Skilled Orthopaedic Team Improving Outcomes for Northern Michigan

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MunsonHealthcare.org
Trauma Team Saves Mio Man’s Leg

Approximately three inches of skin remained intact below Matthew Lantz’s knee after an excavator slammed into a dumpster, causing the dumpster’s back door to close abruptly on his leg. “It was a near amputation – a Grade IIIC injury,” explained Andrew Boyce, DO, one of three fellowship trained orthopaedic traumatologists on staff at Munson Medical Center (MMC).

Three Orthopaedic Traumatologists

Transported by ambulance to Mercy Hospital Grayling, the Emergency Department team stabilized Lantz’s injury and alerted Munson Medical Center to set its trauma team in motion. As the only Level II Trauma Center in northern Michigan, MMC possesses the resources and expertise to handle such cases. Having three orthopaedic traumatologists on staff is a rarity – even in more metropolitan areas. “We have the same number here as they do in Detroit,” said Brent Wiersma, DO, a member of the elite team, along with Scott Grossclose, MD. Boyce explained that in trauma cases, the general surgeon is “the captain of the ship” and orchestrates treatment. In this case, trauma surgeon David Kam, MD, admitted Lantz and tapped into Munson Medical Center’s deep bench of specialists and subspecialists to assemble a team. The case required not only orthopaedic trauma expertise, but an expert in reconstruction as well.

Staging Improves Outcomes

Because the Lantz case presented extensive soft tissue involvement, the team proceeded with a staged treatment plan:

The night of the injury, Boyce applied a delta frame external fixator to provide bone stability and take tension off the soft tissue.

In the ensuing days, plastic surgeon Stephen Thomas, MD, performed two debridement surgeries to remove damaged tissue.

Proper vascularization was critical to both tissue and bone recovery, but two of the three available blood vessels were damaged in the accident. Thomas grafted rectus abdominis muscle to improve blood supply, attaching the blood vessel from the graft end-to-side to the remaining vessel in Lantz’s lower leg. Thomas then portioned blood supply to the bone and the tissue, careful to ensure an adequate supply for each.

Two weeks after the accident, Boyce proceeded with internal fixation that included an intramedullary rod and a specialized bone graft known as bone morphogenetic protein.

Ultimately, Thomas grafted skin flaps from Lantz’s hip to close the wound.

“Injuries like this are complicated,” Boyce said. “The staged technique decreases risk of infection, wound complication, and ultimately decreases morbidity and leads to a better outcome.”

Eleven weeks after surgery, Lantz had regained the ability to move and apply downward pressure to his toes. He also began a course of physical therapy in Grayling to increase range of motion, and continues to see Boyce and Thomas periodically as his recovery progresses. “I am very thankful for what everyone has done. It was a team effort,” Lantz said.

“With a case this severe, there is discussion regarding the choice to save or amputate. In this case, we decided to go for the save because the patient had some sensation at the bottom of his foot. Patients need some sensation so they can respond to issues that may cause further injury and keep their limb safe.”

Steven Thomas, MD
Working Again: Overcoming Traumatic Injuries to Forearm and Hand

Hand function has historically been key to the livelihood of a broad section of the population. Now, advances in surgical techniques and replacements are producing improved outcomes and function after traumatic or degenerative injury to the hand or forearm. To many of these patients in northern Michigan – a pianist, a physician, and a farmer among them – the advances have given them the ability to continue their chosen profession.

“The most traumatic hand injuries we see are from table saws,” explained Mark Leslie, MD, a fellowship trained orthopaedic hand surgeon in Traverse City. “We also see considerable hand involvement from slips and falls.”

Many Patient Consults Stay with Local Physician

“Our goal isn’t to get every patient to come to Traverse City,” said Leslie. “Our goal is to make sure the patient receives the most appropriate treatment for their specific injury. We work with physicians from throughout northern Michigan. Quite often, we function in an advisory capacity and agree that the primary care physician or the general orthopaedic surgeon can take care of the injury right there. “Digital imaging has helped us tremendously in evaluating the best course for the patient – even if they are 100 miles away,” Leslie said.

There are times, however, when function can be improved through the techniques and armamentarium of a hand surgeon. If the decision is made to refer patients for subspecialty treatment, they can often be stabilized and procedures can be performed within a few days of the actual injury. Leslie and his fellowship-trained partners, Paul Jacobson, MD, and Danielle Conaway, MD, provide around-the-clock coverage through Munson Medical Center and encourage early consultation for optimal outcomes.

Referral Criteria

Leslie recommends physicians call for a consultation or referral if the patient has suffered a traumatic injury such as lacerations in the fingers or hand that involve a nerve or tendon. Early intervention by the hand surgeon is recommended specifically for the following:

Boutonnière deformity – rupture of the central slip of the extensor tendon or the middle phalanx. Caused by rapid, forceful flexion at the proximal interphalangeal joint, this injury is characterized by flexion of the proximal interphalangeal joint and hyperextension of the distal interphalangeal joint.

Mallet finger or baseball finger – rupture of the extensor tendon at or near its insertion on the terminal phalanx caused by a sudden flexion force on the distal interphalangeal joint while the finger is actively extended.

“In these cases, the earlier we see the patient the better,” Leslie said. “By utilizing a pin internally versus a splint externally, the finger is much more functional – but the tendon is still protected and can heal. With this technique, patients can resume functions such as typing almost immediately after injury.” In other cases, the hand surgeon and referring physician can discuss splinting and delay the patient’s visit to the hand surgeon by a week to 10 days.

Postprocedural Care

Referring physicians can play a role in improving outcomes by helping their patients understand the role of continuing care after a traumatic hand injury. According to Leslie, outcomes rely 50 percent on subspecialty intervention and expertise, and 50 percent on the patient’s postprocedural care.

“We prescribe hand therapy when we think it is important, and it is often the key to recovery from a traumatic injury.” Leslie added that his team coordinates care with hand therapists throughout northern Michigan to make it easier for patients to adhere to the therapy regimen. “If patients receive their ongoing therapy regimens close to home, it improves compliance and outcomes.”

“The majority of what we do is fixing bones with plates and repairing nerves. One of the more important advances is that we can perform joint replacement at the time of injury instead of fusing the joint stiff or leaving it flail and performing replacement surgery later.”

Mark Leslie, MD

continued on A4
Severe Trauma Requires Step Approach

For severe traumatic injury to the forearm or hand, such as the auger injury below, Leslie and his partners utilize the following eight-step approach:

1. Irrigation and debridement
2. Injury assessment
3. Bones
4. Deeper tendons
5. Revascularization
6. Fix remaining tendons
7. Nerves
8. Skin, including flaps and grafts when needed

While the hand surgeons may call on one another for surgical assistance – particularly when extensive revascularization is required – Leslie was able to handle the auger injury without a second surgeon. The initial procedure took five and a half hours with two minor surgeries following to improve tendon function in the patient’s hand, and one additional surgery to implant a bone stimulator to facilitate healing (inset x-ray above). After an eight-month recovery process, the patient returned to his work as a farmer.

Small Joint Replacement Improves Hand Outcomes

Artificial knuckles and continuous advances in hardware have significantly improved outcomes in recent years.

Table Saw Trauma: Replacement of 1/2 of the metacarpophalangeal joint on both the index and middle finger enabled this physician to return to his practice within two weeks.

Car Accident: Patient received a full replacement of the proximal interphalangeal joint avoiding an amputation and enabling this patient to return to work as a contractor.

For consultation, contact Hand Surgery of Northern Michigan at (231) 935-0800 or page through Munson Medical Center at (231) 935-5000.
Periprosthetic Fractures on the Rise

As the number of prosthetic joint implants increases, so does the need for fracture care that specifically addresses the unique stressors placed on adjacent bones. With a current age range of 46-64, baby boomers are becoming prime candidates for joint replacement. Orthopaedic surgeon Andrew Boyce, DO, said hip replacement is typically indicated for people in their 50s and 60s, while knee replacements skew slightly older, generally implanted in patients age 60-80.

Bone Health is Key to Avoiding Orthopaedic Intervention

Most joint replacements are necessitated by arthritic deterioration. A patient’s incidence of arthritis can be reduced by proactively maintaining good bone health. Patients of any age can improve bone health through the following:

**Nutrition** – Follow guidelines for fruits and vegetables, lean meats, and whole grains; avoid cola drinks; intake recommended amounts of calcium and vitamin D.

**Exercise** – Weight-bearing exercise three times per week.

**Not smoking** – Cigarette smoking has been linked to low bone density, increased fracture risk, and increased healing time.

**Screening** – DEXA scanning to test Bone Mineral Density is recommended for women older than 65 years as well as postmenopausal women younger than 65 years with risk factors including history of fractures, low body weight, smoking, and familial history of fractures.

New Trauma and Orthopaedic ORs Offer Full Armamentarium

MMC Orthopaedics Section Chief John Bruder, MD, said a three-year, multi-disciplinary planning effort has culminated in state-of-the art OR facilities designed to support Munson Medical Center’s Level II Trauma program and a growing number of orthopaedic subspecialty referrals. Described as Munson’s most ambitious renovation project to date, the new ORs opened in February 2010.

Munson Inpatient Rehab Plays Role in Recovery

Major multiple trauma patients account for 15 percent of the population on Munson Medical Center’s Inpatient Rehabilitation Unit. Inpatient rehab at Munson has been in place for three decades, offering therapy in a resource-intensive environment for a variety of conditions, including stroke, spinal cord injury, and brain injury.

Multiple trauma patients often benefit from inpatient rehab due to the complexity of their nursing, medical management, and rehabilitation needs. The unit’s multi-disciplinary approach includes nursing; physical, occupational, and speech therapy; pain management; and the services of a psychologist, case manager, and recreational therapist.

After discharge, many patients continue therapy through Munson Home Care or in an outpatient setting.

For information, contact Diane Glowicki, Admissions Coordinator, at (231) 935-7341.
Foot and ankle surgeon Norm Licht, MD, has been performing ankle replacements for eight years. However, it is a procedure he has been slow to routinely adopt – until now. “I didn’t think the technology was there. Earlier prosthesis had very limited range of motion and limited, if any, accommodations for the size variation we encounter from one patient to the next.”

Now Licht, who has practiced as a foot and ankle surgeon in Traverse City for two decades, is optimistic about an important advance in ankle prosthesis. Championed by two of the most respected foot and ankle surgeons in the world, the Scandinavian Total Ankle Replacement system (S.T.A.R.® Ankle) is the only mobile bearing, three-part, non-cemented ankle replacement to receive U.S. Pre-Market Approval.

Unlike earlier ankle prosthesis, the S.T.A.R.® Ankle does not require fusion of the talus and tibia and requires only one incision rather than two. The three-piece system is designed to allow the patient to retain and/or regain some normal ankle mobility and function. The ankle replacement uses similar materials and technology to those used in knee and hip replacement implants. The prosthesis also offers a wide modularity, affording the ability to fit a wide range of patient types. While the S.T.A.R.® Ankle has been utilized in Europe for several years, the prosthesis only received U.S. approval in May 2009.

After S.T.A.R.® Ankle replacement surgery, patients can typically expect localized swelling lasting three to four months. Patients will spend one week in a cast, and six weeks utilizing crutches with a walking boot. The ankle can generally bear light weight after two weeks. Adhering to a prescribed physical therapy regimen is important to increase mobility and rejuvenate the Achilles tendon, which often becomes stiff due to misuse in cases of chronic ankle pain.

Primary Indications for Ankle Replacement Candidates

- Failure of non-surgical measures, most commonly for treatment of osteoarthritis
- No previous infection
- Healthy weight
- Non-smoker
- Age > 55
- No neurovascular abnormality
- Minimal varus/valgus deformity
- Generally good bone stock
- Rheumatoid arthritis

Two Approved Surgeons In State

Licht, along with an orthopaedic surgeon from southeast Michigan, was chosen by the S.T.A.R.® Ankle provider, Small Bone Innovations, Inc. as the first surgeons in Michigan to complete a comprehensive advanced ankle replacement training course. The program was designed to enhance the surgeon’s skills in the field of ankle arthroplasty. Licht’s training in December included didactic studies, cadaver studies, and thorough review of the rationale, philosophy, and indications for the procedure.

For more information on the S.T.A.R.® Ankle replacement procedure, contact Norm Licht, MD, Great Lakes Orthopedics Center in Traverse City, (231) 935-0900 or 1-800-203-0044.
Before

Early recognition and new minimally-invasive treatment for femoroacetabular impingement (FAI) can help alleviate pain and avoid arthritis development that could ultimately require hip replacement.

“This is a condition we’re recognizing more and diagnosing at an earlier age. Correcting impingement in its early stages can not only save the patient years of pain, but may help them avoid future joint replacement,” said Brian J. Kerr, MD, an orthopaedic surgeon with Great Lakes Orthopaedics Center in Traverse City.

FAI can occur as a result of excessive bone growth around the ball (head and/or neck of the femur) causing “cam”-type impingement; overgrowth around the socket (acetabulum) rim, causing “pincer”-type impingement; and through posterior and/or anterior misalignment of the femoral head/neck and acetabulum. Friction between the femoral head/neck and the acetabulum affects the cartilage and labrum, resulting in pain and limited range of motion. Specific symptoms include groin pain that is exacerbated with bending the hip in an upward motion and a clicking sensation in the groin when rising from a seated position. Left untreated, the cartilage and labrum cushion deteriorates and leads to the “bone on bone” friction of arthritis.

Now Correctable Arthroscopically

Kerr is one of only a handful of orthopaedic surgeons in the state performing FAI correction surgery arthroscopically. “Unlike shoulders and knees, there are very few hip procedures that can be performed arthroscopically,” said Kerr, who has been performing the procedure for three years. “But we’re starting to understand problems in a whole new way and that has led to an emergence of new techniques.”

Recovery Period Cut in Half

Historically, FAI has been treated with an open procedure that requires an osteotomy of the femoral bone for full visualization, resulting in a year-long primary recovery period. Hip arthroscopy is performed through small incisions in the skin. After surgery, FAI arthroscopy patients use crutches with limited weight bearing for a period of two to six weeks. Patients note significant improvement in pain and range of motion with full recovery typically at six months.

By the Numbers

Munson Medical Center
Inpatient Orthopaedic
Cases by Type

FY 2007 - FY 2009

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