

# NEW YORK – PRESBYTERIAN Columbia Orthopaedics

Affiliated with COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS and SURGEONS

Fall 2005

## Surgeons Develop New Prosthetics, Minimally Invasive Techniques for Shoulder Arthroplasty

Under the leadership of Louis U. Bigliani, MD, surgeons at NewYork-Presbyterian Hospital/Columbia University Medical Center are using advanced prosthetic materials, surgical instrumentation and minimally invasive techniques to safely perform total shoulder arthroplasty for patients with severely displaced fractures of the proximal humerus. Other orthopaedic surgeons who have collaborated with Dr. Bigliani to advance the work in shoulder replacement surgery include William N. Levine, MD, Theodore A. Blaine, MD, and Christopher S. Ahmad, MD.

Proximal humerus fractures account for approximately 4 percent to 5 percent of all fractures in the United States. Many result from falls by elderly individuals with osteoporosis. Fragility fractures of this sort are becoming much more prevalent as the U.S. population ages. The Bigliani-Flatow procedure, developed by Dr. Bigliani and Evan Flatow, MD, addresses those humeral fractures severe enough to require prostheses.

see Shoulder Arthroplasty, page 5

## New Devices, Procedures Revolutionize Hand and Joint Surgery

Finger, wrist and elbow joints have each been the focus of a series of recent innovations at NewYork-Presbyterian Hospital/Columbia University Medical Center. Progress in the treatment of injuries to hands, wrists and elbows have an enormous potential to improve quality of life. Recognition of this potential has been an impetus for many of the new approaches being actively pursued at the hospital.

In the fingers, a sophisticated device to repair flexor tendons appears to be a substantial advance over standard suturing methods. In the wrist, a study is under way to compare external and internal fixation devices in fractures secondary

to osteoporosis. In the elbow, injections of botulinum toxin appear to be greatly accelerating rehabilitation of joint function in those with contractures resulting from trauma. Each innovation has a substantial potential to improve quality of life.

"This flexor tendon fixation device is really the first novel approach for repair of flexor tendons in 50 years.

see Hand and Joint Surgery, page 7

### TABLE of CONTENTS

#### Managing Pediatric Fractures

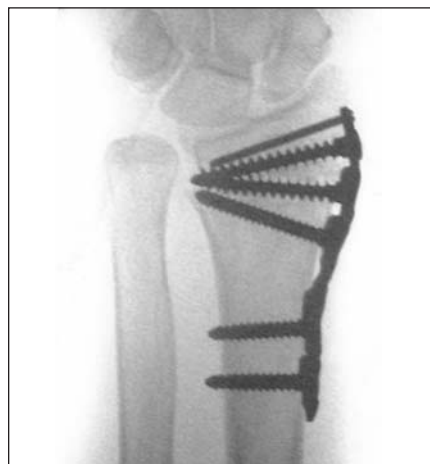
**2** Flexible intramedullary nailing (FIN) is a minimally invasive way to treat femur fractures. No cast is necessary, and children can go home sooner.

#### Nitric Oxide's Role in Apoptosis

**4** Preliminary studies seek improved strategies for reducing cell death that leads to post-traumatic arthritis.

#### Hip Fractures in the Elderly

**6** Columbia researchers at NewYork-Presbyterian Hospital lead a multicenter trial to measure the advantages of total hip arthroplasty compared to hemiarthroplasty.



Patient who had a distal radius fracture underwent surgery and was treated with a radial-sided plate. Post-op X-ray shows implant in place.

## Surgeons Seek to Meet Challenges of Managing Pediatric Fracture Patients

**P**ediatric fracture care has undergone significant changes in recent years, and nowhere is this more evident than at Morgan Stanley Children's Hospital of NewYork-Presbyterian/Columbia University Medical Center, a Level I pediatric trauma center that sees some of the most severe fracture cases. Many are the consequence of vehicle-pedestrian accidents.

"We see lots of femur, tibia and humerus fractures," said Michael G. Vitale, MD, MPH. "As a result, we maintain an active research interest in all of those areas."

Perhaps the most significant change in pediatric fracture care, according to Dr. Vitale, has been in the management of femur fractures. He led a recent study that looked at femur fracture treatment at pediatric vs. general hospitals across the country. The investigation showed that pediatric hospitals typically use more advanced methods to treat femur fractures than

general hospitals, and that their overall treatment costs and patient length-of-stay were significantly lower. Traditionally, Dr. Vitale said, children with femoral fractures have been treated the same way as adults, with traction and external fixation.

"This would often mean long periods in the hospital for the kids and sometimes result in not the best outcomes," he said. "If you put a kid in traction, it means inserting a pin through the bone. They're in the hospital on their backs for two weeks with weights pulling on their legs. It's a tough way to go."

In recent years, however, new methods have been developed. One is called flexible intramedullary nailing (FIN). "This is a minimally invasive way to treat femur fractures," Dr. Vitale said. "We make a little incision at the bottom of the femur, right above the knee, and we insert a small titanium nail within the middle of the bone."

Because the internal fixation of the

fracture is minimally invasive and there is no cast, a child can go home a day or two after the procedure and be able to walk a few days after that, he said. "It's a big improvement over traditional care," he added. "That's what led to this research, and it showed if a kid comes into a pediatric hospital with a femur fracture, they are more likely to get state-of-the-art treatment — this FIN — than if they come into a nonpediatric hospital."

"We see kids that have been stabilized elsewhere and come to us for definitive treatment," Dr. Vitale continued. "They've been seen at an emergency room in another [non-pediatric] hospital, and they get put into a cast and come to us. As long as not much time has passed, the cast comes off and the new procedure is done."

Clinical research on other types of pediatric fractures has also been done, including an investigation that looked at pelvic fractures. Fractures of the pelvis, Dr. Vitale said, are "one of the few injuries where you have significant mortality in kids. We've used administrative databases to show that if a child is treated at a children's hospital, his outcome is significantly better" than if treated at a general hospital.

At Morgan Stanley Children's Hospital of NewYork-Presbyterian, according to Dr. Vitale, it's not just the surgeon but "the entire interdisciplinary team that makes the difference in pediatric care," including anesthesiologists "who are used to taking care of sick kids."

"The anesthesia team also has a separate pain service that makes sure the kids are comfortable during their whole stay and then transitions them to oral medicines in outpatient therapy," he added.

Another factor that makes a big difference, he said, is the opportunity to treat patients in a brand-new, state-of-the-art facility. "It's all very colorful and child-friendly," he said. In all, 80 percent of the rooms are private, with a separate area for parents to sleep. Every room has plasma

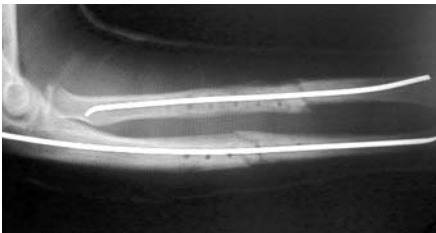
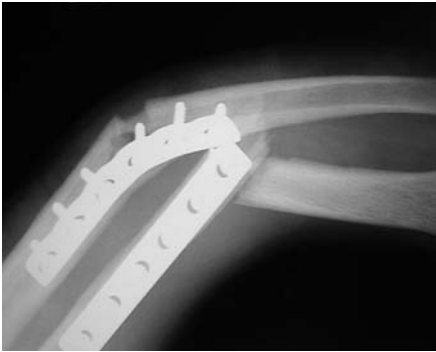


October 10, 2001

October 11, 2001

March 12, 2002

Nine-year-old boy hit by a car with a closed head injury, and a femoral shaft fracture treated with flexible intramedullary rods. X-rays show complete healing with restoration of perfect alignment.



Eight-year-old treated with a plating technique elsewhere for a forearm fracture. While his fracture healed, he sustained another fall and came into the hospital with a very displaced fracture at the end of the plate. For this reason, this technique is no longer used for this condition. He underwent flexible intramedullary rodding with restoration of perfect alignment.

TV, a computer and high-speed Internet access.

“It’s really something,” Dr. Vitale said. Just that morning he had seen a patient who told him, “I feel great, but I don’t really want to go home, because I’ve got great Internet access here.”

**Michael G. Vitale, MD, MPH**, is Director, Division of Pediatric Outcomes, International Center for Health Outcomes and Innovation Research at Morgan Stanley Children’s Hospital of NewYork-Presbyterian/Columbia, and is Herbert Irving Assistant Professor of Orthopaedic Surgery at Columbia University College of Physicians and Surgeons. E-mail: [mgv1@columbia.edu](mailto:mgv1@columbia.edu).

## NewYork-Presbyterian/Columbia Orthopaedics

is a semi-annual newsletter published by NewYork-Presbyterian Hospital. The articles in this newsletter represent the work of the Columbia University faculty at NewYork-Presbyterian Hospital/Columbia University Medical Center who are in the forefront of research and practice in the diagnosis, treatment and rehabilitation of musculoskeletal conditions in adults and children.

## NewYork-Presbyterian Columbia Orthopaedics Editorial Board

---

**Melvin P. Rosenwasser, MD,**

**Editor-in-Chief**

**Director, Hand and Orthopaedic Trauma Services**

*NewYork-Presbyterian/Columbia  
Robert E. Carroll Professor of Orthopaedic Surgery  
Columbia University College of Physicians  
and Surgeons  
[mpr2@columbia.edu](mailto:mpr2@columbia.edu)*

---

**Louis U. Bigliani, MD**

**Chief, Orthopaedic Surgery Service and**

**Director, Center for Shoulder, Elbow and Sports Medicine**

*NewYork-Presbyterian/Columbia  
Chairman, Department of Orthopaedic Surgery and  
Frank E. Stinchfield Professor of Orthopaedic Surgery  
Columbia University College of Physicians  
and Surgeons  
[lub1@columbia.edu](mailto:lub1@columbia.edu)*

---

**Francis Y. Lee, MD**

**Associate Attending in Orthopaedic Surgery and**

**Director, Center for Orthopaedic Research**

*NewYork-Presbyterian/Columbia  
Associate Professor of Orthopaedic Surgery  
Columbia University College of Physicians  
and Surgeons  
[fl127@columbia.edu](mailto:fl127@columbia.edu)*

---

**William N. Levine, MD**

**Associate Attending in Orthopaedic Surgery and  
Chief, Sports Medicine Service**

*NewYork-Presbyterian/Columbia  
Associate Professor of Orthopaedic Surgery  
Columbia University College of Physicians  
and Surgeons  
[wnl1@columbia.edu](mailto:wnl1@columbia.edu)*

---

**William B. Macaulay, MD**

**Associate Attending in Orthopaedic Surgery and**

**Director, Center for Hip and Knee Replacement**

*NewYork-Presbyterian/Columbia  
Associate Professor of Orthopaedic Surgery  
Columbia University College of Physicians  
and Surgeons  
[wml43@columbia.edu](mailto:wml43@columbia.edu)*

---

**Christopher B. Michelsen, MD**

**Attending in Orthopaedic Surgery**

*NewYork-Presbyterian/Columbia*

**Chief, Orthopaedic Surgery**

*The Allen Pavilion of NewYork-Presbyterian  
Hospital*

**Professor of Clinical Orthopaedic Surgery**

*Columbia University College of Physicians  
and Surgeons  
[cbmmd@yahoo.com](mailto:cbmmd@yahoo.com)*

---

**David P. Roye, MD**

**Chief, Pediatric Orthopaedic Surgery Service and**

**Attending in Orthopaedic Surgery**

*Morgan Stanley Children’s Hospital of  
NewYork-Presbyterian/Columbia*

**St. Giles Professor of Orthopaedic Surgery**

*Columbia University College of Physicians  
and Surgeons  
[dpr2@columbia.edu](mailto:dpr2@columbia.edu)*

## Preliminary Studies Show Nitric Oxide Triggers Apoptosis in Chondrocytes

The potential role that nitric oxide (NO) plays in chondrocyte apoptosis in cases of fracture and surgical repair is the subject of a new investigation at NewYork-Presbyterian Hospital/Columbia University Medical Center. Justin Greisberg, MD, has devised a protocol to test damaged cartilage tissue both for the presence of NO and for signs of programmed cell death.

Apoptotic cell death has been demonstrated in impacted cartilage tissue and is suspected of playing a role in arthritic conditions that develop with considerable frequency, sometimes years after surgery. But the chemical pathway that gives rise to apoptosis remains elusive. NO, of course, is found in elevated levels in various arthritic conditions, where it appears to adversely affect the pericellular and extracellular matrix. The chemical message that initiates apoptosis in cartilage remains to be discovered.

"Finding the trigger is the goal," said Dr. Greisberg. "If we can find the molecular trigger and somehow block it, then perhaps we can block the apoptosis and lead to better long-term outcomes after fracture."

The study, which is currently under way, tests cartilage tissue samples from patients with impacted articular fractures and, as controls, from nonarthritic patients undergoing elective foot arthrodeses for deformity. Each collected sample will be split, with half to be tested for caspase activity, the key enzyme that effects apoptotic cell death. The remainder of each sample will be paraffin embedded for histologic analysis, and subsequently

stained for apoptotic activity with the Terminal UTP Nick-End-Labeling (TUNEL) assay. These sections will also be stained for NO and studied under fluorescent microscopy for evidence and co-localization of both NO and cell suicide. The study will also correlate patient age with apoptosis and the date of fracture with the prevalence of apoptosis.

According to Dr. Greisberg, the study may lead to further research with a defined clinical horizon. Should NO prove to be key to programmed chondrocyte cell death in cases of fracture and trauma, interventions might be sought to arrest or curtail the process,

with a view to reducing incidence of post-traumatic arthritis. Cells saved from this suicide might live to create a healthier matrix after surgical repair.

"Hopefully this research can lead to a new strategy to prevent the cell death leading to post-traumatic arthritis," noted Francis Lee, MD.

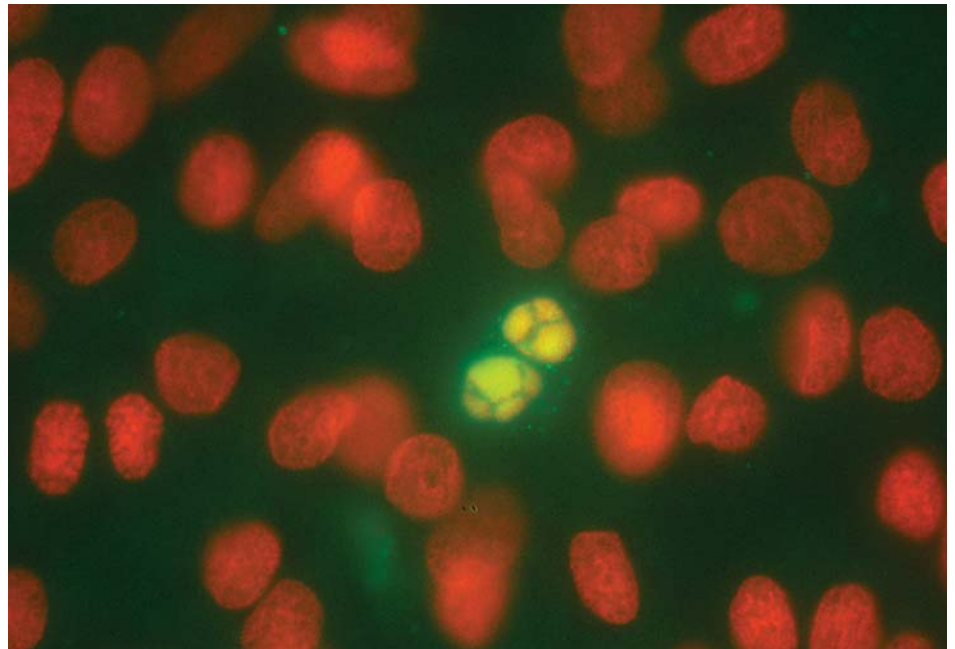
"This is a starting point," Dr. Greisberg cautioned, "for where to look in these traumatic patients." Although apoptosis in some types of cells, such as thymocytes and immune cells, has been extensively studied, understanding what happens in cartilage tissue is still at a preliminary stage. "The cell death that occurs in cartilage, he said, "is very different and not as well understood."

---

**Justin Greisberg, MD**, is Attending Surgeon, Foot and Ankle at NewYork-Presbyterian/Columbia, and is Assistant Professor of Orthopaedic Surgery at Columbia University College of Physicians and Surgeons. E-mail: jkg2101@columbia.edu.

---

**Francis Y. Lee, MD**, is Associate Attending Surgeon at Morgan Stanley Children's Hospital of NewYork-Presbyterian/Columbia, and is Associate Professor of Orthopaedic Surgery at Columbia University College of Physicians and Surgeons. E-mail: fl127@columbia.edu.



A photomicrograph of cultured chondrocytes undergoing apoptosis. Normal cell nuclei are stained red. Apoptosis is labeled with yellow fluorescence. The yellow nuclei show the characteristic fragmentation of apoptosis.

## Shoulder Arthroplasty

continued from page 1

“The original procedure was pioneered at Columbia Presbyterian Medical Center [now NewYork-Presbyterian/Columbia] by Charles S. Neer II back in 1951,” said Dr. Bigliani. “Through the years, we’ve improved our operative technique, surgical instruments and prosthetic structural material to make the procedure easier and successful.”

In addition, Dr. Levine noted, the shoulder service started by Dr. Neer at NewYork-Presbyterian Hospital “is the oldest and probably one of the most prestigious. It has trained more shoulder and elbow surgeons than anywhere else, and many innovations and new ideas and devices have started right here. And this,” he said, referring to the new shoulder replacement procedures, “is another in a long line of advances leading to improved patient care — which obviously is the ultimate goal.”

The latest generation in total shoulder replacement surgery techniques developed by Dr. Bigliani and the surgical team uses a corrosion-resistant tantalum metal with a lightweight trabecular, or porous, structure that possesses the physical and mechanical properties of living bone. The nature of the material encourages bone healing around the prosthesis by allowing bone tissue to grow into the honeycomb-like spaces of the metal. By doing so, it ensures stronger, more durable attachments than prosthetic materials used in the past.

For the surgeon who performs the arthroplasty, aligning the humeral head prosthesis in the right position can be challenging. “We’ve developed a jig that allows for the precise placement of the prosthesis in the correct anatomical position,” Dr. Bigliani explained. “The jig allows for the proper retroversion, as well as the proper height, of the prosthesis. We think this is a major advance. The jig is very easy to use and fits both the trial and the permanent prosthesis.” The instrument allows the surgeon to create a template for correct size and positioning of the permanent prosthesis, he added.

So far, Dr. Bigliani said, the procedure has been used only in more severe cases of non-unions, or fresh fractures that are treated but fail to heal. “Now we’re going to do them for the fresh fractures as well,” he added.



Trabecular metal prosthesis which promotes bone ingrowth onto the metal surface.

The patient who undergoes total shoulder arthroplasty is usually in the hospital for two to three days, followed by a recuperative period of approximately six weeks that involves passive motion exercises. When bone healing occurs — usually between six and eight weeks — the patient can begin active exercises. “We hope to get people back to near normal function with activities of daily living,” Dr. Bigliani said, “and we even have some people go back to playing sports like golf.” There is no age limit for this type of surgery. “If somebody is 90 and in good health, we would do the prosthesis and expect him to heal and do well.”

Another significant advance in shoulder replacement surgery, according to Dr. Blaine, involves performing the procedure through smaller incisions that cause the least trauma to the patient. He said the operation was

also being done for indications other than fractures. “The prosthesis was originally developed by Dr. Neer for fractures,” Dr. Blaine said. “But Dr. Neer started to use it for arthritis as well. So it’s really used for both indications.” He said an international multicenter study is currently under way to examine the results of this newest generation of the Bigliani-Flatow “complete shoulder solution” for the treatment of arthritis.

“For the right patient, this is truly a life-altering procedure,” noted Dr. Levine. “When we see patients who need shoulder surgery, they are miserable. They can’t perform their daily activities — they can’t reach, lift or carry with the affected arm. We are offering them a shoulder replacement procedure that restores their quality of life and restores their shoulder function. And the success rate for this procedure is more than 90 percent.”

---

**Christopher S. Ahmad, MD**, is Assistant Attending Orthopaedic Surgeon, Sports Medicine and Shoulder Service at NewYork-Presbyterian/Columbia, and is Assistant Professor of Orthopaedic Surgery at Columbia University College of Physicians and Surgeons. E-mail: [csa4@columbia.edu](mailto:csa4@columbia.edu).

---

**Louis U. Bigliani, MD**, is Chief, Orthopaedic Surgery Service and Director, Center for Shoulder, Elbow and Sports Medicine at NewYork-Presbyterian/Columbia, and is Chairman, Department of Orthopaedic Surgery and is Frank E. Stinchfield Professor of Orthopaedic Surgery at Columbia University College of Physicians and Surgeons. E-mail: [lub1@columbia.edu](mailto:lub1@columbia.edu).

---

**Theodore A. Blaine, MD**, is Associate Director, Center for Shoulder, Elbow and Sports Medicine at NewYork-Presbyterian/Columbia, and is Assistant Professor of Orthopaedic Surgery at Columbia University College of Physicians and Surgeons. E-mail: [tb211@columbia.edu](mailto:tb211@columbia.edu).

---

**William N. Levine, MD**, is Chief, Sports Medicine Service and Associate Attending in Orthopaedic Surgery at NewYork-Presbyterian/Columbia, and is Associate Professor of Clinical Orthopaedic Surgery at Columbia University College of Physicians and Surgeons. E-mail: [wnl1@columbia.edu](mailto:wnl1@columbia.edu).

## Researchers Seek to Optimize the Treatment of Hip Fractures in the Elderly

In recent years, physicians at centers across the country involved in the treatment of displaced femoral neck fractures have moved from traditional hemiarthroplasty to total hip arthroplasty, seeking improved outcomes. Now, a randomized, multicenter study called DFACTO (Displaced Femoral Arthroplasty Consortium for Treatment and Outcomes), led by Columbia investigators at NewYork-Presbyterian Hospital, is seeking to determine whether total hip arthroplasty is indeed the better surgical option. Pain, function and quality of life are among the outcomes being measured over a 24-month period. Economic and cost analyses are also being conducted.

"Based on a poll taken in 2003, the [percentage] of hip surgeons who have switched to total joint arthroplasty has surpassed 10 percent and is continuing to rise," noted William Macaulay, MD, principal investigator of the trial. "The preference over hemiarthroplasty is based on the observation that patients seem to have less pain and stiffness, and require fewer reoperations. The goal of DFACTO is to evaluate this clinical impression systematically."

In the study, investigators at a minimum of six sites will randomize 300 patients with a unilateral Garden III or IV femoral neck fracture to hemiarthroplasty or total hip arthroplasty. Although Columbia researchers at NewYork-Presbyterian Hospital are leading the trial, a variety of participating centers have been recruited to evaluate the procedures in several different types of settings. Patients older than age 50 who are active and



Anterior Posterior Radiograph of the pelvis demonstrating a right total hip replacement.

ambulatory are eligible. Exclusion criteria include a diagnosis of dementia, residence in a nursing home, other complicating fractures and significant preexisting hip arthritis.

The study is timely. Because of the aging population and rising prevalence of osteoporosis in the United States, the incidence of displaced femoral neck fractures is expected to increase dramatically during the next several decades.

"Hemiarthroplasty has been the standard, but over the last decade, its effectiveness relative to total hip arthroplasty has been brought into question," Dr. Macaulay explained.

Many surgeons experienced with hemiarthroplasty and total hip arthroplasty are confident that the total hip procedure provides a better result, but the problem the DFACTO trial faces is the two-year follow-up. Although Dr. Macaulay anticipates an ability to demonstrate an advantage for the total joint procedure in regard to minimizing pain and improving function,

the more important outcome for third-party payers and Medicare may be reduced cost, which is most likely to be demonstrated if hemiarthroplasty increases the need for reoperation. Conversions to total hip replacement may be required if the patient remains active and arthritis develops secondary to the prosthetic.

"In my opinion, total hip arthroplasty will become the operation of choice for active, healthy, elderly patients," said Christopher Michelsen, MD.

DFACTO will collect information on operating time, length of hospital stay, cost of the prosthesis and length of rehabilitation, which will make it possible to place differences in functionality and quality of life into a cost context. At the very least, the prospective collection of data from a randomized trial should provide an objective assessment of a controversial issue that is now based on expert opinion.

"We have demonstrated the feasibility of this project based on the successful collection of pilot data, and I think the importance of the results as a public health issue is well understood by those who control funding and health care policy at a national level," noted Dr. Macaulay. "Our hypothesis is that the costs of total hip arthroplasty will be no greater than those of hemiarthroplasty when assessed accurately. If the study shows that total hip arthroplasty results in significantly superior functional outcomes at 24 months, this approach has the potential to become the new standard."

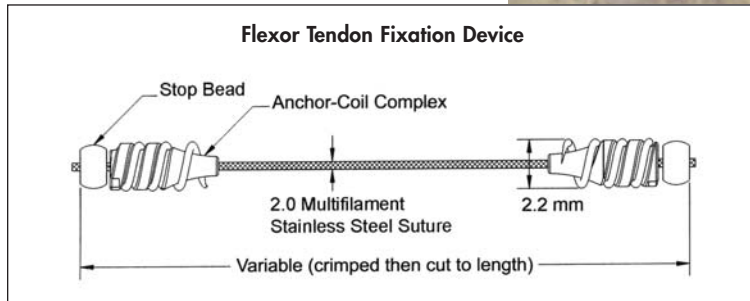
---

**William Macaulay, MD**, is Director, Center for Hip and Knee Replacement and Associate Attending in Orthopaedic Surgery at NewYork-Presbyterian/Columbia, and is Associate Professor of Clinical Orthopaedic Surgery at Columbia University College of Physicians and Surgeons. E-mail: [wm143@columbia.edu](mailto:wm143@columbia.edu).

---

**Christopher Michelsen, MD**, is Attending in Orthopaedic Surgery at NewYork-Presbyterian/Columbia, Chief, Orthopaedic Surgery at The Allen Pavilion of NewYork-Presbyterian Hospital, and is Professor of Clinical Orthopaedic Surgery at Columbia University College of Physicians and Surgeons. E-mail: [cbm1@columbia.edu](mailto:cbm1@columbia.edu).

It grasps the tendon ends in a different and very secure way, and it is proving very effective,” said Melvin Rosenwasser, MD. He noted that although the original concept was not developed at NewYork-Presbyterian Hospital, he and others conducted much of the basic science and experimental studies that have brought the flexor tendon repair device to the clinical arena.



Stainless steel teno fix device imbedded within the flexor tendon.

The most significant feature of the flexor tendon repair device is that it employs stainless steel sutures to provide increased strength relative to conventional sutures. In addition, the device anchors the steel sutures without knot tying, making repairs easier to perform and reproducible. Several published studies have evaluated its biomechanical features in experimental models, and a clinical trial comparing it to a conventional technique has confirmed a high degree of reliability. These have recently been published in the *Journal of Hand Surgery* and the *Journal of Bone and Joint Surgery*.

“The difference was striking. There were eight ruptures during follow-up in the group receiving conventional suture, but none in those treated with the tendon fixation device,” Dr. Rosenwasser noted.

In the wrist, the effort to identify the most effective means of repairing fractures in elderly patients with osteoporosis has led to a prospective, randomized trial. In this study, internal fixation with anatomically designed locking plates and screws are being compared to traditional external fixation, which employs

percutaneous pins to maintain stability during healing. Although specific treatment protocols differ, both of these accepted approaches are in widespread use. The trial will compare both objective and subjective criteria and functional outcome to help guide the decision making for doctor and patient.

“There have been several pendulum swings over the years regarding external and internal fixation. Right now, the trend seems to be toward an internal approach, but it will be useful to perform a direct comparison. It is difficult to evaluate these procedures across studies when patient populations may differ or variables other than fixation may affect outcome,” said Robert J. Strauch, MD. “There are a number of effective therapeutic options for treating wrist fractures in the elderly, but it would be helpful to have a better idea of their relative advantages and disadvantages.”

In the elbow, Columbia investigators at NewYork-Presbyterian Hospital have been leaders in evaluating the role of botulinum toxin injections to accelerate rehabilitation in patients with flexion contractures of the

elbow. Widely used as an antispastic treatment in cerebral palsy, botulinum toxin is a paralytic agent that temporarily produces muscle relaxation primarily through blockade of acetylcholine. Relaxation of facial muscles is the mechanism by which botulinum toxin temporarily reverses wrinkles when used as a cosmetic agent. In patients with stiff elbow after trauma, botulinum toxin injections have been found effective in enhancing and accelerating a return to functional mobility.

“A lot of strategies have been used in the past, such as stretching and splints, but these can be painful and are often not terribly effective,” Dr. Rosenwasser noted. “The botulinum toxin injections, which were used first at our center for this indication, can be of tremendous benefit, and it has led to a lot of interest in other major teaching centers in the United States and abroad.”

The relaxation achieved with botulinum toxin is temporary, but it facilitates the rehabilitation that is so difficult to achieve when muscles have increased flexor tone. This allows an aggressive rehabilitation protocol to rapidly increase the functional arc for

see *Hand and Joint Surgery*, page 8

## Hand and Joint Surgery

continued from page 7

extension, which is traditionally difficult, and also in flexion. By the time the effects wear off, the elbow motion is increased and at a faster rate than through traditional splinting techniques. Dr. Strauch, who also has had experience injecting botulinum toxin for this indication, characterized results so far as “very encouraging.” He indicated that it is the type of innovation that can provide an incremental but clinically significant improvement in patient care and change the paradigm of expectation and outcome.

Importantly, the goal is not only innovation, but significant validation studies of outcome. Recently, Drs. Strauch and Rosenwasser completed a study comparing injection of hyaluronic acid, steroids or placebo in patients with osteoarthritis of the basal thumb joint. This is a common problem that can be highly debilitating because of

the critical role of the thumb in much of human activity. Osteoarthritis of this joint has no prevention or cure save surgery at its most advanced

---

**“The difference was striking. There were eight ruptures during follow-up in the group receiving conventional suture, but none in those treated with the tendon fixation device.”**

— Melvin Rosenwasser, MD

---

stages. The use of hyaluronic viscosupplementation demonstrated a delayed but significant effect at six months

compared to the early, at one month, but transient effect of traditional corticosteroid.

Noted Dr. Strauch, “None of the differences were significant for the outcomes we evaluated, but the trends may be useful in considering where to take this area of study.” It is the type of study with level 1 evidence based medicine which will help guide the treatments of the 21st century.

---

Melvin P. Rosenwasser, MD, is Director, Hand and Orthopaedic Trauma Services at NewYork-Presbyterian/Columbia, and is Robert E. Carroll Professor of Orthopaedic Surgery at Columbia University College of Physicians and Surgeons. E-mail: mpr2@columbia.edu.

---

Robert J. Strauch, MD, is Associate Attending Orthopaedic Surgeon at NewYork-Presbyterian/Columbia, and is Associate Professor of Clinical Orthopaedic Surgery at Columbia University College of Physicians and Surgeons. E-mail: rjs8@columbia.edu.

---

SERVICE LINE ADMINISTRATOR **Tina Stimpson, 627 West 165th Street, New York, NY 10032**  
**212.342.4397** E-mail [tstimpso@nyp.org](mailto:tstimpso@nyp.org)

Fall 2005

NewYork-Presbyterian Hospital  
622 West 168th Street  
New York, NY 10032

**Important news  
from NewYork-  
Presbyterian/Columbia  
Orthopaedics, at the  
forefront of research  
and practice in the  
diagnosis, treatment  
and rehabilitation  
of musculoskeletal  
conditions in adults  
and children.**

Non-profit Org. U.S. Postage PAID Permit No. 448 Effingham, IL
--