

ADVANCES IN Treatment & Research Expand Hand Surgery

AS MEDICAL ADVANCES IN ARTHROSCOPY AND IMAGING TECHNIQUES BECOME INCREASINGLY UTILIZED FOR THE SMALL BONES AND LIGAMENTS OF THE HAND, PHYSICIANS FROM THE PENN HAND SERVICE ARE EXPLORING HOW THEY CAN IMPROVE PATIENT DIAGNOSIS AND TREATMENT.

NEW INSTRUMENTATION FOR DISTAL RADIUS FRACTURES

A distal radius fracture is the most common break in the arm, according to the American Academy of Orthopedic Surgeons, and typically follows some kind of trauma, such as a fall or accident. "In the elderly population, studies suggest it is associated with higher morbidity," says Pedro Beredjiklian, MD, orthopaedic surgeon at the Penn Orthopaedic Institute. Fractures occurring in the young and healthy prove more difficult to repair in older, osteoporotic patients.

To help, Penn hand surgeons are working on new instrumentation and devices such as a series of low profile locking plates that combine stainless steel pins and plates allowing for the fixation of more difficult fractures.

"In the past, some surgeons may have used external fixation, but we've found that internal fixation, and low profile plates in particular, provide technically better control," says David Steinberg, MD, director of the hand and upper extremity

fellowship at the Penn Orthopaedic Institute. "The plates allow us to align the bones better and patients are able to rehab faster."

Penn surgeons are also investigating advanced imaging techniques that can improve the surgeon's ability to characterize and thus treat distal radius and other fractures.

WRIST ARTHROSCOPY

With its small incisions and reduced tissue disruption, arthroscopy is increasingly being used in the treatment of the hand. Wrist arthroscopy, in particular, has proven to be extremely valuable both in diagnosis and therapy. "It is very helpful for arthritis, for example," says David Bozentka, MD, chief of hand surgery at the Penn Orthopaedic Institute. "We can assess the ligaments of the wrist and examine the extent of injury, all without making any large incisions."

Penn surgeons are also pushing the arthroscopic envelope, using the technique to treat an increasing number of areas in the hand and wrist. "We're treating ligament injuries in the wrist and bringing

arthroscopy to small joints in the hand. We've even treated some cases of basal joint arthritis with arthroscopy," says Dr. Steinberg.

A minimally invasive surgery, wrist arthroscopy typically limits patient discomfort and offers faster recovery. In general, it is appropriate for patients with earlier stage arthritis or torn cartilage, which is more amenable to this type of treatment. "Advanced cases of arthritis, for example, require more cleaning out of bone and, in some cases, ligament reconstruction, which is better performed through open surgery," says Dr. Steinberg.

Nevertheless, arthroscopy remains a good surgical option for a number of conditions. "We can even address certain problems like ganglion cysts, which at one time required an incision in the wrist," says Dr. Bozentka. "Today, we can treat it arthroscopically."

FLEXOR TENDON HEALING

As part of a robust research program, Penn hand surgeons are advancing more than the scope of arthroscopic treatment. A particular area of interest is the flexor tendon and what can be done medically or surgically to reduce scarring and promote healing in this delicate area. In fact, the Penn Orthopaedics laboratory is one of the top three U.S. centers for National Institutes of Health-funded tendon research.

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Flexor tendon repairs in the hand are often complicated by the formation of scar tissue, which results in the loss of normal tendon gliding, digital stiffness and functional disability. The majority of the research on flexor tendon repair focuses on mechanical aspects. At Penn, the research is focused on the cellular, molecular and genetic levels of repair.

"We're studying how the manipulation of cytokine levels, introduction of genetic material into cells and addition of pluripotential mesenchymal stem cells at the repair site can modulate scar formation," says Dr. Beredjiklian. "No one else in the country is looking at these aspects of flexor tendon healing and we believe that this benchmarking work will one day be applied in the clinical setting."

To have a Penn Hand Surgeon consult on a case or for more information about the services provided, call the dedicated physician referral line PENNLine at 1-800-635-7780.

Continuing Medical Education

For more information or reservations, please call the numbers listed below or PENNLine at 1-800-635-7780.

February

6-10

Penn Ophthalmology Review Course

Union League of Philadelphia
Philadelphia, PA
Presbyterian Hospital
Jenny Bartelle
215.662.8069

16-18

13th Annual Advances in Diagnosis and Treatment of Sleep Apnea and Snoring

Disney's Boardwalk Inn Resort
Orlando, FL
Bonnie Rosen
215.662.2137

26-March 2

22nd Annual Cross-Sectional Imaging

St. John, US Virgin Islands
Lori Ehrich
215.662.6982

March

8-10

Penn International Rhinology Course: Advances in Management of Sino-Nasal Disease

Ritz Carlton Hotel and
University of Pennsylvania School of Medicine
Philadelphia, PA
Bonnie Rosen
215.662.2137

12-16

MRI & Advanced Breast Imaging: Practical Clinical Applications

Intercontinental San Juan Resort & Casino
Puerto Rico
Lori Ehrich
215.662.6904

23-24

The Fifth Penn Inflammatory Bowel Disease Symposium

Four Seasons Hotel
Philadelphia, PA
Ansheai Spence
215.898.6400

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Penn Plastic Surgery Invited Speaker Series Department of Surgery Flyers/76ers Theatre

Ground Floor White Building
Philadelphia, PA
Kris Gallagher & Gretchen Matika
215.662.7659

PENN CLINICAL BRIEFING

Update 2006: Liver Transplantation
available online at
pennhealth.com/physicianforum.