Orthopedics

New Technologies and New Techniques

There are a number of new minimally invasive techniques in orthopedic surgery that are making it possible for patients to recover more quickly, and with less pain. Recently a group of physicians from Eisenhower Desert Orthopedic Center met to discuss new surgical options for patients for a variety of concerns, including spine, foot and ankle, hand and shoulder and more. Participants included orthopedic surgeons Stephen O'Connell, MD; Patrick St. Pierre, MD; and A. David Tahernia, MD. David A. Friscia, MD, moderated the discussion.

Dr. Friscia: I'd like to start our roundtable by asking each of you to discuss what's new in minimally invasive procedures in your area of expertise. Dr. Tahernia, let's start with spine surgery.

Dr. Tahernia: Much of the emphasis in spine surgery today is to try to maintain motion. We are doing spine surgeries using smaller incisions, which allow the patient to go home a lot more quickly. Two of the newest technologies available are cervical disc replacements and lumbar facet joint replacements. Eisenhower participated in an FDA approved national study of cervical disc replacements. We are currently enrolling patients in the lumbar facet joint replacement study — and currently, we are the only facility in the Coachella Valley offering facet joint replacement. It's exciting, because all things being equal, if you can provide surgery through relatively small incisions that maintain motion, that's better for your patient.

Dr. Friscia: Explain how a minimally invasive approach in spine affects the overall surgical experience for the patient.

Dr. Tahernia: In addition to surgery times being shorter, many times the patients go home and get back to their activities much more quickly. Generally by three to six weeks, our patients with minimally invasive procedures don't have restrictions on their activity at all.

Dr. Friscia: Dr. St. Pierre, as our Director of Sports Medicine, why don't you tell us what's new in your specialty?

Dr. St . Pierre : In sports medicine, we have been using less invasive techniques for a long time, mostly regarding soft tissue injuries. For many, sports medicine is about treating soft tissue trauma, not bone fractures. Patients pull muscles and sprain ligaments throughout their body. We're always looking at ways to enhance healing. A big topic lately is platelet-rich plasma. This is a preparation that's made from a patient's blood. We spin the blood down in the centrifuge and separate the platelets from the rest of the cells and then inject them into, and around, the injured tissue to help it heal. The research is relatively new and at this point there is still some controversy. In the past we might have used cortisone, which when injected at the site of the injury will ease pain and reduce inflammation, but does nothing to help heal the tendon. Use of platelet-rich plasma has the potential to help the tendon heal, as opposed to just reducing inflammation. Other exciting research is being done with stem cells as well.

Dr. Friscia: Dr. O'Connell, what are the latest innovations in hand surgery?

Dr. O'Connell: We are continuing to improve on our small joint prosthetics, particularly for the fingers. These joints are very susceptible to arthritis and a number of problems because we use them so much. We have moved away from the old silicone prostheses to replace damaged finger joints and are moving towards metal prosthesis in the small joints. I am currently on a research study protocol where we are using a PyroCarbon joint in the finger, which seems to be working very well. This is an outpatient procedure and recovery begins with mobilization of the patient within a few days of surgery. However, like many hand surgical procedures, the postoperative therapy lasts between eight to 12 weeks to regain motion, strength and function. The nice thing about the PyroCarbon joints is that we've been able to put them in younger, more athletic patients.

Dr. Friscia: What about new treatments for fractures?

Dr. O'Connell: Because we have an older population, we see a lot of wrist fractures. We have some new implants that have really revolutionized the ability to treat these fractures. We can stabilize the fracture with a small titanium plate using a procedure that takes anywhere from 30 to 60 minutes. The procedure provides stability to the very weak bone and allows the patient to have early mobilization. We do these through a minimally invasive surgical incision of about an inch and a half to an inch and three quarters. The patient goes home the same day and begins hand therapy. We're finding that most of these patients have regained 85 to 90 percent of their motion four to five weeks after surgery. It affords the patient earlier range of motion, better function and better cosmetic alignment with a minimal surgical risk.

Dr. Friscia: We also have some innovations in foot and ankle surgery. One of the more exciting ones is ankle replacement. The ankle has provided many challenges because it is much smaller than the other bones, with a thin soft tissue cover. So there have been real challenges getting prostheses that would last and give long-term benefit. In the past, the ankle fusion was the gold standard for ankle arthritis. People with ankle fusions do pretty well, but the fusion puts a lot of stress on the other joints. More recently, through better and more precise instrumentation and better design, the replacements are doing much better. Eisenhower is one of the few places in the country with experience in this type of surgery.

Dr. O'Connell: We hear a lot about patients who start having foot problems as they get older — especially flat feet. Have there been advances in that area?

Dr. Friscia: I think it used to be assumed that as you got older your feet became flat…but over the last 20 years we really have been able to understand the pathophysiology of that problem. It is really from a rupture of the posterior tibial tendon, which helps support the arch. Over the years it tears and stretches a little bit, so the arch loses support and collapses, which is why older people can get a painful, flat foot. Now we can correct that in the early stages by repairing the tendon. In the later stages, in addition to repairing the tendon, we can perform osteotomies, in which we shift the heel bone over, and reposition it to help restore the arch. If you catch these things early and are able to reconstruct the tendon and restore some of the arch, you can avoid arthritis problems later.

Dr. Friscia: The term "minimally invasive" is used frequently in health care now, but, what does it mean for the patient and their recovery specifically in the area of orthopedics and its many specialties?

Dr. O'Connell: The soft tissue is what necessitates rehabilitation most of the time. For example, if you have a terrible wrist fracture in five places, I'm not worried about the bone, because we're going to take this new plate, and the bone is going to be aligned. The fracture is not going to be the problem. The problem is the soft tissue envelope around the bone. If you look at the broken bone, the same force that broke that bone into five pieces was absorbed by the tendons, nerves, arteries, ligaments. It is almost like throwing a rock into a pond, and you see that it ripples out: there's a zone of injury that needs to be rehabilitated. By doing a surgical procedure, you can stabilize the bone, which will help to rehabilitate the soft tissue more quickly and the patient's wrist will become more functional sooner.

Dr. Tahernia: With the spine we are usually removing offending structures, whether it's a bone spur or a herniated disc. Then the only recovery is from the trauma to the soft tissue from the surgery itself. If you can operate with minimal trauma, then the recovery is incredible, because the surgery usually has absolutely nothing to do with repairing something.

Dr. St. Pierre: A lot of it has to do with minimizing how much damage is being done by the approach. With rotator cuff surgery, for example, it still takes three months after surgery for the tendon to heal to the bone, but with arthroscopic approaches, the person has less pain, swelling and scar tissue. We now routinely perform that as an outpatient surgery, even in elderly people, and we can mobilize the patient a little faster because there's not as much damage from the surgery.

Dr. Tahernia: I also want to mention that we have seen major advances in hip arthroscopy. There are a lot of prearthritic conditions and labral tears inside the hip that hip surgeons have developed arthroscopic procedures to treat. Arthroscopic hip surgery was in its infancy five to ten years ago, but now the techniques have advanced; the instrumentation is much better. For patients who are not quite ready for a hip replacement but have changes that may be leading to that, we can potentially save their hips with these new techniques.

Dr. Friscia: Yes, and for appropriate patients who do require a hip replacement, the anterior approach is another example of a technique that provides a faster recovery, less pain and improved mobility because muscle tissue is spared from trauma.

Dr. O'Connell: At Eisenhower, the orthopedic specialists work together, comparing cases and techniques. For example, you can apply what you learn from shoulder surgeries to procedures you might use on a wrist. When one specialty is doing something really well and seeing good success with it, the other subspecialist is looking to see how he or she can apply that technology to what they are doing.Our patients benefit from the wealth of knowledge being shared.

Dr. Friscia: Eisenhower is the only hospital in the valley to have physicians fellowship trained in every sub-specialty of orthopedics, including those we've mentioned here today, like hip, knee, spine, foot and upper extremity (like hand, wrist and shoulder) and sports medicine, as well as pediatric trauma and oncology among others. We are fortunate to have a comprehensive orthopedic center with everything in one building — from an appointment with a doctor, to surgery, to an MRI or other imaging, to rehabilitation. Our goal is to ease the process for our patients by offering all of their orthopedic services in one centralized location.

For more information about orthopedics services at Eisenhower, go to emc.org/ortho. For a physician referral, call 760-568-1234.

Resources

National Institutes of Health www.niams.nih.gov/Health_Info/Joint_Replacement/

Ameri can Academy of Orthopaedic Surgeons www.orthoinfo.aaos.org

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