ORTHOPAEDIC SURGERY: PROVIDING STATE-OF-THE-ART SUBSPECIALIZED CARE
Northwestern Memorial Hospital offers comprehensive orthopaedic care including the treatment of complex and tertiary problems. Highly skilled surgeons on the medical staff at Northwestern Memorial are dedicated to providing subspecialized patient care in all areas of orthopaedic surgery. This issue of Practice Advantage covers exciting updates in the areas of degenerative spine conditions, musculoskeletal oncology and total joint replacement. CONTINUED ON PAGE A2

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Q&A: Degenerative Spine Conditions

Q: What role may regenerative technologies play in performing spinal fusion and bone healing?

Historically surgeons have performed autologous iliac crest bone grafting when performing a spinal fusion for a number of different diagnoses including arthritis, degenerative disc disease, spinal instability, trauma and tumor. While the healing rates have been pretty good, the bone grafting procedure causes pain. Up to 60 percent of patients even two or three years after the procedure still complain about hip pain. The development of a number of growth factors including bone morphogenic proteins (BMPs) has provided an alternative for bone grafting in many cases. The use of BMP has been shown to be just as, if not more effective, than bone grafting. However, the FDA has issued a warning against using BMP in procedures in the cervical spine because it is associated with complications such as radiculitis and swelling in the cervical spine. So we still are searching for good bone graft substitutes to heal the spine.

My colleagues and I are researching potential regenerative technologies for bone healing and spine fusion. One of our interests is in the use of stem cells extracted from human fat. The concept is to obtain fat through a liposuction procedure and then extract the cells from the fat. Then the cells potentially could be administered with an appropriate carrier in the area where bone healing is needed. I am in the animal model phase of developing a therapy with this approach that I hope will eventually lead to high spine fusion rates without complications from either bone graft or BMP.

Q: How are you using new technologies to provide alternatives to spinal fusion?

We are using new technologies to offer surgeries for many of the same conditions that are traditionally treated with spinal fusion. For example, physicians have traditionally treated arthritis in the cervical spine with an anterior cervical

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However, in our multidisciplinary setting I can call on 10 to 15 other specialists who treat spine problems non-surgically. So we only recommend surgery for patients who will likely benefit from the procedure. We have investigated a number of variables such as age, medical status and physical function, all of which can predict outcomes. We also research these types of variables through database collection as well as retrospective review to determine which patients are good surgical candidates. Having access to this type of information in addition to a range of different spine specialists who offer leading-edge surgical and non-operative strategies gives our patients an advantage in terms of outcomes.

Images show postoperative plain radiographs of a 35-year-old patient with a 12-week history of cervical myelopathy, complaining of bilateral hand clumsiness, weakness and balance difficulty. MRI images demonstrated a large herniated nucleus pulposus at C56. The patient was subsequently treated with a C56 total disc arthroplasty (A) with the Prestige ST implant (B).

Q: How does a multidisciplinary approach benefit patients who have degenerative spine conditions?

There are a number of different ways to treat the spine. And there is an art to determining which patients will benefit from surgery versus non-operative care. As a surgeon, I primarily perform surgery. However, in our multidisciplinary setting I can call on 10 to 15 other specialists who treat spine problems non-surgically. So we only recommend surgery for patients who will likely benefit from the procedure. We have investigated a number of variables such as age, medical status and physical function, all of which can predict outcomes. We also research these types of variables through database collection as well as retrospective review to determine which patients are good surgical candidates. Having access to this type of information in addition to a range of different spine specialists who offer leading-edge surgical and non-operative strategies gives our patients an advantage in terms of outcomes.

ORTHOPAEDIC ONCOLOGY: MULTIDISCIPLINARY CARE FOR PATIENTS WITH BONE AND SOFT TISSUE SARCOMAS AND BONE METASTASIS

Physicians specializing in orthopaedic oncology on the medical staff at Northwestern Memorial Hospital offer expertise in the diagnosis and treatment of sarcomas in the soft tissues and bone of the extremities and pelvis. They also are experienced in treating patients who develop bone metastasis. In conjunction with the Robert H. Lurie Comprehensive Cancer Center, these subspecialized surgeons focus on addressing the unique needs of these patients through multidisciplinary sarcoma and bone metastasis programs.

“Due to the rarity of sarcomas those patients should be taken care of by physicians who have specific expertise in treating these tumors, including physicians trained in musculoskeletal radiology and pathology,” says Alan W. Yasko, MD, MBA, orthopaedic surgeon on the medical staff at Northwestern Memorial and professor of Orthopaedic Surgery, vice chairman of Orthopaedic Surgery and chief of Orthopaedic Oncology in the Department of Orthopaedic Surgery at Northwestern University’s Feinberg School of Medicine. “We optimize patient outcomes with a multidisciplinary approach typically involving more than one of the available modalities to treat sarcomas, including chemotherapy, radiation and surgery. We work together as a team that is comprised of experts in medical oncology, radiation oncology and surgical oncology including specialists in thoracic surgery, vascular surgery and plastic surgery. Our team includes oncologic physiatrists at the Rehabilitation Institute of Chicago and a support network of ancillary services such as specialized nursing, physical and occupational therapy and social services to support each patient’s specific needs.”

The bone is the third most common site of metastasis for many cancers including breast cancer, lung cancer, prostate cancer, kidney cancer and multiple myeloma. “This unique patient population can benefit from a defined, multidisciplinary team to address their unique needs,” says Dr. Yasko. “Working with our colleagues who are experts in these diseases along with highly skilled team members within the supportive disciplines, we work to palliate pain, preserve function and provide a high quality of life for patients with advanced disease.”

Patients who have sarcomas in the extremities and pelvis may require additional services to preserve their limbs. The Center for Limb Preservation and Wound Care at the Blum Cardiovascular Institute of Northwestern Memorial is dedicated to providing comprehensive care for these patients. “We work with our colleagues in vascular surgery and plastic surgery to address the complex issues involved in limb preservation,” says Dr. Yasko. “This collaboration is a prime example of how we bring the full expertise of our subspecialized colleagues to the table when we develop and follow through with each patient’s individualized treatment plan.”

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Total Joint Replacement: New Technology and Integrated Care

The volume of hip and knee replacement surgeries in the United States is expected to triple in the next 10 years as the population of baby boomers comes of age. “The sheer number of patients who are suffering from significant arthritic conditions in the hips and knees already has grown significantly,” says Lail Puri, MD, MBA, orthopaedic surgeon on the medical staff at Northwestern Memorial Hospital and assistant professor of Orthopaedic Surgery at Northwestern University’s Feinberg School of Medicine. “Many of these are patients who expect to maintain their active lifestyles. They are seeking out total joint replacement not just to alleviate pain, but also to enable them to continue the activities they enjoy. Fortunately technological improvements have given us an ability to meet our patients’ needs and expectations. This includes younger patients in need of joint replacement who likely would not have been eligible a decade ago.”

The total joint replacement program at Northwestern Memorial incorporates all aspects of patient care including anesthesia, nursing and discharge planning in order to create an integrated experience for the patient. “We are a high-volume center providing comprehensive care from surgery through rehabilitation,” says Raju S. Ghate, MD, orthopaedic surgeon on the medical staff at Northwestern Memorial and instructor of Clinical Orthopaedic Surgery at the Feinberg School. “There is good evidence showing that high-volume centers have lower complication rates in terms of not only the surgical procedures but post operative nursing complications as well. For this reason there has been a national push toward getting patients treated at centers such as Northwestern Memorial.”

Surgeons on the medical staff at Northwestern Memorial are focused on pioneering methods to provide greater accuracy in placing the components for joint replacement in order to achieve the best function for the patient. “Computer-aided surgery is one solution by which to potentially increase the accuracy of the surgeon,” explains Dr. Puri. “We are working on developing new technology associated with computer-aided knee replacement because we theorize that more accurate placement will improve function. In addition, performing these procedures through less invasive techniques may result in quicker recovery and reduced pain for our patients.”

New technology in joint replacement components has resulted in dramatically improved bearing surfaces which may allow for greater longevity in hip replacements. “We also have more options now in terms of further customization of the implants with the new technology available in both knee and hip joints,” says Dr. Ghate. “For example, the original implants were designed based on male anatomy only. However, there are now several companies that have designed joints for both women and men so that we can utilize gender-specific implants. Through customization and patient-centered care our goal is to continually improve this therapy so that our patients can regain normal knee or hip function and be able to painlessly do all the things they did before their knee or hip caused them pain.”

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Minimally invasive surgery (MIS) has revolutionized the field of surgery over the last 20 years. Surgeons on the medical staff at Northwestern Memorial Hospital have led the way in advancing MIS to treat a wide range of conditions. View four minimally invasive surgeries performed at Northwestern Memorial on our Web site at health.nmh.org.

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- Scoliosis Surgery: A Minimally Invasive Approach
  Recorded 10/ 7/ 2008
  Featured Physician: Richard Fessler, MD, PhD
- Robotic Hysterectomy for Endometrial Cancer
  Recorded 7/15/2008
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- Hybrid Maze Procedure
  Recorded 4/9/2008
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