

A newsletter by the University Orthopaedics, Hand & Reconstructive Microsurgery Cluster
National University Health System

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ARTHROSCOPIC TREATMENT FOR SPORTS INJURIES OF THE ANKLE

Contributed by Dr Tan Ken Jin, Associate Consultant, Division of Sports Medicine

ANKLE INJURIES AND THEIR CAUSES

With the recent emphasis on exercise and a healthy lifestyle in Singapore, an ever increasing number of Singaporeans are participating in sports both on a recreational and a competitive level. Ankle injuries or sprains are one of the most common injuries sustained while playing sports of any kind.

Popular sports in Singapore include soccer, netball, basketball, tennis, athletics and watersports. These sports are all associated with a high incidence of ankle injuries. It is no wonder that ankle injuries are a very common reason for visits to the emergency department and to the orthopaedic outpatient clinic.

The majority of ankle injuries are simple sprains of the ankle ligaments and are not serious. These recover quickly with a short period of rest, ice, compression and elevation, commonly known as 'RICE' therapy. However, persistent symptoms of pain and swelling or repeated subsequent episodes of ankle sprains or 'giving way' should prompt a visit to the orthopaedic clinic for further evaluation.

PERSISTENT SYMPTOMS AFTER AN ANKLE 'SPRAIN'

Some of the more serious underlying causes of persistent pain after an ankle injury include ankle impingement and osteochondral injuries.

1. ANKLE IMPINGEMENT

Impingement refers to a condition where either soft-tissue or bony outgrowths come into contact and 'jam' in between the surfaces of the joint during certain movements. The scar-like soft tissue or growth of bony spurs along the rim of the joint occurs as a result of repeated prior ankle injuries or sprains. Patients will usually have ankle pain that occurs when the joint is brought into a dorsiflexion position i.e. when the foot is brought upwards towards the leg. This can make climbing or descending stairs as well as squatting and playing sports painful.

2. OSTEOCHONDRAL INJURIES

These are injuries to the cartilage of the joint together with the underlying bone. They can cause ankle pain acutely after a single episode of ankle injury or chronically after multiple episodes of ankle sprains. They usually cause deep ankle pain that is 'all over the ankle' and not well localised.

ARTHROSCOPIC TREATMENT

Previously, many of these injuries have been detected late as they may be difficult to diagnose. If treated, they would also require formal surgical incisions or 'open surgery' to address. Quite frequently, the lesions may be in a difficult location and may require either an open surgical approach with or without an osteotomy which involves sawing or cutting through the bone around the ankle joint to treat.

More recently, we are able to diagnose such injuries earlier due to increasing awareness and also better imaging modalities such as CT scans and MRI scans. Also, advances in arthroscopic or 'key hole' surgery has allowed many of such injuries to be treated via a minimally invasive approach, avoiding open surgical incisions and cutting of the bone around the ankle joint. This minimises the damage to surrounding tissues which decreases post-operative pain and allows a faster rehabilitative period and rapid recovery from surgery.



Figure 1, showing the view of an ankle joint during arthroscopy for anterior bony impingement. The white surface is the talar dome or the surface of the lower bone of the ankle joint. The irregular bony outgrowth from the upper surface is the abnormal bone spur that causes anterior bony impingement. The patient had repeated episodes of pain on dorsiflexion of the ankle joint that did not respond to conservative treatment.



Figure 2, showing the same ankle joint after the abnormal bone spurs have been removed arthroscopically, showing a smooth upper rim of the ankle joint.

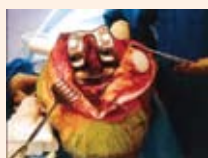
Revision Total Knee Replacement

Contributed by Dr Lingaraj Krishnan, Consultant, Division of Adult Reconstructive Surgery

Primary total knee replacements are being carried out with increasing frequency in Singapore. This can be attributed to the ageing population and the increasing prevalence of degenerative knee conditions. The increase in primary total knee replacements will invariably lead to a corresponding increase in the number of revision knee replacements. In fact, the Australian Joint Replacement Registry documents a cumulative revision rate of 4% within 7 years' follow-up of primary total knee replacements.

Revision total knee replacements can be defined as the replacement of the tibial and/or femoral components of a knee replacement. The most common indications for revision surgery include loosening, infection and polyethylene wear. These patients usually present with pain, and have to undergo a careful clinical evaluation to determine the cause of their pain. This is important because revision surgery for unexplained pain has been shown to yield poor results.

Specialized radiological, microbiological and laboratory investigations are often required for an accurate diagnosis, particularly in the presence of infection. Revision total knee replacement requires meticulous pre-operative planning. This involves consideration of the intended surgical approach and the special extraction tools that may be needed. A wide array of reconstructive implants and bone grafts will also need to be catered for. This is so that all eventualities at surgery can be dealt with effectively.



Adequate exposure is needed before the failed implants are removed.



Specialized implants made out of tantalum have been developed to deal with cases of severe bone loss. Tantalum is a unique metallic compound, that has a structure similar to human bone.

The challenges of revision total knee replacement are multiple. Firstly, the skin condition may be compromised by previous surgery and may require the involvement of a plastic reconstructive surgeon. Secondly, removal of the failed components can be difficult and must be done carefully, so that the patient's bone is not damaged further. The third major problem is bone loss, and this may require a combination of bone grafts, bone substitutes and specialized prosthetic components for adequate reconstruction. Indeed new biomaterials have been developed to specifically deal with this problem. These include tantalum, which is a metallic compound that duplicates the unique micro-architecture of bone.

The Department of Orthopaedic Surgery at NUHS provides a comprehensive revision knee replacement service. Its fellowship-trained adult reconstructive surgeons are well-versed in the complex techniques needed for this type of surgery. In addition, the Department has invested heavily in surgical instruments, tools and implants, that are the current state-of-the-art in revision knee surgery. Indeed the Department is well-placed to deal with the expected increase in the number of revision total knee replacements.

DISTAL RADIUS FRACTURES:

A COMMON WRIST INJURY. MANAGEMENT AND OVERVIEW

Contributed by Dr David MK Tan, Associate Consultant, Department of Hand & Reconstructive Microsurgery

Distal radius fractures are common injuries involving the upper limb. In terms of incidence, they rank after hand fractures as the next most commonly involved bone in fractures of the upper limb. In an epidemiological review performed at the National University Hospital from November 2009, the Hand and Reconstructive Microsurgery department managed 431 cases over a six month period. It was found in this epidemiological review that the peak incidence of these fractures was in the 50-60 year old age group. A substantial number of patients in the 30-50 year age group and the 60-70 year age group sustained these injuries as well. This injury is slightly more common amongst males than females. The National University Hospital Hand and Reconstructive Microsurgery Department manages all cases of adult distal radius fractures (i.e 16 years of age and above).

Distal radius fractures occur near the wrist joint and the fracture extends into the wrist joint in approximately half of the cases. These fractures are the most common wrist injury encountered in clinical practice when bone and ligament injuries of the wrist are considered. They are known to be associated with other bony or ligamentous injuries, namely tears of the triangular fibrocartilaginous complex and scapholunate ligament, perilunate injuries, as well as fractures of the scaphoid (figure 1.) and ulnar styloid. Away from the wrist joint, these fractures may be associated with fractures of the hand and less commonly, fractures of the forearm and proximal to that. Although uncommon, bilateral distal radius fractures can occur, and these are potentially disabling since it completely restricts the use of both upper limbs (Figure 1).

The majority of distal radius fractures occur after a low velocity injury mechanism (such as falling from a standing position, or slipping/tripping and falling on an outstretched hand) whilst higher velocity injuries account for a quarter of these injuries (usually falls during sporting injuries or falls from low heights). Forceful high velocity impacts are less common but the attendant fractures are more severe as is the potential for other associated injuries. In general, the greater the force exerted on the wrist during the fall, the greater the likelihood that the joint surface is fractured and the presence of associated injuries.



Figure 1. Bilateral distal radius fracture in 39 year old man. There is an associated scaphoid fracture on the left side as well (indicated with arrow). The patient has a radial styloid fracture on the right (third and fourth pictures)

It is well documented that distal radius fractures have the potential to cause significant disability and morbidity. In particular, intra-articular fractures of the distal radius and fractures in which the fragments are significantly displaced or multiple are the most common reason for a stiff, weak and painful wrist after the fracture has healed. Failure to recognize and adequately treat associated injuries can result in wrist joint instability, pain and arthritis. These fractures are treated by hand surgeons in the National University Hospital. Our department is well equipped for the task. There is a dedicated occupational therapy department with a specific wrist rehabilitation program which is instituted following the hand surgeon's treatment of the fracture. The advent of lightweight, sturdy and angular stable implants, coupled with the use of intra-operative fluoroscopy enables the hand surgeon to render anatomical reduction and stable fixation in patients who require operative treatment (Figure 2.).

This serves as a stable platform to commence early mobilization and strengthening and to deliver superior outcomes in patients who are indicated for surgery. Occasionally, intra-operative arthroscopy is performed as an adjunct to screen for ligament injuries of the wrist as well as to ensure restoration of anatomical joint congruity. This close attention paid to restoration of articular and extra-articular indices minimizes and staves off the onset of degenerative joint disease and preserves strength and mobility.

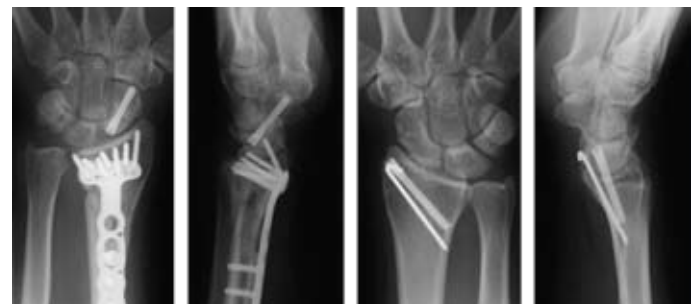


Figure 2. Fractures in same patient as figure 1, well healed at six months following reduction & stable fixation. There is restoration of anatomical alignment.

Not all patients with distal radius fractures require surgery however. In our study, 161 (41%) of the 431 fractures were deemed suitable for non-operative treatment. The decision for operative intervention is based on stringent evidenced based criteria and influenced in part by patient preference and physiological status. Suffice to say, a patient with a fall on an outstretched hand and who is shown to have or suspected of having a distal radius fracture is seen in the clinic, reassessed based on the indicative criteria and then counseled on the treatment options. Occasionally, additional x-rays are required for better visualization or CT scans or MRI scans may be ordered to visualize complex injuries or to exclude suspected ligament injuries.

Patients with distal radius fractures requiring non-operative treatment are most frequently treated with cast immobilization. A temporary plaster backslab is usually applied at the time of injury recognition (in the emergency department) and at a week from the injury, where the patient is seen in our clinic, a well padded fiberglass cast, moulded and shaped to resist fracture displacement is applied. The fiberglass cast will be required to stay on for an average of four to six weeks, depending on the fracture configuration. Patients are then referred to see the hand occupational therapist for care and mobilization of non-affected joints. This is an important element in the management of these fractures to prevent onset of complications such as frozen shoulder and stiff finger and elbow joints. Patients who have undergone surgical reduction and fixation of distal radius fractures can expect to commence early supervised mobilization under the care

and guidance of the occupational therapist (Figure 3.). Occasionally, when ligament repair or reconstruction is performed, mobilization will proceed at a more cautious pace.

For patients who have undergone surgical treatment, office workers in general can be expected to return to work 3-4 weeks after surgery, light manual workers at 6-9 weeks and manual labourers 3-4 months after surgery. This is dependent on the individual as well as the fracture characteristics. Repeat surgery following primary fixation is uncommon and is usually indicated for elective implant removal. Surgical complications are rare and surgery is usually performed under general anesthesia as a day surgical elective procedure. Patients with open fractures or nerve or vascular compromise require admission at the point of injury and are treated on an emergent basis.

The sound appreciation of distal radius fracture injuries and their associated injuries and complications, coupled with surgical expertise or outpatient cast treatment and a dedicated occupational therapy rehabilitative program allows the best delivery of care for this very common injury of the upper limb.



Figure 3. Excellent range of motion in both the affected wrists at 6 weeks after surgery. Surgical stabilization of both wrists allows independent care and activities of daily living.

TRAINING EXCELLENCE AT YOUR SERVICE

The Microsurgery Training Laboratory



The microsurgery laboratory was founded in 2001. At that time we envisioned microsurgery as a skill that a surgeon could develop if given proper and organized teaching and instruction.

Since 2007, we have been co-located with the Khoo Teck Puat Advanced Surgery Training Center (ASTC) in the Kent Ridge Wing of the hospital. We have since acquired two Leica microscopes and two more Zeiss microscopes. The Microsurgery Laboratory underwent renovations in 2009 to enhance the teaching of this skill.

The aim and purpose of the courses conducted is to teach and enable both surgical trainees and all surgeons interested in microsurgery to acquire microsurgical skills in a non-clinical setting before embarking on a career in Microsurgery.

For the year of 2008, we organized 44 microsurgical courses and trained doctors, surgeons and nurses in microsurgery. Local medical officers, surgical registrars as well as regional overseas doctors from Hong Kong, UK and Australia attended the courses.

As part of the posting in the department, all the doctors,

fellows and registrars in our department are required to go through the HRM microsurgery course. The department mandates that microsurgical training course is an integral part of our department's ethos.

In addition to microsurgery courses, the Microsurgery training laboratory has been involved in research as part of collaborative grants with other faculties in NUS, NTU and also the polytechnics in Singapore. This involves the use of rodents as the animal model.



Microsurgery as a skill is indeed available to all Surgeons interested incorporating it in their surgical repertoire. The course offered will allow for skill development and acumen in a safe and controlled environment all for the betterment of both surgeon and patient.

More information the courses can be obtained at : <http://www.nuhhrm.com/education/microsurgurycourses/>

CLINICAL EXCELLENCE AT YOUR SERVICE

INNOVATIVE HAND ELEVATOR TO PROMOTE COMFORT FOR PATIENTS WITH HAND INJURY

Project submitted by Ward 51 & Ward 52

Objective:

To design a comfortable and effective hand elevator for a proper hand elevation (Fig. 1)
To reduce the preparation time for hand elevation by 50%

Background

The purpose of a hand elevator is to provide good hand support and reduce swelling and pain for patient with hand injuries
There was no specific hand elevator, which triggered nurses to investigate better methods
In the past, nurses improvised ways to elevate hands using pillows and these methods:

Sling Methods

Use a sling secured with safety pin supported in a drip pole.
The drip stand supporting the sling and hand could topple over as the drip stand is mobile

Abduction Pillow (Fig. 2)

Tried using foot abduction pillow for hand elevation
It is too light for hand support and inadvertently moved along patient's hand movement

The above methods did not give good hand support, thus causing discomfort to patients



Fig 1. Hand Elevator



Fig 2. Abduction Pillow

Result and Cost Saving

- Eliminate the hassle of preparation as the hand elevator can be used without position and adjustment
- Nurse time spent on hand elevator preparation and adjustment has reduced by 80% from 10mins to 2mins which amounts to ~17hrs (32 patients x 4 days x 8mins per case) nursing hours saved per month (per ward)
- Received favorable feedback from user
 - From patient: "comfortable"
 - From nurses and doctors: "effective elevator", "helps to reduce the swelling", "provide good arm support"
- The new hand elevator greatly surpasses the old methods, is innovative, fits all hand sizes, and looks appealing and professional.



"Mdm Kok (Snr PSA Kok Kian Lan) is a very helpful nurse. She is caring and attentive. She took care of me for the past 2 years and I am impressed with her professionalism."
05 Oct 2009
- pt Mr Kan Kwok Toh

"Pleasant personality. Noted that he (Dr Gabriel Liu) is very patient with old patient. Gave a careful and thorough examination of my husband's problems. Indeed a caring and concern doctor in helping his patients get better."
07 Oct 2009 - pt Mr Lim Boon Howe's Wife

"Compliment Ms Nooryathi (PSA Nooryathi bte Abdul Jabbar Maricar) trying very hard to arrange for an appt.. Her courtesy & helpfulness made all the difference."
01 Dec 2009 - pt Ms Wong Ting Yeon

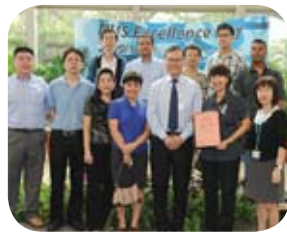
"Prof Shamal Das De for the best care & attention & expert advice, careful assessment of his patients. Most of all his kind words & assurances."
02 Dec 2009 - pt Mdm Suppiah Asha Devi

Had to say a big "Thank You" to all the staffs & doctors who have attended for TKR on 01/10. The staff at clinic level 3 (SOC) have been fantastic & caring. May not be the perfect patient to Dr Suresh Nathan & Dr Miguel Goh. Really appreciate all your help & kindness, keep up the good work
08 Dec 2009 - pt Ms Surindar Kaur

CONTACT US	Orthopaedic Surgery, Hand & Reconstructive Microsurgery Clinic	Clinic B	University Spine Centre	Scoliosis Specialist Clinic
Appointment Line		(65) 6772 2002		(65) 6536 9859
Enquiries Line	(65) 6772 2100	(65) 6772 5401	(65) 6772 2200	(65) 6536 9859
Fax		(65) 6773 4913		(65) 6536 2357
Email	ortho_enquiries@nuhs.edu.sg		spine_enquiries@nuhs.edu.sg	
Operating Hours	Mondays to Fridays: 8.30am – 5.30pm Saturdays / Sundays / Public Holidays Closed			

CLINICAL EXCELLENCE AT YOUR SERVICE

AWARDS AND ACCREDITATIONS



NUS Excellence Day 2009/2010 held on 11 Mar 2010 at University Cultural Centre with Annual Safety & Health Performance Award "ASHPA" (MERIT WITH COMMENDATION AWARD) to Department of Orthopaedic Surgery for the period of 01 April 2009 to 28 February 2010

Long Service Award 2009 (20 Years)



held on 07 Oct 2009 from CEO during the Stars@NUH & Active Month

Rahimah Bte Bahri, Nurse Manager Ward 54, Nursing Administration, NUH UOHC

GEMS Award

handed out on Feb/Mar 2010 for UOHC Staffs with qualifying period of July 2009 to December 2009



Diana Ong, Senior Staff Nurse, Clinic B, NUH UOHC



Usha Devi D/O U R Menon, Senior Nurse Manager, Ward 51, NUH UOHC



Gertrude J Tan, Senior Executive Assistant, Ops and Admin, NUH UOHC



Rohaizah Binte Samad, Nurse Manager, Ward 51, NUH UOHC



Farhana Binte Salim, Staff Nurse, Ward 54 Ortho/Resp, NUH UOHC



Low Kin Koong, Nurse Manager, NUH Major Operating Theatre, UOHC



Chan Sui Hua, Staff Nurse, Ward 54 Ortho/Resp, NUH UOHC



Lee Siew Yong, Senior Staff Nurse, Ward 1, Westpoint Hospital, UOHC

EVENTS AT UNIVERSITY ORTHOPAEDIC, HAND & RECONSTRUCTIVE MICROSURGERY CLUSTER (UOHC)

UOHC CLUSTER RETREAT 2009 ON 03 OCT 2009



In attendance, we have Prof Wong Hee Kit (Chair, UOHC), Heads of Division & Clinicians such as Prof K Satku, Prof Lee Eng Hin, A/Prof Aymeric Lim, Prof Shamal Das De, Prof V Prem Kumar, Prof James Goh, A/Prof James Hui and Dr Joseph Thambiah who had provided valuable inputs on our future plans during the Cluster Retreat

UOHC BI-ANNUAL DINNER - CASINO NIGHT HELD ON 17 FEB 2010



First installment duet by Prof Das De and Dr Murphy after much cheering.



L-R: Dr Amit, Dr YP Peng (Head, HRM), A/Prof Aymeric Lim (CMB, NUH), Prof Wong Hee Kit (Chair, UOHC), A/Prof Benjamin Ong (CE, NUHS), A/Prof James Hui (Head, Paeds Ortho)



Prof Wong Hee Kit (Chair, UOHC) singing Mama Mia

2010 NHGP CME Lunch Talks by UOHC (Time: 1 - 2pm)

Speaker	Division	Topics	NHG Polyclinic	Preferred Day / Date
A/Prof Hee Hwan Tak	Spine	New Available treatments for back pain	Clementi Polyclinic	Thu / 18 Mar
A/Prof Naresh Kumar	Spine	New treatments for Low Back Pain	Jurong Polyclinic	Fri / 21 May
Dr Lingaraj Krishna	AR	OA Knee	Woodlands Polyclinic	Tue / 21 Sep
Dr Andrea Cheah	HRM	Hand wrist pain	Bukit Batok Polyclinic	Wed / 27 Oct
Dr Tan Chyn Hong	SM	Common ankle / foot / knee pain other than Osteoarthritis	Ang Mo Kio Polyclinic	Thu / 2 Dec
A/Prof Naresh Kumar	Spine	New treatments for Low Back Pain	Toa Payoh Polyclinic	Wed / 8 Dec