

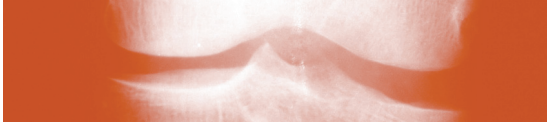

THE UNIVERSITY OF TOLEDO MEDICAL CENTER

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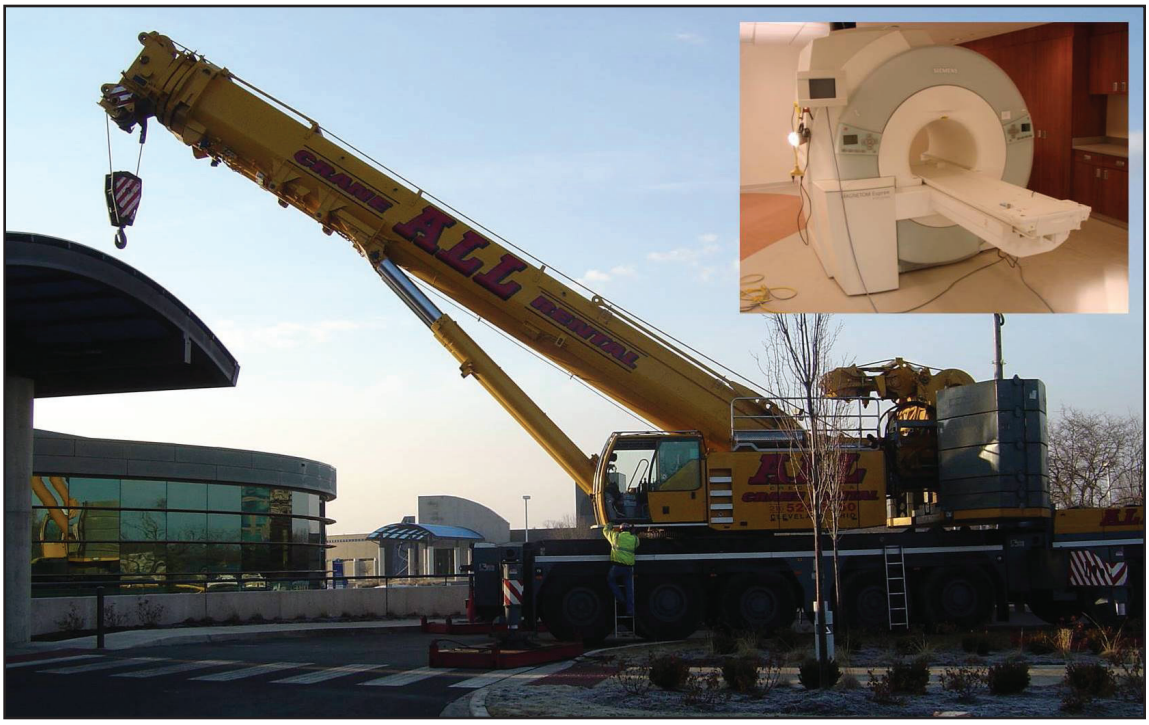
THE UNIVERSITY OF TOLEDO MEDICAL CENTER
ORTHOPAEDIC MONTHLY
VOLUME 2, ISSUE 4 APRIL 2008

UT Orthopaedic Center Expands Offerings with MRI Installation and Saturday Clinic

Veterans Affairs (VA) Chooses Orthopaedic Center to Provide Orthopaedic Care



In less than a year, the Orthopaedic Center has made a drastic change in the type of care it provides patients. We've adopted a patient-centered approach, focused on making the patient's experience as pleasant as possible. To further that approach, the Orthopaedic Center installed an in-house MRI in mid-March. This addition comes only weeks after being chosen by the VA to provide orthopaedic care and only two months after expanding the Center's services by holding clinics on Saturdays.

These additions supplement the Orthopaedic Center's unique pledge to see patients within 24 hours of calling the Center. If there is an emergency, however, we'll see the patient immediately. We understand that pain doesn't wait, so neither should relief. That's why in late February we decided to expand our services to include a Saturday clinic. This allows patients who may be unable to come during the week for an appointment easy access to world-class orthopaedic care when it is convenient for them. We will accept orthopaedic patients during this clinic to treat simple and complex injuries and conditions from neck to toe and every bone and joint in between.

Convenience for patients is central to the UT Orthopaedic Center's mission. To make the Orthopaedic Center even more convenient for patients, an MRI was installed in mid-March. Magnetic Resonance Imaging, also known as MRI, is used to visualize the structure and functions of the body. Its unique imaging provides detailed images of the body in virtually any

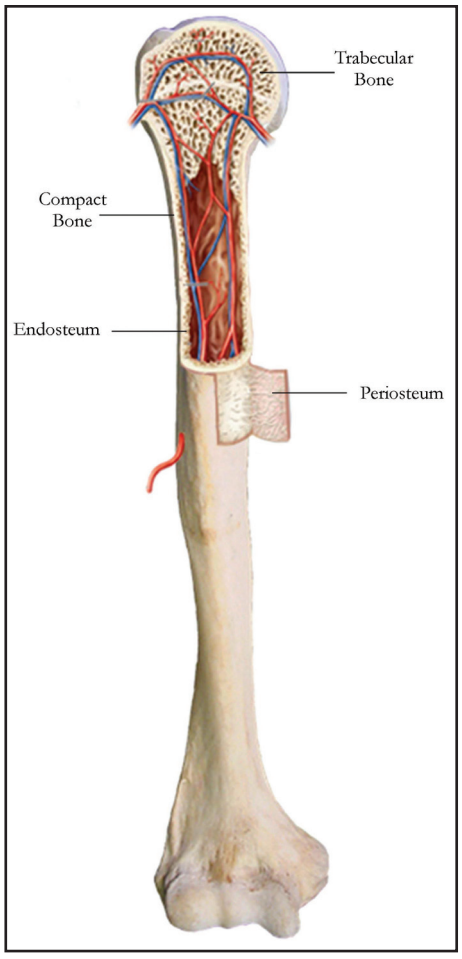
UT Orthopaedic Center Expands

plane. With the inclusion of the MRI, patients have virtually no need to venture outside of the Orthopaedic Center for their visits.

Another recent moment of excitement for the Orthopaedic Center was being chosen by the VA as the destination for Orthopaedic Care. In late February, the VA on Glendale Avenue and the Orthopaedic Center created a partnership to help patients of the VA in need of orthopaedic care. The partnership was created to respond to the overwhelming number of elderly patients who need hip, knee and shoulder treatment. Because of the high demand, veterans were being placed on waiting lists for one to two years before they were able to receive treatment. To help alleviate this local and national problem, the VAs have engaged in partnerships to help veterans in their time of need; UT's Orthopaedic Center was happy to help.

We are constantly refining our services and looking for input in how to make the process and system better for patients. We continue striving for excellence through exceptional access, service and convenience to orthopaedic care.

How Do Bones Repair Themselves?



Despite their strength and resiliency, bones can break if they are stretched past their bending capacity. While they may look artificial, bones are actually living tissue. So what happens when bones break? How do they repair themselves? While the length of time may differ depending on the extent of the injury, the process usually happens in three phases: the reactive phase, the reparative phase, and the remodeling phase.

Before looking at bones healing phases, it's important to understand more about their composition. The outermost surface of bone is known as the periosteum. This thin but dense membrane contains blood vessels and nerves that help nourish the bone. Following the periosteum is the compact bone layer. Compact bone is smooth, but very hard. Within this layer, are layers of cancellous bone which looks much like a honeycomb. Cancellous bone is not as hard as compact bone but does provide protection for the next layer. The inner-most layer of the bone, known as bone marrow, is a soft substance that creates blood cells.

Bones are made up of three types of cells: osteoblasts, osteocytes and osteoclasts. Osteoblasts are responsible for helping to make new bone and repair damage with the help of hormones and growth factors while osteocytes carry nutrients to and from blood vessels. Lastly, osteoclasts help create the bone's architecture and eat up or dissolve bone tissue with their powerful enzyme systems.

Now, we can look at the phases of bone healing more closely. First, bones go through the reactive phase. During this phase, bones react to the fracture. They begin by constricting the blood vessels to form a blood clot (hematoma). While the cells within the blood clot degenerate and die, the cells outside the blood clot near the injury site begin to replicate. These replicating cells (fibroblasts) combine with blood vessels to create granulation tissue. In other words, the damaged tissue and bone fragments are removed by cells of the immune system. This period of the bone healing phase is usually the most painful for patients.
The second phase of bone healing is the reparative phase.

Bones Repair

During this phase, a fracture callus forms. Here, cells develop into osteoblasts that form woven bone which unites with fibroblasts within the granulation tissue to form hyaline cartilage. Together, these grow with fragments of the fracture to begin the reparation process. The woven bone and cartilage is then replaced by trabecular bone (type of lamellar bone), to restore bone strength. During this phase, it's important to take good care of bones because the newly forming bone is neither strong nor stable. There is the possibility that the bone could collapse or become displaced.

The final stage of bone healing is the remodeling phase. During this phase, the bone restores its original architecture and contours. Here, trabecular bone is replaced by compact bone in a process that may last several months.

To help during the healing process, orthopaedic surgeons may utilize different types of devices to provide mechanical stability. These include casts, rods, plates, screws and external fixation devices. While the process is usually successful, common complications include non-union, deformities and osteomyelitis (an infection).

April 2008 Word Search

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PERIOSTEUM
OSTEOBLAST
OSTEOCLAST
TRABECULAR
FIBROBLAST
HEMATOMA
OSTEOPOROSIS
XRAY
CALCIUM
TRAUMA

Increased Fractures in Elderly Patients

A fractured bone can be a serious injury at any age, but the severity is compounded with advanced age. Because of weak bones, slow reflexes and poor balance, elderly patients are predisposed to fractures. In addition, elderly patients are more adversely affected by secondary effects of fractures.

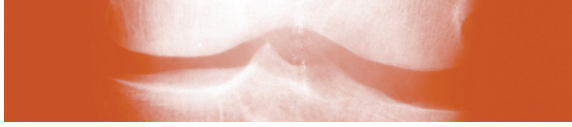
Fractures are becoming more and more common in elderly patients over the age of 85. In the past two years, UTMC has had more than 169 trauma patients over the age of 85. With the influx of elderly trauma patients, physicians have developed a systematic approach to minimize complications, while providing necessary treatments.

Most fractures in the elderly result from low-energy trauma such as falls. In fact, falls are the leading cause of death from injury among people 65 and over. Moreover, one third of people age 65 and over will fall at least once each year. Even more alarming is that 3 percent of these falls cause fractures. Typical fracture sites include the pelvis, hip, femur, vertebrae, hand, forearm, wrist and ankle. Because of poor balance and impaired vision and mobility, the probability of falling for elderly patients is much higher. The most likely cause of hospitalization for elderly patients is hip fractures (40 percent). A discouraging figure is that 40 percent of patients with hip fractures require hospitalization, while 50 percent never regain their pre-fall level of functioning. It's important to note that fear of activity can increase an elderly patient's risk of falling because of muscle weakness, joint stiffness and poor balance.

Osteoporosis is often a major factor in the increased incidence of fractures in elderly patients. Because their bones are weakened by osteoporosis, bones break more easily. Elderly patients also have slower reflexes to cushion impact. Trabecular bone's compressive strength is directly related to its density. For elderly patients this is a concern because bone density decreases with age. This type of bone is often not remodeled, which does not provide compensation for decreased bone density. Therefore, age-related fractures often involve trabecular bone. Spinal deformities are often a concern for elderly patients with osteoporosis. Here, there is an increased incidence of vertebra compression fractures which lead to spinal deformities.

To diagnose fractures, orthopaedic physicians use a variety of techniques. Of the techniques, x-rays are typically the most important tool. To get a good representation of the fracture, it is beneficial for orthopaedic surgeons to get anteroposterior and





Elderly Patients

lateral views of the fractured area. This way, there will be less chance of a fracture being hidden by an overlapping or broken bone. In addition to x-rays, CT scans and MRIs may also be used. MRIs are beneficial for orthopaedic surgeons because they show soft tissue.

There are, of course, ways to safeguard yourself from injury. First, it's important to get needed vitamins such as calcium and vitamin D. As you get older, your body isn't able to absorb calcium as well as it did before. Calcium is important in strengthening bones. In addition, it's helpful for elderly patients to get regular exercise to help prevent loss of bone mass, thus slowing osteoporosis.

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ORTHOPAEDIC MONTHLY

Editors: Dr. Nabil Ebraheim, department chairman and professor of orthopaedics, and Dave Kubacki, assistant to the chairman.

Neither Dr. Ebraheim nor Dave Kubacki have any relationships with industry to disclose.

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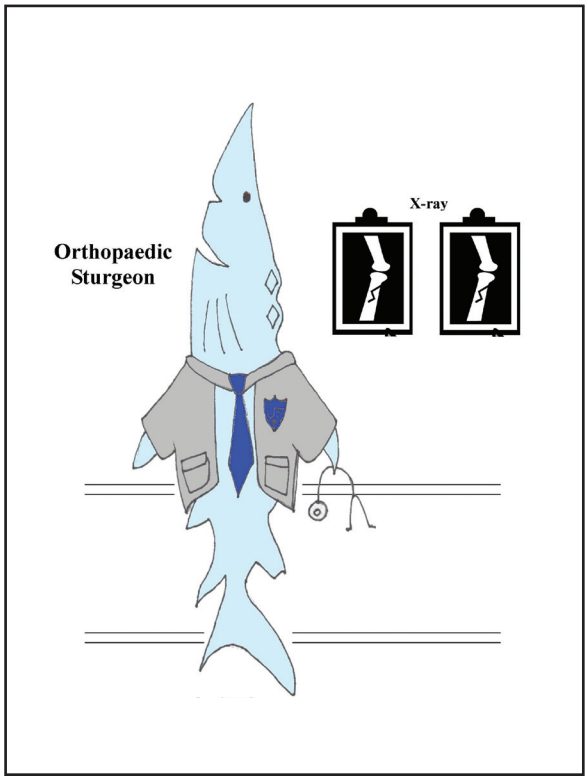

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