



ISSUE 09 | SUMMER 2012

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**AOA**  
AUSTRALIAN  
ORTHOPAEDIC  
ASSOCIATION

## WHO ARE WE?

Orthosports is a professional association of Orthopaedic Surgeons based in Sydney.

We specialise in joint replacement, arthroscopic and reconstructive surgery.

Orthosports also includes a team of Sport & Exercise Medicine Physicians who are dedicated to promoting excellence in the treatment of musculoskeletal disorders in both adults and children.

Our team of surgeons has particular expertise in hip and knee replacement, ACL Reconstruction, knee and shoulder arthroscopy, open shoulder surgery, trauma, foot and ankle surgery, fracture management, paediatrics and many subspecialist procedures.

All of our practices are conveniently located next to physiotherapy, x-ray and imaging facilities.

Our mission is to have the facilities to offer everything our patients may need but also to be small enough to look after the little details that make all the difference to patient care.

## OUR WEBSITE IS YOUR ORTHOPAEDIC RESOURCE

If you haven't visited our website recently, please take the time to visit and take a look around. It contains descriptions of many common surgical conditions and procedures as well as lectures, animations and videos of lectures given by our surgeons and sports physicians over recent years.

[www.orthosports.com.au](http://www.orthosports.com.au)

## Welcome to our Summer edition of Orthosports News

In this newsletter Dr John Negrine wraps up our series on examination of the foot. An interesting article on MCL injuries can be found on page 2 written by Dr Doron Sher and Dr Kwan Yeoh looks at Triangular Fibrocartilage Complex Injuries. We wish you all the best for summer and the Festive season ahead. **The Team at Orthosports**

## Triangular fibrocartilage complex (TFCC) injuries



With summer upon us, more and more people are hopping onto their bikes and taking to the streets, bike paths, firetrails and singletracks. A fall from a bike onto an outstretched hand with the wrist extended and pronated can cause ongoing ulnar-sided wrist symptoms in the absence of a demonstrable fracture or dislocation. In these situations, an injury to the triangular fibrocartilage complex (TFCC) should be considered. TFCC tears are also found in conjunction with up to 80% of distal radius fractures.

Patients will present with ulnar-sided wrist pain, sometimes with crepitus, clicking, weakness or a sense of wrist instability. On examination, there will be focal tenderness over the TFCC and pain on hypersupination, DRUJ loading and ulnocarpal stressing.

### WHAT IS THE TFCC AND HOW ARE INJURIES CLASSIFIED?

The TFCC is located on the ulnar side of the wrist. It consists of the fibrocartilage articular disc and several ligaments that help stabilise the distal radioulnar joint (DRUJ) and the ulnocarpal joint. Together, they provide a firm support that transmits axial force across the ulnocarpal joint and allow forearm rotation. TFCC injuries are broadly classified as either acute (Palmer Class I) or chronic (Palmer Class II).

### HOW ARE ACUTE TFCC TEARS TREATED?

Treatment for acute TFCC injury with DRUJ instability is geared mainly towards the DRUJ instability. This could be immobilisation in a long-arm cast in full supination or pronation, or may involve temporary cross-pinning of the distal ulna and radius. For TFCC tears associated with a stable DRUJ, non-surgical

management includes temporary splints, non-steroidal anti-inflammatory drugs, physiotherapy, and corticosteroid injection. This may allow tears to become asymptomatic despite not healing.

If symptoms continue after three months of non-operative management, surgery should be considered. The surgical options include repair or debridement, ulnar shortening, and various types of partial ulnar head resection. Some of these procedures can be done arthroscopically and almost all require a period of post-operative immobilisation.



*Acute foveal TFCC tear. The articular disc (yellow arrow) has detached from its foveal attachment (green arrow) and there is underlying oedema in the distal ulna.*

### WHAT ARE THE OUTCOMES LIKE AFTER SURGERY?

Post-operative outcomes depend on the type of tear and surgery involved. Debridement of acute central tears gives 70-80% of patients complete relief of pain. Repair of peripheral TFCC tears within three months of injury give 60-90% good-excellent results, with good return of grip strength and range of motion, but delayed repairs give less predictable results.

### KEY POINTS

- TFCC tears can be acute or chronic.
- Ensuring DRUJ stability is vital in the early management of acute injuries. This may require operative fixation.
- Non-surgical management includes splints, anti-inflammatory drugs, physiotherapy and injection.
- Surgery should be considered three months after non-surgical management of acute tears if pain continues.
- Good-excellent outcomes range from 60% to 90% depending on the type of tear and surgery performed.

Dr Kwan Yeoh – Hand and Upper Limb Surgeon

# MCL injuries

MCL injuries are common. There are two main mechanisms that produce isolated MCL injuries.

1) The most common injury is a direct valgus stress with a blow to the outside of the thigh or leg while the foot is planted. This is usually from a contact sport such as football and rugby and does not usually produce much tibial rotation or translation.

2) The second injury pattern involves a valgus stress coupled with tibial external rotation. This is usually from non contact sports that require cutting and pivoting (skiing, netball, basketball and soccer).

**It is very common for more than one structure to be damaged with a high-energy injury.**

## CLASSIFICATION

**Grade I** injury indicates a microscopic tear of the superficial and deep MCL with no resultant instability or laxity.

**Grade II** injury is an incomplete tear with microscopic and gross disruption of fibers of the superficial or deep MCL. These knees will have a definite endpoint to valgus stressing at 300 of flexion but may have 5° to 15° of valgus instability. There is no instability in extension and no rotational instability.

**Grade III** injury is a complete tear of the MCL complex. Valgus stress at 30° shows more than 15° of instability and there may be instability in full extension or rotational instability. There is a loss of the valgus endpoint.

Grading is based on clinical examination but a plain xray should always be ordered to exclude a fracture. MCL injuries are elegantly demonstrated on MRI but this doesn't help in making treatment decisions.

## EXAMINATION

Stability to valgus stress of the knee is an accurate and reliable assessment of MCL stability however an acutely injured knee is extremely difficult to examine accurately. The patient may have an effusion, lack extension or have pain that prevents their knee reaching the required degree of flexion or extension for an accurate examination. Adding to the difficulty of the examination is the presence or absence of other injuries such as the



ACL (which provides resistance to valgus stress in full extension) or posteromedial structures of the knee.

The valgus stress test is described in two parts.

In the first part the knee is kept in full extension and a valgus stress is applied by pulling on the tibia and pushing on the femur. An isolated superficial MCL injury does not give laxity. Only an injury involving the entire MCL complex or combined with an ACL tear will cause significant valgus laxity with the knee in full extension.

The second part of the test applies the same valgus stress with the knee flexed to 30°. In this position any asymmetry is considered a positive finding. Medial laxity of 3 to 5mm (compared to the other side) shows an injury to the superficial MCL and increasing laxity shows progressive injury to the posteromedial corner of the knee and the cruciate ligaments.

An isolated MCL tear should not create a joint effusion. There should be tenderness at the femoral or tibial insertion of the MCL with local oedema only. An intra-articular effusion suggests an injury to the ACL, articular cartilage or possibly a patella dislocation (MCL tenderness can occasionally be from a MPFL injury).

## CLINICAL MANAGEMENT

Traditional treatment of MCL tears was to keep the knee flexed to allow the ligament to shorten and heal. We now know that while it is important to protect the MCL from valgus stress there is no need to limit the patients ROM.

To allow adequate healing of the MCL the knee should be immobilised for one to several days (depending on symptoms and injury grade). This should be followed immediately by controlled knee flexion and extension exercises. A hinged knee brace is frequently used to stabilise the knee and provide pain relief while allowing early range of motion and muscle strengthening. Weight bearing helps the healing process but should only be done while in the brace and with adequate arm supports.

## SUMMARY

- MCL injuries are common.
- Most can be treated with a brief period of rest followed by mobilisation in a hinged brace with weight bearing as pain allows.
- Occasionally surgical repair of an MCL injury is needed.

*Dr Doron Sher  
Knee, Shoulder and Elbow Surgeon*

**Orthosports are in the process of becoming an RACGP accredited activity provider!**



Our first Category 1 module for 40 QI&CPD points will be commencing early 2013.

Please email: [education@orthosports.com.au](mailto:education@orthosports.com.au) to receive further information about our upcoming events.

# KEY EXAMINATION POINTS



## FOOT AND ANKLE EXAMINATION SERIES – PART 2

### Examination of the Midfoot and Forefoot

Orthopaedic examination is often summarised as **Look, Feel, Move, X-ray**.

The problem with this adage is “that you see what you look for and recognise what you know.”

The midfoot joints are the talo-navicular, calcaneo-cuboid, naviculo cuneiform and tarso-metatarsal joints. The forefoot includes the distal metatarsals, the metatarso-phalangeal joints and the toes.

Pathology commonly seen in the midfoot is tarso-metatarsal arthritis, stress fractures and Lisfranc (tarso-metatarsal injuries). The tendons of tibialis anterior and tibialis posterior insert into the midfoot and are subject to degenerative tears.

Pathology common to the forefoot is hallux valgus (bunions), hallux rigidus (big toe arthritis), interdigital neuroma and lesser MTP problems such as plantar plate tearing.

Examination begins with the patient standing barefoot with both lower limbs exposed from knees down. Gait is observed and then the patient is examined seated or supine specifically to palpate and assess joint movement.

**LOOK:** Observe muscle wasting, presence of scars, limb alignment, skin colour, rashes, location of swelling (see figure 1), alignment of the toes and changes in the nails. I always ask the patient to walk on



FIG 1: Observe swelling on the dorsum with obscuring of the extensor tendons

toes and on heels. Observe any weakness in plantarflexion strength (achilles rupture) or dorsiflexion strength (tibialis anterior rupture). Observe any callosities on the plantar surface, nodular swellings or corns on the toes.

**FEEL:** Palpate the dorsalis pedis pulse. Look for bony tenderness which is the cardinal sign of a fracture (and commonly stress fracture). Look for interspace tenderness whilst compressing the metatarsal heads – an important sign of neuroma. Swelling of metatarso-phalangeal joints may indicate synovitis as is seen in various arthropathies. Feel for swelling on the plantar surface (figure 2). Some swellings on the dorsal surface are obvious (figure 3). Assess sensation commonly affected by diabetes.



FIG 2: Firm swelling in the plantar fascia: Plantar fibroma



FIG 3: Dorsal foot tumour: Dermatofibrosarcoma protuberans

**MOVE:** The talo-navicular, subtalar and calcaneocuboid joints move together to rotate the hind and midfoot. The naviculo-cuneiform and first, second and third tarsometatarsal joints have very little discernable movement normally but increased mobility may indicate pathology. Pain with movement may indicate arthritis.

The metatarso-phalangeal joints have approximately 90° of movement. Restriction of movement with pain is significant. Joints with fixed deformities such as hammer toes are noted.

#### SPECIFIC PATHOLOGY:

**Tarso-metatarsal arthritis:** Presents with pain and swelling over the dorsal midfoot. Palpate osteophytes commonly over the second and third



FIG 4: Left hand holding the tarso-metatarsal joints right hand moving the metatarsal up and down provokes the pain of arthritis

joints. Moving the affected metatarsal the so-called “piano-key” sign will reproduce the patient’s pain (figure 4).

**Metatarsal stress fracture:** Observe swelling over the dorsum of the forefoot. As the metatarsals are subcutaneous palpation will often make the diagnosis when initial plain xrays are normal. The second and third metatarsals are most commonly involved being less mobile than 1, 4 and 5.

**Interdigital neuroma:** Most commonly the third webspace (between 3rd and 4th metatarsal heads). Look for webspace tenderness as well as altered sensation at the adjacent borders of the 3rd and 4th toes. Mulder’s click (feeling a click when compressing the webspace) is helpful but by no means diagnostic. Neuroma remains a clinical diagnosis despite the proliferation of MRI and ultrasound.

**Hallux rigidus:** Observe osteophytes on the dorsal metatarsal head and base of proximal phalanx. Restriction of movement in the dorso-plantar plane is diagnostic. Pain is also reproduced when moving the joint in the medio-lateral plane.



FIG 5: Observe 2nd toe not touching the ground case of plantar plate rupture

**Plantar plate tear:** Observe the second toe commonly not touching the ground (figure 5) with deviation medially. Pain is in the metatarso-phalangeal joint on the plantar surface.

Dr John Negrine, Foot and Ankle Surgeon

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# Orthopaedic Surgeons and their Interests

LOCATION	SURGEON	SPECIALTY
<b>CONCORD</b> 47-49 Burwood Road Concord NSW 2137 Tel: 02 9744 2666	Dr Todd Gothelf	Shoulder, Foot & Ankle
	Dr George Konidaris	Foot & Ankle, Hip and Knee
	Dr John Negrine	Foot & Ankle (Adult)
	Dr Rodney Pattinson	Paediatrics and General Orthopaedics
	Dr Doron Sher	Knee, Shoulder and Elbow
	Dr Kwan Yeoh	Hand, Upper Limb and General Orthopaedics
<b>HURSTVILLE</b> Medica Centre 29-31 Dora Street Hurstville NSW 2220 Tel: 02 9580 6066	Dr Jerome Goldberg	Shoulder
	Dr Todd Gothelf	Shoulder, Foot & Ankle
	Dr George Konidaris	Foot & Ankle, Hip and Knee
	Dr Andreas Loeffler	Spine, Trauma, Hip and Knee
	Dr John Negrine	Foot & Ankle (Adult)
	Dr Rodney Pattinson	Paediatrics and General Orthopaedics
	Dr Ivan Popoff	Shoulder, Knee and Elbow
	Dr Allen Turnbull	Hip and Knee
	Dr Kwan Yeoh	Hand, Upper Limb and General Orthopaedics
<b>PENRITH</b> Level 3, 1a Barber Avenue Kingswood NSW 2747 Tel: 02 4721 1865	Dr Todd Gothelf	Shoulder, Foot & Ankle
	Dr George Konidaris	Foot & Ankle, Hip and Knee
	Dr Kwan Yeoh	Hand, Upper Limb and General Orthopaedics
<b>RANDWICK</b> 160 Belmore Road Randwick NSW 2031 Tel: 02 9399 5333	Dr Jerome Goldberg	Shoulder
	Dr Todd Gothelf	Shoulder, Foot & Ankle
	Dr George Konidaris	Foot & Ankle, Hip and Knee
	Dr Andreas Loeffler	Spine, Trauma, Hip and Knee
	Dr John Negrine	Foot & Ankle (Adult)
	Dr Rodney Pattinson	Paediatrics and General Orthopaedics
	Dr Ivan Popoff	Shoulder, Knee and Elbow
	Dr Doron Sher	Knee, Shoulder and Elbow
	Dr Kwan Yeoh	Hand, Upper Limb and General Orthopaedics

## Sport & Exercise Medicine Physicians

PHYSICIAN	LOCATION	PHYSICIAN	LOCATION
Dr Paul Annett	Hurstville	Dr Mel Cusi	Concord   Hurstville   Randwick
Dr John Best	Randwick		



### Orthosports Hurstville has moved

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Ample parking is available under the building.

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