

Baltimore/Annapolis/Eastern Shore Edition

M.D. NEWS

Special Feature



It's More Than Skin Deep

Division of Facial Plastic and Reconstructive Surgery in the
Department of Otolaryngology - Head & Neck Surgery at
Johns Hopkins Medicine

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By Martie Callaghan

Additional layers of education and experience are beneficial in any medical specialty, but never more so than in facial plastic and reconstructive surgery. The division of Facial Plastic and Reconstructive Surgery at Johns Hopkins is not a stand-alone unit, but rather, a group within Otolaryngology - Head & Neck Surgery, whose surgeons are distinguished in both specialties.

According to Patrick J. Byrne, M.D., assistant professor at the Johns Hopkins School of Medicine and Director of the division of Facial Plastic and Reconstructive Surgery, this “double boarding”

On The Cover: Patrick J. Byrne, M.D., Assistant Professor at the Johns Hopkins School of Medicine and Director of the division of Facial Plastic and Reconstructive Surgery.

is rather unique. “It’s a pretty small group of people who have gone this route,” he says. “Because we have extensive experience working on the face, and in-depth knowledge of the inside and function of the nose, along with the outside and appearance of the nose, we are ideally suited to perform the full gamut of facial plastic and reconstructive procedures.”

A NATURAL FIT

A large component of the division’s work is focused on the management of nasal reconstruction, most of which is a result of skin cancer. About 25 percent of primary care physicians’ patients present with complaints relating to nasal function.

Patrick J. Byrne, M.D., evaluates his work after performing a nose reconstruction on cancer patient Patricia Petricko.



Several dermatologists send their patients to Dr. Byrne in advance of skin cancer being removed, so he can coordinate their care. “Recently, a busy dermatologist in town called at 4 o’clock in the afternoon to say he had just removed a skin cancer in a very difficult area on the tip of the nose,” Dr. Byrne says. “It was big and deep, and the surgeon didn’t know if he should close it. The patient came in [to Hopkins] first thing in the morning and we took care of it Nasal surgery is very rewarding and humbling at the same time. I really enjoy it tremendously. It takes years and years to master; in fact, I don’t know that one ever really can. But the quest is worth the effort.”

If the term “facial plastic and reconstructive surgery” still evokes the idea of elective procedures for cosmetic purposes only, consider these examples of versatility for Dr. Byrne and his partner, Dr. Kofi Boahene, also an assistant professor at Hopkins. “Recently, we spent 15 hours together, rebuilding the nose and face on a young Iraq veteran who had suffered massive facial injuries last year from an explosive device while on tour in Baghdad,” Dr. Byrne says. “The day before, we did two cosmetic rhinoplasties.”

The practice is extremely busy, so these are typical days. Dr. Byrne emphasizes that facial plastic surgery is 100 percent of what he does. “I have focused exclusively on facial plastic surgery for six years here at Hopkins,” he says. “They lured me away from my beloved California, where I expected to return after completing my training. Getting that call from Dr. Charles Cummings, then chair of the department, was quite an honor.”

NATIONAL ACCLAIM

Dr. Byrne had sent his CV to a number of hospitals and received several offers, some of them from California. “Hopkins definitely shot to the top of the list,” he says. “It’s such an honor to work in this department with a remark-



Kofi Boahene, M.D., Assistant Professor at the Johns Hopkins School of Medicine and Director of the Division of Facial Plastic and Reconstructive Surgery.

PHOTO BY MOLESKY PHOTOGRAPHY

able group of the highest quality people. The department consistently ranks among the top centers for the specialty every year, according to *U.S. News & World Report*.”

Two television networks have been following the case of a young Iraqi veteran who needed a total facial reconstruction. “Part of the national media interest is based on protocols I helped develop for nasal reconstruction,” says Dr. Byrne. These protocols introduced the use of an artist to do an initial rendering and then a local company to convert the rendering into a life-like, three-dimensional model.



Patrick J. Byrne, M.D., (left) and Kofi Boahene, M.D., surgeons within the specialties of facial plastic and reconstructive surgery, as well as otolaryngology - head and neck surgery, discuss one of their many collaborative projects at Johns Hopkins.

Translucent versions that fit like a mask on the patient's face can also be created, then used intraoperatively to meticulously prepare the grafts used to recreate the shape of the nose or other facial structures. "Today, I'm carrying around an exact replica of a patient's entire face and skull," he says. "It allows me to perform the surgery in advance of the surgery. I can take out the drill, sculpt it ... it's very useful. I don't need one of these for every patient, but it's helpful with some. The margin of error — whether for reconstructive surgery such as this or in routine rhinoplasty — is small ... it's not like taking out a gallbladder and making the incision a bit too long. If nostrils are 1 or 2 millimeters different in size, the patient may be very unhappy. At least for me, anything I can do to increase the chance that I will be very, very accurate, I'm going to do."

IT'S ALL GOOD

Facial plastic and reconstructive surgery addresses a

continuum from the most deformed face, for which no one would deny treatment, all the way to someone with a body dysmorphic disorder where they perceive a flaw that doesn't exist. "I've had young women who feel the need for a face lift in their 20s or 30s," Dr. Byrne says. "They see aging that really is not apparent yet. The reality is that every patient that seeks me out is somewhere between the two ends of the spectrum. We do a lot of reconstructive surgery, but also a high volume of aesthetic surgery and I don't differentiate. Two common misconceptions are that people who want it done are vain and that surgeons are just out to make a buck. I see all my patients benefit in very similar ways, whether strictly cosmetic or reconstructive or both. The bottom line is that we try to help people."

All the experience gained in making subtle changes and managing soft tissue is beneficial in its own right, but it is also extremely helpful in preparing for some delicate reconstructive surgeries. "I had a 19-year-old kid with melanoma

recently,” Dr. Byrne says. “He required a resection the size of your hand on his face. All the experience I accumulated, managing aging eyelids and doing other fine detailed work, translated into meticulously making the closure on this young guy more effective. It makes me better in all I do and gives me a better eye for detail.”

THE LEAST INTRUSIVE PATH

A young African-American woman recently came to Dr. Boahene for a second opinion regarding a tumor in her sinus. She had been offered the traditional approach to taking the cancer out, which would require a large incision on her face and a hole in her palate. “A large incision on the face of an African-American female can leave an unsightly scar,” says Dr. Boahene. “In her case, we used a hidden incision under the lip and hidden incisions inside the eyelid, to virtually take half her head off without a single incision on her face. Dr. Byrne and I spent several hours taking bone from her leg, making a new palate for her and rebuilding her face. Today, it is hard to tell she underwent such an extensive

surgery. The 12-hour procedure is an example of using minimally invasive approaches to skull base surgery to remove a tumor and also to achieve a good cosmetic outcome.”

Skull base surgery has been around for a long time, Dr. Boahene explains; it’s the approaches that are changing. “The traditional approach is to make big cuts on the face, taking big parts of the skull bone to gain access to the portion that starts at the face or sinus, along with the part that goes intracranially to the brain. This usually requires that we retract the brain somewhat to get adequate exposure. The risk of that is brain swelling and encephalomalacia, or brain wasting.”

Most skull base surgery is done in conjunction with neurosurgeons to gain access to hard-to-reach areas such as a pituitary tumor. “I give them approaches to where they need to go by making cuts in hidden areas and using an endoscope to get them there,” says Dr. Boahene. “The endoscope gives access through smaller holes, and gives excellent visualization around corners and quick patient recovery. Advancing technology in image-guided navigational systems has been instrumental in expanding what we can now do in skull base surgery with

A silicone mask, created by Juan Garcia and the Department of Art as Applied to Medicine, was used to identify the proper shape for reconstructing the patient’s nose.



minimally invasive approaches.”

Whether the problem is brain fluid leakage, a tumor or trauma from a car accident, one key to a good outcome is using the least disruptive approach. “Our extensive skills in cosmetic surgery, endoscopic surgery and craniofacial surgery uniquely qualify us to provide minimally invasive approaches with excellent functional and cosmetic results,” Dr. Boahene says.

A LIFE-CHANGING SOLUTION

Facial reanimation is another offering for the treatment of injury of the facial nerve as a result of trauma, infection, cancer or Bell’s palsy (the most common), where one side of the face is paralyzed. “Besides being socially disruptive, it’s also a functional problem,” Dr. Boahene says. “The patient is unable to close the eye well, and the eye dries out easily. He or she must constantly use eye ointment and, because of that, the vision is blurred. In addition, they are unable to breathe well through the nose. Their lifestyle is really changed because of the paralysis. We offer all kinds of methods to rehabilitate and reanimate the face. In other words, we can improve on the patient’s face and the patient’s outcome with a comprehensive approach that involves re-educating the brain to move the face in a different way.”

Depending on what caused the injury, sometimes a nerve can be moved from another part of the body to help the facial nerve move better. It’s like grafting nerve on nerve, using the nerve on one side of the face to help the other side.

Sometimes, it’s possible to also move muscle from one part of the body to another to help move the face, as in the case of the temporalis muscle that inserts on the jawbone. The traditional method is to take a strip in the middle of the muscle, flip it on itself and then suture it to the corner of the mouth. The problem with this procedure is that the flipping of the muscle causes a noticeable bulge on the side of the face, especially in thinner people. More importantly, the muscle is being asked to work in an unnatural vector.

“We are doing this in a very different way from the traditional,” Dr. Boahene says. “We use the natural vector of the muscle to help move the face. We detach the insertion of the muscle on the jawbone and redirect it to the paralyzed muscles of the face and corner of the mouth. In doing so, the muscle still moves in its natural vector.” This new technique for facial reanimation has been presented by Dr. Byrne at national meetings and has generated interest from patients from around the country.

AT THE FOREFRONT

The fact that the breadth of focus for this one depart-



Pre- and post-surgery photos of nose reconstruction on cancer patient Patricia Petricko.

ment is on the face — that the division of facial plastic and reconstructive surgery resides within the department of Otolaryngology - Head & Neck — is extremely unique in the region. Another distinguishing factor is the presence of Lisa Earnest, M.D., the recently hired third surgeon in the group, whose strong interest in research protocols will be essential in pushing forward the outcomes in facial plastic surgery. “It’s a sorely needed service in the field,” says Dr. Byrne. “We like to be at the forefront and really focused with rigorous standards in outcomes. Dr. Earnest is in the process of setting up a program in this regard.”

There are a number of protocols in place for patients with various facial deformities who are not great surgical candidates. A center for prosthetic facial reconstruction is coordinated with world-class artists and the anaplastologist from the highly regarded Johns Hopkins Art as Applied to Medicine Department. Dr. Boahene and his team are leading cutting-edge efforts to optimize the accuracy of prosthetics creation and fixation. This includes the placement of titanium implants into the face or skull of patients desiring prosthetic ears, noses or eyes, allowing simple fixation and remarkably lifelike results.

“We are happy to be able, in one location and in a coordinated fashion, to offer the full range of what is available anywhere in the world,” Dr. Byrne says. “That was the goal five years ago when I took the job. We achieved it, but we are always trying to optimize. We like being able to provide the highest level of care anywhere — from a bump on the nose to major reconstructive surgery.”

For more information about the department of Facial and Reconstructive Surgery at Johns Hopkins, call (410) 955-4985. ■