunctivitis edema, which then turns into a combination of sub-conjunctival hematoma and periorbital hematoma that’s confined to the distribution of the orbital septum. So there’s a sharp cutoff in the bruise that is pathognomonic for the injury. Most orbital fractures will show that combination, as Glenn says, a combination of tenderness at the infraorbital rim and infraorbital nerve hypesthesia. Once you see these findings you must prove that a significant orbital fracture does not exist with a CT scan. Those findings mean that an orbital fracture probably exists. Its significance and need for treatment is for you to determine with diagnostic imaging.

**Robert Havlik:** It seems to me that the standard of care has evolved into the use of CT scans routinely in terms of imaging the orbit for questions about this area. Would you both agree?

**Glenn Jelks:** Yes.

**Paul Manson:** There’s no reason not to do that. I saw a patient today who had a nasal fracture. She comes in with plain films. If you really want to know what’s going on with any injury, even a nasal fracture, you have to have a CT. In particular, with an orbit you need a CT and axial and coronal sections, as well as bone and soft tissue windows; then you have the complete picture.

Those tests are not that hard to obtain. With good CT scan data you can reconstruct the coronal images if the patient is not able to flex the neck. The determination of what you need to do is based on the physical examination and the CT scan.

**Glenn Jelks:** I agree totally that the CT scan has certainly surpassed the standard x-ray. We used to use the Townes and Waters views and the bucket handle views as our standards to look at the orbital rims, floors and zygomatic arches. Now you can reformat CT scans and look at AP, lateral and coronal - views to determine very closely what the clinical situation may reveal.

**Robert Havlik:** CT scans are also rapidly obtained because of increased scanning speeds - there’s no delay and no reason not to image in this way.

**Paul Manson:** The value of the various types of CT imaging is that you not only see the bone, but you see the soft tissue. When you image the soft tissue, you know exactly where the inferior and medical rectus are going and exactly what the inferior oblique is attached to.

With regard to the medial and inferior rectus, issues of significance are present in some orbital fractures. You can determine issues of muscle interference if the patient has double vision, whether you need to observe that patient or whether he has indications for surgical treatment of diplopia.

**Glenn Jelks:** When you suspect entrapment of the inferior rectus, inferior oblique or medial rectus, you should do forced ductions tests to confirm the clinical restrictions suggested by the associated CT findings.

**Robert Havlik:** In regards to preference of timing for surgical intervention, let’s say you’ve established that there’s an isolated orbital floor fracture or a ZMC complex fracture.

Do you have a preference in terms of timing for intervention for these patients,
assuming that they have no other trauma? The cervical spine has been cleared for any other injury, and you’re dealing with an isolated zygomaticomaxillary complex fracture or an isolated orbital floor fracture. Is there a preference for timing for you, Dr. Jelks?

**Glenn Jelks:** I prefer to intervene early. An immediate intervention after the patient’s evaluation and general medical status has been determined. If the surgical team is prepared, it is appropriate to proceed immediately.

**Robert Havlik:** Ideally you would rather intervene as soon as appropriate? Let’s say the patient presents to you the next day in an elective fashion and is referred to your office, what kind of timeframe would you be looking for in terms of optimal management of that patient?

**Glenn Jelks:** Separating the patient into immediate presentation in an emergency setting is one situation. When presenting 24 hours after the injury and requesting clinical evaluation is no different. If enough information to support early intervention has been determined and the patient is properly prepared, it can proceed at that time. If evaluation reveals any questions about the degree of injury or of clinical changes, then there is a period of time where the immediate intervention can be delayed up to about three to five days. If it is less than a week, you could still intervene without some of the consolidation of the boney fragments and the soft tissue fibrosis problems being an issue.

**Paul Manson:** I agree with Glenn. But I would add that if the patient has an optic nerve problem, generally those patients are observed, thinking that you might do something in the operation to make that optic nerve problem worse.

But I strictly patients based on the involvement of the extraocular muscle system. In children, and sometimes in adults, you see a true “trap door” kind of fracture where the inferior rectus is physically incarcerated. It gets trapped outside the orbit. To me, that is an urgent situation that ought to be relieved as soon as possible.

These patients often are unable to move the involved eye superiorly at all. Many don’t have much of a sub-conjunctival hematoma (the patient with a white-eyed blowout fracture). They often have nausea when they try to look upward because of the actual incarceration of the muscle.

These patients need to be released as soon as you can possibly do it because the survival and the function of that incarcerated muscle is directly related to how fast you can release it. The muscle is truly scissored in the fracture and trapped, impairing its blood supply.

In patients who have muscle contused or are otherwise limited, I like to release them, as Glenn said, as soon as possible. If you think about it, you confine your surgery to the same period as the injury. And so the patient goes through “one insult”. If you operate a week later you deliver a second surgical “insult” a week after they had a “traumatic insult”. And there’s no one who’s better off for having two insults.

So if you can limit the event – the injury and its treatment to one period, that’s best. And especially if you have a really bad fracture like an NOE, a LeFort, or if the orbit is very, very disrupted, the sooner that you can get those orbital bones into the right anatomic position, the more the soft tissue will scar in the right position and I think the better off the patient will be.

**Robert Havlik:** We really have a concurrence of opinion there in terms of expediting treatment as soon as possible.

**Paul Manson:** Yes. Most facial fracture care is timed to be at the convenience of the surgeon. And I think we can get better results if we got away from that and sorted what the priorities of the fracture management are and tried to get things back in position as soon as possible. So I agree with Glenn entirely.

**Glenn Jelks:** I agree with Paul in terms of the extraocular muscle entrapment issue when ocular injuries such as a penetrating wound to the globe, retinal detachment or optic nerve compression are present the ophthalmologist or neurosurgeon may have to intervene prior to bony orbital reconstruction.

**Robert Havlik:** In those cases certainly, it’s best to expedite the care as much as possible. Now, I’d like to move on and get your opinion regarding surgical approaches. A number of approaches are used for orbital surgery. Some common approaches are a lid-splitting procedure or a transconjunctival procedure. I’d like to ask each of you do you use a single approach for the majority of your patients?

**Glenn Jelks:** I favor the transconjunctival access mainly because of my training at UCLA and NYU where Tessier had such a strong influence. The transconjunctival approach allows for excellent exposure and reduces the post-operative complications of lower eyelid malpositions. That has been my preferred approach, combined with various ancillary techniques, in both young and old patients.

**Robert Havlik:** When you say transconjunctival, do you mean transconjunctival preseptal to as great an extent as possible, where you go down and dissect in plane between the orbital septum and orbicularis oculi muscle?

**Glenn Jelks:** That’s is correct, however, in children with an isolated orbital fracture with a little trap door-type of medially-hinged fragment, the retroseptal approach is a very clean, crisp access with rapid recovery. I also use the retroseptal approach in simple orbital reconstructions and in tumor removal.

Routinely, I prefer the preseptal approach. An incision is made at the base of the tarsus and dissection between orbicularis oculi muscle and the anterior orbital septum, extending down to the maxillary bone periosteum is performed. The periosteum is opened and subperiosteal dissection into the orbit is completed. Ninety percent of the time, I’ll perform a lateral canthotomy and inferior lower eyelid cantholysis to release the lower eyelid to allow further medial wall exploration.

**Robert Havlik:** Dr. Manson, in your practice do you favor the transconjunctival or lid-splitting approach?

**Paul Manson:** The transconjunctival is probably the most common incision used now, although I get the best exposure from a subciliary incision with skin muscle flaps. It has the highest incidence of complications; so I think it’s difficult to justify routine use of this incision.

I agree with Glenn, but I’m a little “Nick Iliff” influenced, so that I go transconjunctival fornix. And if I need to divide the lid I don’t go horizontally through the lateral canthus as most people do. I go about four millimeters medial to the lateral canthus and divide the lower lid margin vertically through a skin-muscle exposure of the lower lid margin. I vertically divide just the lid margin, not the skin. I use a short (1 cm) horizontal subciliary skin muscle incision to provide exposure of the lid margin and tarsus. I have a little skin incision and I have a little bit of submuscular exposure of the lid margin, then I just divide the lid margin. To me, it is very easy to put that incision together. It’s much more predictable than splitting the canthus and trying to put that together.

I never make a rim incision. If you want to do a skin approach, the most predictable is a mid-lid exposure just beneath the tarsal plates still within eyelid skin. Never extend it too far laterally, a suggestion from Dr. S. Anthony Wolfe. In the mid-lid skin incision, I dissect the skin a little bit off of the muscle and then dissect the skin and muscle together to the rim periosteum. It’s a good approach for those who wish to have a lid skin incision, and don’t need as much exposure laterally as a subciliary or a transconjunctival canthoplasty approach would provide.

**Robert Havlik:** Let me ask you to elaborate a little bit about your approach to the lower lid. When you make describe essentially a vertical cut, it sounds like you’re describing a vertical cut through the tarsal plate.

**Paul Manson:** Yes, so I make a short horizontal (1 cm) subciliary incision in the lateral aspect of the lower lid just medial to the lateral canthus. Once I have a skin-muscle flap lifted, I see the lid margin and I divide the tarsal plate and the lower lid margin vertically about three to four millimeters medial to the lateral canthus, not the soft tissues of the lower lid.

Then, the whole lid folds down and this provides superior exposure. And you can put the lid back together anatomically in layers and everything lines up easily and just perfectly. The structures are clearly visible. I have far fewer positioning problems than I had with splitting the canthus.

**Robert Havlik:** So let me just clarify one point. When you make this cut through the lid, you cut through only the lid margin and tarsal plate cartilage and you are essentially dividing the tarsal plate vertically.

**Paul Manson:** You divide the lid margin and tarsal plate 4 mm medial to the lateral canthus. You never divide the skin or muscle vertically. The lid margin division is at
a point that's aesthetically not very perceptible. It's not like dividing the middle of the lid. The incision in the lid margin hides in the corner of lid — it's a great incision!

Robert Havlik: Okay, wonderful!

Paul Manson: If I need exposure in addition to a simple transconjunctival exposure, in other words if I need a canthotomy, that's how I release the lid, thereby avoiding a canthotomy, which is more difficult and less forgiving to repair.

Robert Havlik: You leave a small lower lid remnant laterally.

Paul Manson: Yes, just enough to allow for an easy suture repair.

Glenn Jelks: What Paul is describing is a method of creating a good solid rigid fixation of the lower lid to its normal position, which is a very unique and predictable way of solving this problem.

Paul Manson: If you're Glenn Jelks or Nick Iliff, you can cut a lid and canthus back into position. But if you're a mere mortal like me, I've got to have some extra help.

Robert Havlik: Great description! I'd like to give you three different case scenarios that are admittedly artificial, but I'd like to ask your approach in terms of just incisions. A 25-year-old female is involved in an altercation. She has an isolated blowout fracture of the orbital floor. How would you approach that Dr. Manson?

Paul Manson: How big is the orbital floor fracture?

Robert Havlik: Fifteen by twenty millimeters.

Paul Manson: And it's totally confined to the floor? Now let me ask you one thing. There's what I call a "medial buttress" of the orbital floor and it represents the junction of the orbital floor with the medial orbital wall and it's connected to the middle turbinate. Is that still intact?

Robert Havlik: Yes.

Paul Manson: That's a straightforward conjunctival approach and I would do a conjunctival incision without a canthotomy or lid-splitting approach. She's too young to make a favorable cutaneous scar if you use any lower lid approach. My residents are fond of saying, "There ain't no scar like 'no scar.'"

So I would not make a cutaneous incision; I would use a conjunctival incision. I don't think you need a canthal release or lid release for that fracture. And I would repair her floor with artificial barrier material, MEDPOR or something like that which has a smooth polyethylene surface adjacent to the extracocular muscles. Porex now makes implants with a smooth surface to be used toward the eye muscles (Porex Corp, Fairburn, GA). I would try to anchor the implant with screw fixation, just so it wouldn't migrate.

Glenn Jelks: I totally agree with Paul. This is a situation where the retroseptal transconjunctival access can be guided by the specificity of the CT scan. These are cases where you may observe a little longer pre-operatively because you know you can still go in after a week and get a good result.

If there is developing enophthalmos or extracocular muscle restrictions, you can go in earlier with this same approach. Albeit, you'll be creating some further trauma and scar tissue, the intervention would be a retroseptal transconjunctival approach. I would also use a MEDPOR or Teflon implant to obturate the floor defect.

Paul Manson: So why are we operating on this patient? There are two possible reasons. One is if there is interference with extracocular muscle excursion, and most of those are not true impingement of the muscle, but represent incarceration of perimuscular fat. So that's one reason to operate on her.

The other is if the size of the fracture is enough to cause enophthalmos. Once the fracture is bigger than a nickel and displaced more than 3-4 mm, the amount of displacement and subsequent loss of volume of orbital contents into the sinus is enough to permit cosmetically unacceptable globe displacement. So there's two reasons, documented extracocular muscle interference created by soft tissue incarceration and volume change in the orbit.

Robert Havlik: I'd like to change that a little bit and ask your approach if this woman had a medial wall blowout fracture.

Paul Mason: That's an excellent question because it depends on the size and the location of the fracture. Could you reach the extent of the fracture with an extended transconjunctival incision that approaches the medial orbit? And if you look at the medial orbit, about the lower 2/3 of it could be approached satisfactorily with that medial extension of a conjunctival incision.

But once the medial orbital fracture gets to be a huge defect then I don't think you could resolve it without a coronal incision which seems objectively an approach out of proportion to the fracture. But if the fracture is really big, then it can't be totally accessed with a conjunctival incision.

Robert Havlik: Dr. Jelks, would you like to add anything to the approach to a large medial orbital wall fracture?

Glenn Jelks: I think guidance by the CT scan would determine your approach. I would always have a backup of the trans-conjunctival incision by a coronal incision to fully explore an orbit. I would possibly change from the retroseptal transconjunctival approach to the anterior septal because I can follow the posterior edge of the lacrimal process a little better in this dissection plane.

And although it's "blind" in the area of the medial orbital wall, you're really guided by CT and you need to control the anterior and posterior ethmoidal vessels. If the medial wall exploration is a struggle I use the coronal incision as a backup approach.

Robert Havlik: Do either of you have preferences in terms of implant for management of that medial orbital wall fracture? How do you approach fixation in that location?

Paul Manson: It depends on what you're doing to the floor, to me the critical thing is what you're going to do to reconstruct that "inferior medial orbital buttress." If that is out, in other words you have a big floor fracture that communicates with a big medial wall fracture, and then I think you have to use some kind of material that gives you a "strut" reconstruction.

And that is either an orbital floor plate, or you can use a MEDPOR Titan implant with a retained internal metal struts within it. You can bend this implant and it'll persist in the shape of the curve that you give it and it'll stay where you put it and then you can stabilize it by fixation. And then you could do whatever you wanted to the medial orbit and rest the medial orbital reconstruction on your medial strut of the floor reconstruction, or there are specific plates designed for the medial orbit which have their own fixation tabs. But that's a complicated situation that everyone might approach a little differently. It has to have two parts. And to me, if you get the floor and the inferior medial strut reconstructed, then you can lay something in the medial orbit and rest it on that strut.

Robert Havlik: Dr. Manson, in your hands do you use a semi-rigid type of fixation?

Paul Manson: Once the inferior-medial strut is gone, you can't get stability or shape without rigid reconstruction. You can go through the acrobatics of doing bone grafts, but I don't personally believe they're any better than artificial plate reinforced materials. The possible exception is the instance of severe loss of sinus lining or nasal lining, and that would present a problem for both plates and artificial materials.

Robert Havlik: Dr. Jelks, anything to add in that specialized situation?

Glenn Jelks: Well I agree. I think if you had your orbital rim intact and you can get a solid reinforcement of the medial nasal maxillary buttress with the titanium plate you should be successful. If you choose bone grafting in this situation, I think you're going to get a lot of remodeling and resorption in the bone. You may lose your structural fixation. I would go with plate and screw type of management of the nasal maxillary buttress and obturate the medial wall to maintain the orbital volume.

Paul Manson: The next patient is a 22-year-old male involved in a motor vehicle accident. For the sake of discussion, he has no associated injuries, but does have a "tripod," or zygomaticomaxillary complex fracture and a comminuted orbital floor fracture. Dr. Jelks, which incisions would you use to manage this fracture?

Glenn Jelks: I would use the preseptal transconjunctival approach with a lateral canthal release to allow access to the zygomaticomaxillary and nasomaxillary components of the tripod fracture. The important thing is to reestablish the buttresses, and prevent the distracting pull of the masseter muscles. It is also very important to evaluate the status of any zygomatic arch fracture possible for impingement on the coronoid process of the mandible.

All those factors come into play and an absolutely perfect anatomical reduction of all
of the fragments is essential, including the zygomaticomaxillary buttress, because it's going to be very important to prevent late malrotation of that segment.

**Robert Havlik:** In your approach, Dr. Jelks, do you also use an upper-lid incision or do you approach it all from below through an intra-oral incision in these cases?

**Glenn Jelks:** I use the gingival-buccal sulcus intraoral incision to assist in management of the nasomaxillary and zygomaticomaxillary buttresses. I feel comfortable getting the zygomaticofrontal component of the fracture through the transconjunctival release of the lateral canthal mechanism.

I have not hesitated to make a small Dingman-type incision in the lateral upper eyelid or upper eyelid crease to access the zygomaticofrontal area. I have the option of the coronal incision to look at the symmetry and establish the proper alignment of the zygomatic arches.

**Robert Havlik:** Dr. Manson, anything to add in terms of this?

**Paul Manson:** For most zygomas, we can approach them with an “anterior” approach alone. Most of these fractures do not need a coronal incision. The only reasons I use the coronal incision are either extreme posterior displacement of the zygomatic body or extreme lateral displacement of the zygomatic arch. Those types are a higher-energy fracture that account for less than 5% of the total zygoma fractures, and they’re helped by a coronal incision.

But the majority of zygomas can be done from the anterior approach alone. The “workhorse” incision for them is a gingival-buccal sulcus incision. You can get the whole anterior face of the maxilla, even the lower rim. You can get up to fixate the inferior orbital rim in some cases.

In patients who don’t have much of an orbital floor fracture component, you don’t need an orbital floor exploration. But if you do have it – as in this patient with a comminuted orbital floor - I would do that with a conjunctival incision.

My approach to the zygomatico-frontal (ZF) suture is the lateral aspect of an upper lid blepharoplasty incision, and it only needs to be about a centimeter long and you can scoot it back and forth to do the work. It avoids brow incisions which are always noticeable and objectionable, and it only needs to be directly over the ZF suture and the frontal process of the zygoma.

I put my thumb and index finger over the inside and over the frontal process of the zygoma and make a 1 cm incision just between my fingers and thumb. It comes out directly on the ZF suture, then you can scoot your incision back and forth and use it to reduce and stabilize the zygoma.

**Robert Havlik:** I know that you’ve written in the past that one of the advantages of the coronal incision would be acomminuted facial injury in which you’re trying to re-establish a sagittal positioning of the zygoma as it relates to the entire facial skeleton.

In other words, use the zygomatic arch and therefore the greater wing of the sphenoid-orbital process of the zygoma as a reference point for the facial plane, but those are really isolated circumstances.

**Paul Manson:** There’s nothing really like it. I mean it gives you an unexcelled view of the zygoma and there’s morbidity to that incision in both appearance and function. You’re always weighing your last problem with that incision versus “Is it really necessary?”

**Robert Havlik:** Exactly. But in those isolated circumstances when you need it, it is something...

**Paul Manson:** There's nothing like it.

**Robert Havlik:** The third patient is an 80-year-old male who is stable physiologically. He has altered mental status as a baseline and sustains an orbital fracture during a fall.

On clinical exam there is a component of lid laxity and he sustained an isolated orbital floor fracture, say 25 by 20 millimeters. How would you approach this individual, Dr. Manson?

**Paul Manson:** I would try to avoid an external lid skin incision in this patient and I would use a conjunctival incision. I would prepare the patient beforehand for the fact that he may require some secondary lid procedure because I think these are tricky lids, and I would be prepared to tighten the lid after the reduction. If the lid is loose, I try not to do anything primarily, but I would certainly try to stay out of his skin because it is exceptionally prone to ectropion and a complication.

**Robert Havlik:** Dr. Jelks, what would be your approach?

**Glenn Jelks:** I agree that trying to avoid involvement of any injury or compromise to the pretarsal orbicularis oculi muscle is essential. Therefore, the transconjunctival approach would be appropriate.

In these situations I consider doing a lateral canthopexy with a cheek suspension as a preventative procedure. I use intraoperative and postoperative steroids to manage the inflammatory process and reduce any element of lower eyelid malpositioning. I consider using oral steroids in a high dose with rapid declining dosage over five days postoperatively. I would also do cheek suspension at the end of the closure and maybe even a temporary tarsorrhaphy with a Frost suture which holds the lower lid upward with suturing to the brow.

**Robert Havlik:** Dr. Jelks, do you routinely use cheek suspension following approaches to the orbital floor over the ZMC complex fracture?

**Glenn Jelks:** Re-suspension of the soft tissue is extremely important in fractures that involve more than just an isolated orbital floor. If there’s enough trauma to cause a zygomaticomaxillary fracture, there’s been enough trauma to release the soft tissue from the overlying bone. Additionally with orbital reconstruction you perform an extensive subperiosteal dissection. It is an important part of the reconstruction of more extensive facial fractures to perform cheek suspension and soft tissue re-suspension to the bony orbital structure.

**Robert Havlik:** Dr. Manson, tell us your approach to the soft tissue re-positioning of the cheek.

**Paul Manson:** I agree with Glenn. Once you deglove the anterior portion of the zygomatic body and the inferior orbital rim, the soft tissues ought to be put back together and there are two ways to do that.

When I incise the perioisteum, I put little silk sutures on each side of the incision. I use it as a teaching technique for the residents, but I still learn from it. At the end of the case we look for those sutures and we close the perioisteum.

Then I do something to put the cheek pad back where I think it belongs. Once you strip the perioisteum, it is going to head south unless you do something to refix it to the craniofacial skeleton at the point where it was originally. So there are two things: 1) closure of the perioisteum; and 2) refixation of that closed perioisteal envelope to the bone.

**Robert Havlik:** When discussing critical steps in terms of preventing secondary complications, I’d like to mention matters of personal preference that probably come on the basis of both of your tremendous experiences in terms of treatment of these fractures.

In terms of implant of choice for these fractures, we talked about it a little bit about isolated orbital floor fractures. We discussed the use of a simple plastic sheet, such as a MEDPOR sheet or a Supramid sheet. Are there other materials that you would routinely use in an isolated orbital floor fracture?

Would you use titanium in an isolated floor fracture? Or would that be reserved only for a more complex fracture?

**Paul Manson:** I wouldn’t use titanium in anything but an extensive fracture because there’s a tremendous amount of fibrosis to titanium. If you go back and take out a titanium implant you see a marked fibrosis and adherence of the soft tissue to that implant.

And Nick Illiff believes that this fibrosis is not a good thing within the orbit or next to the extra-ocular muscles. So now you are beginning to see the introduction of implants that are coated with materials to make them nonreactive to extraocular muscles, for instance.

You see MEDPOR implants that are the porous MEDPOR on one side, but then have the smooth polyethylene on the other side. It’s like a silicone smooth surface that doesn’t initiate as much fibrosis.

For a small orbital fracture the MEDPOR with the two surfaces is fine and when I’m replacing the inferior medial strut and need some support, that’s when I personally...
use, a metallic implant or a Medpor implant with an internal metal grid (Titan).

**Robert Havlik**: Okay. Dr. Jelks?

**Glenn Jelks**: I agree. I think if you need to have support you need to have plate and screw fixation and you're kind of “stuck” with the metallic device. I prefer the smooth orbital floor implant like Medpor or Teflon. I would almost rather have an extrusion of the smooth implant. The most ridiculous procedure is to put in a titanium plate and then cover it with a bone graft. You're expecting the bone graft to “take” against titanium or other metallic implant, which is ridiculous. You're going to have bony resorption and loss of your volume restoration.

In summary, following isolated orbital floor fractures I use Teflon or Medpor implants. If you need buttress support I use the metallic implant with plate and screw fixation. I never put a bone graft on top of a metallic implant.

**Paul Manson**: I agree. Glenn's exactly right. When I first started using metallic implants I put a bone graft on top. And then one day I looked at myself in the mirror and said, “What are you thinking about?” You know, it makes no sense.

**Robert Havlik**: The biology.

Paul Mason: Yes, and it adds another factor of unpredictability.

**Robert Havlik**: Let me ask both of you if this is the case, when do you use bone grafts in contemporary orbital reconstruction, Dr. Manson?

**Paul Manson**: You know, I try to use these in big primary cases because I work with residents. I think they need to get to know how to handle bone grafts, and in large orbital fractures in primary cases I think these are a good thing to use.

If you have to re-dissect an orbit that was originally bone-grafted, it's just a very easy orbit to dissect. Bone is also friendly to extracranial muscles, there's no strong adhesion. So I think it's ideal on larger orbital fractures to use a bone graft with the smooth surface towards the extra-ocular muscles. I don't use them for secondary orbital reconstructions, unless there are certain circumstances, and I am not sure they are necessary.

I wouldn't fault anyone who used artificial material in primary orbits. I use artificial material in primary orbits that are straight-forward, which is the majority of cases, are like the limited blowout fracture, etc.

**Robert Havlik**: May I ask you two things? The first is when you're using a bone graft in orbital reconstruction, in terms of positioning, I assume that you favor positioning it back onto the shelf of the posterior orbital floor. Is that true?

**Paul Manson**: Yes, it's got to be sitting on enough support so that it will stay stable. You have to dissect to all the edges of the rim of the fracture and then position it on those. I'd put the smooth surface toward the extracranial muscles and then I'd position the graft so that it would be on the “ledges” of remaining orbital floor. I don't position these grafts until I have the orbital rim reduced and in the right position, and then I usually do the internal orbit. I usually think of some way to support a medial orbital bone graft onto the medial edge of the floor bone graft.

**Robert Havlik**: You said that you do not use bone graft in secondary orbital reconstructions. Is that correct? What is your approach to secondary orbital reconstruction?

**Paul Manson**: I wouldn't say I never use them, but I think their resorption is very unpredictable, in other words a lot of it goes away. Those operations are unpredictable enough without adding the factor of bone resorption. So if I can do the reconstruction without a lot of exposure to the sinuses, I think that the ideal way to repair it is with alloplastic materials.

**Robert Havlik**: Dr. Jelks, what about your thoughts in terms of use of implant materials?

**Glenn Jelks**: I think people have learned that bone grafting is fine for technical reconstruction of the walls in the confines of the orbit, but to think that it's going to reconstitute orbital volume is not really accurate because there's a lot of bony resorption. A major part of the enophthalmos comes from an increase in orbital volume. You will never make it up by stuffing bone into the orbit. The more pressure on the bone, the more resorption will occur, so in primary orbits, to reconstruct the orbital volume, I would use artificial material as much as I possibly could in trying to get the confines to match what I consider the proper orbital volume.

And in secondary reconstructions I think using bone is okay, but I would still prefer to try and maintain the orbital volume with more precise levels of titanium or plates and screws to maintain the confines. Rigid fixation is probably the most important factor in all of these primary and secondary reconstructions.

**Robert Havlik**: I'd like to close this discussion by asking if either of you have any experience with the dissolvable or re-absorbable “preformed” plates in terms of managing orbital fractures.

**Paul Manson**: I don't like dissolvable plates because I think if you're reconstructing the internal portion of the orbit, you don't want that reconstruction to go away. The only possible rationale for these in a primary case is that the orbital contents would scar on the plate in that position as it resorbs down and then hopefully stay in that position of the plate resorption.

But I think you need something more predictable in terms of maintaining the soft tissue orbital shape and position. I also don't think you should use resorbable plates on the orbital rim because they are reabsorbed by creating information and there's enough inflammation in the lid already from surgery and injury. I don't think you need to initiate more, so I would never use them and finally, they're more expensive.

**Robert Havlik**: Dr. Jelks, any experience with them?

**Glenn Jelks**: I have had no experience with them and I don't teach our residents or inform them to even get involved with that situation because there are probably more inflammatory processes in their resolution, which can't help the orbital soft tissues.

**Robert Havlik**: In terms of your treatment of the lateral canthal ligament - and Dr. Manson, you've already elaborated in terms of your approach, in terms of not preferring to release the canthus, but of leaving a small remnant for adequate anchorage of the soft tissues. Dr. Jelks, could you comment on your approach in terms of treatment of the lateral canthal ligament?

**Glenn Jelks**: I actually like Paul's approach because it establishes a fixed point of the lateral canthal mechanisms to which you can reestablish fixation of the lid elements to that point.

It is a strong method of retaining the structural integrity of the lower eyelid and the tarsal ligaments. I do not hesitate to use this technique in patients who have loose lower lids or a loose tarsal ligamentous situation. Generally, I perform a canthotomy and cantholysis, and release of the lower lid when I do my transconjunctival orbital access. At the completion of the procedure, I do a lateral inferior retinacular canthal suspension at a three to five millimeters higher level than the original lateral canthal position of the lower eyelid. It is a modified inferior retinacular lateral canthoplasty performed from the anterior approach rather than the posterior approach, and I would use that on everybody.

When I am finished with the lateral canthoplasty the lower eyelid and palpebral aperture definitely looks different. The palpebral aperture is narrowed and the lower eyelid is laterally angulated at an elevated position.

**Paul Manson**: So you're sliding the lateral aspect of the lower lid behind the upper lid. Is that what you're pointing out?

**Glenn Jelks**: The retinacular structures are separated in such a way that you can move the inferior retinacular structures attached to the lower eyelid superiorly and into the inner access of the orbital peristemeum. This maintains a relatively normal position of the upper and the lower lid.

**Robert Havlik**: You certainly you have large experience in terms of that approach and wonderful results that belie a fairly demanding operation. In inexperienced hands, would you still agree that this is a good approach?

**Glenn Jelks**: It's something that we try and teach the residents because in order to do it you actually have to release the lower lid canthal element from the retinacular structure.

So instead of Paul leaving the portion of the lower lid intact at the lateral retnaculum and subsequently reestablishing that contact, I actually release the lower lid and its attachment to the lateral retnaculum and physically move it to another position higher and inward on the orbital rim peristemeum.

It does require a definite learning curve, but allows a very acceptable firm fixation on the lateral canthus.
Robert Havlik: How do you approach the comminuted fracture, for example a nasal orbital ethmoid fracture, in which you've got release of the medial canthal ligament. Do you have any pearls in terms of your own experience to add in terms of medial canthal ligament dissociation, Dr. Manson?

Paul Manson: If there is a free-floating medial canthus, or if the piece of bone to which it's attached is too small to work with without detaching the canthus, then I think that patient needs a true transnasal canthoplasty, which I do by dissecting behind the medial canthal ligament. Through a coronal incision, I find the posterior aspect of the medial canthal bone attachment and drill two holes in it and pass wires to the other side (one or two pairs of transnasal wires). I then put a suture in the medial canthal ligament through a short (4 mm) incision in the skin just medial to the eyelid commissure, and pass that suture to the inside of the coronal incision to connect to the trans-nasal wires.

I don't think there's any substitute for a transnasal canthoplasty performed posterior and superior to the attachment of the canthal ligament. You may have to strip the canthus if you have to rebuild the orbital rim or the bone to which the canthus should be attached; it is of critical importance to rebuild that bone, otherwise it's a “trans-nothing” canthoplasty.

I think you should rebuild that bone and then attach the canthus to it. Those are two separate steps that may require two sets of transnasal wires, but there's nothing like putting back what should have been there originally.

Robert Havlik: Absolutely.

Paul Manson: If you strip it and there's nothing left to fix it to, then I think you must bone graft the medial orbital rim and attach the canthus to that bone.

Robert Havlik: The operative principle being stable fixation again.

Paul Manson: Yes.

Robert Havlik: Dr. Jelks, anything to add in terms of medial canthal ligaments?

Glenn Jelks: One thing I would add is I really don't get too excited about the lacrimal draining system because I think the medial canthoplasty is more important than the consequences of trying to maintain patency of the lacrimal draining system.

In fact, in many cases with these orbital fractures they lose the dynamic function of the lacrimal draining system anyway, and in fact sometimes you end up doing a (dacryocystectomy) to get rid of any potential infectious process during the repair.

I totally agree that the most important thing with medial canthal fixation is posterior and medial displacement of the transnasal wiring.

I often utilize the awl or the large curved needle to get a posterior septal purchase for the transnasal wiring to really get a nice posterior pull.

Robert Havlik: I'd like to move on to a discussion of complications. Perhaps the most common complication that we all see and that we all have developed a healthy respect for is in terms of postoperative ectropion.

I'd like to ask both of you your assessment and treatment of the early postoperative ectropion, say two to four weeks postoperatively, Dr. Jelks?

Glenn Jelks: It's very important to evaluate the lamellar system of the eyelid and to differentiate between lid margin eversion and true ectropion. If there's anterior lamellar involvement, whether it's involved by scar tissue or a lack of tissue of the anterior lamella of the lid, you're going to have an ectropion that you can determine is caused by lack of tissue in the skin or the muscle.

This is repaired or treated by release of cicatrical retraction and skin grafting; it is very rare in orbital fractures. Usually what happens is the mid-lamellar problem, where the common wound has established itself causing a retraction of the orbital septal tissues and adherence of these tissues to the periosteum.

You determine that by vertically elevating the lower lid with your finger, if you can't raise the lower lid above the pupil, and you know you have enough skin in the lower lid, you really have a mid-lamellar cicatrical problem.

Rarely, there is a posterior lamellar problem that would tend to cause entropion rather than ectropion, but the main thing to emphasize is don't intervene early. Two to four weeks is the worst time to go into an eyelid that has this situation because you'll create more cicatrical changes.

The only reason I will intervene at this time is if there's some impaired visual status with corneal damage and you're forced to make a move. I don't like steroid injections, but I use steroid creams, orbicularis oculi contraction exercises, taping massage and eyelid sutures to try and reduce lagophthalmos and improve lid closure. I prefer to intervene at a minimum of six months postoperatively, preferably, it would be at a later date, when scar tissue and eyelid edema has subsided. The intervention involves release and revision of the lower lid, the mid-lamellar cicatrix.

Robert Havlik: Let's assume that through various limited management techniques such as massage and taping and other things that you're able to get them through. How do you approach that at six months? How do you approach a mid-lamellar restriction problem at six months?

Glenn Jelks: Well, six months is my earliest intervention, and it involves going from a virgin territory into the area of problem. If a skin-muscle or lid-splitting access was used for the orbital fracture repair, I would not use that access for the repair of the lower eyelid malposition or ectropion.

I would use an upper eyelid lateral incision or a lateral canthal incision away from the cuticular changes. The approach is from a virgin territory to the problem area to allow a vertical elevation of the lid by releasing all of the cicatrix between the conjunctiva and the orbicularis oculi muscle and insert an interpositional vertical spacer graft, of the auricular cartilage, followed by a cheek suspension with midface elevation with a Mitek craniofacial screw would also be performed. This provides support to reduce or eliminate tension and distortion of the obligatory lateral canthoplasting. The earliest time would be six months, I still like to get them out around eight or nine months before we do all of that.

Robert Havlik: In doing so, you're basically trying to unload everything off of that lid and anchor the soft tissue to stable skull fixation, as well as provide lid support with an inner-positional graft. Dr. Manson, anything to add in terms of management of the initial ectropion that may present two to four weeks post-operatively?

Paul Manson: I get them on warm compresses and massage and I have them use lubricants to protect their cornea, if that's an issue. Most of these lids will resolve satisfactorily if you can wait six months.

It's the occasional one that doesn't resolve that needs secondary surgery. It needs what Glenn just described, a magnum approach where you go in and figure out which components are the cause of the problem, release the scars, and splint the vertical reconstruction with spacer grafts of skin or cartilage, and then do whatever you have to do to get each lid component back in the right place.

Robert Havlik: Hopefully you can avoid having to do that and most of them do resolve by themselves. I'd like to extend an invitation to each of you and start with Dr. Jelks to see if you have any additional comments at this point in terms of things that we may have missed in contemporary orbital fracture management.

Glenn Jelks: In all orbital fractures, it is extremely important to have a strong assessment of the buttress system and make sure that you reconstruct those. Orbital reconstructions require wide exposure with cosmetically acceptable incisions, rigid fixation with dependable soft tissue resuspension. Most important in the evaluation of orbital fractures is a high index of suspicion for associated injuries, especially those to the eye.

Robert Havlik: Dr. Manson, would you like to make any additional comments at this time?

Paul Manson: Yes, I think our goal is to recognize the patient that needs to be operated on as early as possible, and try to get the orbit reconstructed appropriately as early as possible and restore the anatomy of both the bone and the soft tissue as fully as possible. That's really what it's all about.

Robert Havlik: I'd like to thank you both. I think that this will be very useful to the membership. There have been several changes in conventional treatment which create modern-day treatment. Those include the recognition of the CT scan as the standard of imaging orbital injury.

Second, the use of implants has evolved from bone for simpler injuries to more limited surgical techniques and the use of materials which create less inflammation. In the more complicated fractures, we must continue to rely on more rigid constructs in orbital reconstruction.
Case of the Month

Sean Boutros, MD - Houston, TX

This is a case of a 2-year-old boy from the Middle East who presents with untreated craniofacial anomaly. There are no other medical issues and the child is otherwise healthy. He has had no intervention for this anomaly and presents for evaluation and treatment.

Pathologic Anatomy:
On clinical exam, the child has a facial cleft. There is a soft tissue cleft which extends from the lateral upper lip towards the left lower eyelid. The lower eyelid itself is intact and the child has no ocular abnormalities. There is a pronounced vertical orbital dystopia and a facial scoliosis with deviation of the lower third of the face and the chin to the cleft side. There is a decreased distance between the ala and the medial canthus and no visible lower lid lacrimal drainage system. The forehead shows a recess of the right frontal bone on the right side and a significant bossing of the left frontal bone. There is flattening of the orbital rim on the non-cleft side. (Figure 1)

The intraoral exam shows complete absence of the alveolar ridge lateral to the premaxilla. The buccal mucosa extends directly to the apex nasal cavity with complete absence of the left nasal sidewall, left hemi-palate. The globe can be palpated through the mouth with no palpable orbital floor. (Figure 2) CT scan shows a right coronal synostosis. There is no appreciable left orbital floor. The left maxilla is absent as well as the left zygoma. There is significant mandibular deviation and foreshortening of the left mandible. The condyle on the left is developed, though smaller in size. There is asymmetry of the cranial base. (Figure 3)

Diagnosis:
Based on the clinical and radiographic findings, this child has a soft tissue Tessier No. 4 cleft with intact lower eyelids, soft tissues. The bony abnormality is not of the standard Tessier classification with complete absence of the left orbital floor, left zygoma, and left maxilla including the left palatal bone and left maxillary tooth-bearing segments.

This is accompanied with a contralateral right coronal synostosis and resulting severe frontal boss on the cleft side. The remaining sutures were patent.

Considerations:
When approaching this problem, the most difficult aspect is a lack of normal anatomy from which to build. With the left clefting and the right synostosis we are left with a severely asymmetric craniofacial anatomy. We cannot simply base our reconstruction of the cleft side on the right side anatomy. Instead, we are forced to evaluate the cleft and the coronal synostosis at the same time. Typically, with this type of clefting, the orbit is vertically lowered. This is more pronounced in this particular case secondary to the severe frontal boss on the cleft side which resulted from the right coronal synostosis. It would therefore be impossible to raise the globe and orbit to its proper location until the frontal deformity has been addressed.

Once the frontal deformity has been addressed, attention can be turned towards correction of the cleft. Typically correction of a #4 cleft involves elevation of the orbit and increasing the shortened distance between the medial canthus and the ala. This is accompanied with reconstruction of the orbital floor in a more appropriate level. However, in this case, there is complete absence of the left maxilla including the left hemi-palate. This results in mandibular deviation and facial scoliosis. Furthermore, closure of the palate is problematic as there is no tissue present. Our typical goals of establishing anatomy to allow for timely speech development are thwarted by the paucity of tissue. Lastly with the severe mandibular deviation, it is difficult to establish the facial midline.

Approach:
The primary goal necessary for reconstruction is to establish the facial midline. In order to do this, the first two maneuvers which must be done are correction of the coronal synostosis for the upper third of the face and mandibular deviation for the lower third of the face. This is addressed with standard frontal orbital advancement and cranial vault remodeling and left sided mandibular distraction.

Once this has been completed and the facial midline is established, attention can turned towards repair of the cleft with correction of the orbital dystopia with bone grafting of the orbital floor. The soft tissue cleft can be closed at this time. Our last goal is for reconstruction of the palate. In this case, palatal reconstruction should not be performed with advancement of buccal mucosa as this would not satisfy our goals for speech development. Furthermore, close of the cleft with buccal mucosa would most likely result in scarring which would accentuate the facial growth disturbances.

Our purpose of closing the palate is to establish appropriate speech. We therefore would delay closure of the palate until the child began to develop speech. Once the child began to attempt speech, we would close the palate with a microvascular free radial forearm flap in such a way to allow for the movement of the right side muscles to close the nasal airway to prevent VPI. This can be done as an osteocutaneous flap incorporating bone for maxillary reconstruction to support the midface. (Yet to be performed)
ceremony for use of the resorbable plating system in craniofacial surgery, many of the players are fore front of the ASMS

The advantage of resorbable plates is allowing the bone to heal and then they resorb with the amount of time needed for the bone healing to complete. With valuable research done by many ASMS members on the understanding of bone healing, the use of bone substitute helped us surgeons reach the level of sophistication and we have and helped our patients have a better outcome. There is no need for removal; we minimize the second operation either for extrusion of the plate or for removing the plates when the parents request it. Fixation units also vary in maxillofacial surgery particularly the old stress that metallic implants have to be used on the face, was proven that is not really correct because we can achieve the same configuration by using the appropriate fixation unit which is the resorbable plates, so the patient will have total healing by the time the plates are gone. We all depend on bone healing in order to have the appropriate configuration of the craniofacial and maxillofacial skeleton.

ASMS has grown from a few members in the sixties that were occupying a small room at the Boston Sheraton, to huge lecture hall participation as an integral part of the plastic surgery scope, which involves many of the young, enthusiastic, and energetic students/residents who are looking into a career in the specialty of maxillofacial surgery.

We have played host at the basic maxillofacial course in Florida for over twenty years now, which brought to us many students and residents, national and international, to have the standard course that was started by Jimmy Ferraro Jonathan Jacobs and many others. We became like a one family over the many years when the course is given in Tampa, Florida, it was treat for the attendees to come to Florida in the middle of winter. Subsequently the course was moved to the University of Miami, where Dr. Seth Thaller hosts and took charge for the course. In Tampa, we were initially at the University of Tampa and subsequently, by unanimous request spearheaded by Jonathan Jacobs, we found a nice facility at the Sheraton Hotel on Clearwater beach. Here we hosted the course until they moved to the newer facility at the Marriott Hotel across the street. We gave the course right on the beach a few times with everyone in flip-flops and shorts. The only disadvantage was they could not see the videos in the bright sunlight. That course has created a strong bond between the people who hosted and taught the course and the attendees, which continues today. In the mid nineties when resorbed plates were formed, we added an extra day to introduce new material and we saw overwhelming interest. One time we meet with Hulk Hogan, which was very interesting.

Those areas of ridge fixation are accompanied by a few years of innovation in that area. New papers showing the importance and side effects and complications that may ensue, which makes it interesting for those of us who have lived through all the eras to see the difference in what is accomplished after each one to come with the conclusion of the healing of the bony structures more so than the metals we used. Perhaps in the coming ten years bone cement to fix the bone fragment and kryptonite resorbable biomaterial will be in the forefront particularly in children and adolescents for fixation of the internal structures without regard to using plates and screws. Perhaps twenty years from now the young surgeons will say, “What was wrong with those physicians putting plates and screws in the facial skeleton? Didn’t they know better that they did not need to do that?” I think the will be an interesting prediction for the year 2020 or further into the future.

Annual Pre-Conference Symposium in Toronto!

The Golden Triangle of the Face: Aesthetic and Reconstructive Surgery of the Eyes, Nose and Mid-face
Robert Havlik, MD
Indiana University

The ASMS/ASPS/PSEF Meeting in Toronto will be fantastic! The ASMS Pre-Conference Symposium will be held on Thursday September 30; it is titled The Golden Triangle of the Face: Aesthetic and Reconstructive Surgery of the Eyes, Nose, and Mid-face. This advanced 1-day symposium, co-chaired by Drs. Robert Havlik and Pravin Patel, will provide insight into the current management of the critical structures of the golden triangle of the face, including the eyes, the nose and the midface. Management paradigms for many of the clinical concerns and disorders in this crucial region of the face continue to undergo constant evolution and revolution. 

The symposium will include instruction in state-of-the-art clinical assessment and treatment of both reconstructive and aesthetic disorders. The orbital concepts covered include orbital and eyelid aesthetics, contemporary management of orbital fractures and injuries and management of congenital orbital and ocular anomalies. These areas will be addressed by widely respected and acknowledged masters in orbital surgery.

The midface is such a central feature that it often is underappreciated, with the focus falling elsewhere. This program will include updates on aesthetic management of the malar region, the tear trough deformity, and midfacial changes associated with aging. Zygomatico-maxillary complex and midfacial fracture management will also be updated and reviewed. Assessment and management decisions in treatment of midfacial deficiency will be presented, including midfacial skeletal correction. The role of prosthetic implants in optimizing the treatment of the midfacial deficiencies will be discussed. Finally, the current status of facial transplantation will be presented.

Nasal surgery remains one of the most complex areas of undertaking for both aesthetic and reconstructive surgery. Major changes in the assessment of nasal disorders will be presented, including aesthetic analysis, determination of functional nasal disorders and their management, and both basic and advanced concepts in rhinoplasty. This will include detailed discussion of the surgical anatomy and the crucial steps in determining functional problems. An accomplished, experienced and diverse faculty will present their keen insight into contemporary nasal surgery. The program will provide CME and patient safety credit.

Plastic Surgery 2010
Toronto, Canada
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The Premier International Meeting for the Entire Specialty
ASMS Upcoming Meetings and Events 2010-2011

AUGUST 13-15, 2010
Basic Maxillofacial Principles and Techniques Course
Northwestern University – Chicago, IL
Local Host: Victor Lewis, MD

SEPTEMBER 30, 2010
ASPS/ASMS Pre-Conference Symposium
InterContinental Toronto – Toronto, ON CANADA
Co-chairs: Robert Havlik, MD & Pravin Patel, MD

OCTOBER 1-5, 2010
ASPS/PSEF & ASMS Annual Meeting
Metro Convention Centre – Toronto, ON Canada

JANUARY 14-15, 2011
Basic Maxillofacial Principles and Techniques Course
University of Miami – Miami, FL
Local Host: Seth Thaller, MD

JANUARY 16, 2011
Cleft Refresher Course
University of Miami – Miami, FL
Chair: Seth Thaller, MD

FEBRUARY 19-20, 2011
Advanced Multi-Specialty Maxillofacial Course
Lorenz Skills Academy – Jacksonville, FL

Resident’s Corner
Renee Burke, MD and Brent Egeland, MD

It’s springtime again and for residents across the country this means a time to prepare for a change of guard in July. Whether you are starting your practice, moving on to a fellowship, or just getting a better spot on the call schedule, there is always a sense of excitement in the air. For many residents entering their chief year, this will be the year you apply for a fellowship, and, if you are reading this article, it is quite possible you will be seeking a craniofacial fellowship. Our goal as ASMS resident representatives is to address concerns specific to residents advancing in this field and hopefully assist in the application process.

First, we are updating the resident section of the ASMS website. We plan to add links to websites with information regarding available fellowships. Our goal is to provide information on fellowships offered both nationally and overseas.

Next, we understand no two fellowships are alike; however, it is often difficult to get a true understanding of a particular fellowship without visiting or speaking with the current fellow. We are discussing forums for current fellows to meet (independently of fellowship directors) with interested residents at upcoming meetings for relaxed, open conversation.

So, check in with the ASMS website (www.maxface.org) and look for these exciting projects under the Resident’s Corner section. Also, make sure to check out our calendar of upcoming courses and download your resident affiliate application if you are not yet a member. So, congratulations on another year passed and good luck to all!

DATES TO REMEMBER:

► Extended until 5 May 2010
Abstract submission deadline

► 15 May 2010
Early registration deadline

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