



Welcome to Orthosports News. In this issue we take a look at some common Winter Sport injuries.

Dr Todd Gothelf presents an interesting article on ankle sprains and Dr Kwan Yeoh takes a look at Skier's thumb.

In our Examination Section Dr Doron Sher covers "Imaging of the Shoulder".

Over 500 GP's have completed one or both of our 40 point Education Modules. Please see page 4 for further details.

We hope you enjoy this issue – The Team at Orthosports



WHO ARE WE?

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

ORTHOSPORTS LOCATIONS

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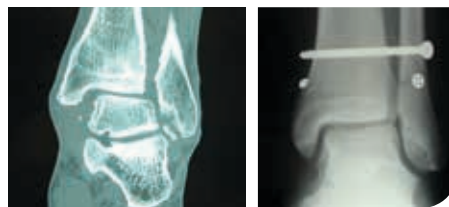
The Syndesmosis Ankle Sprain

Ankle sprains are among the most common injuries in sport.



There are generally two types of ankle sprains, the lateral ankle sprain or the syndesmosis sprain. The lateral ankle sprain is the more common type and occurs when the ankle inverts, or turns inward. The anterior talofibular ligament (ATFL) and calcaneofibular ligament (CFL) are either partially or fully torn. Regardless of the severity of injury to these ligaments, non-operative treatment usually results in stability of the ankle and return to sports in 6 weeks. Physiotherapy is recommended to encourage and restore function and to help prevent re-injury.

The syndesmosis ankle sprain occurs with a severe inversion, eversion or external rotation injury. Multiple ligaments are usually involved, including the medial deltoid ligament, and syndesmosis ligaments. The syndesmosis ligaments and deltoid ligament stabilize the tibia and fibula around the talus. When these ligaments rupture, the fibula separates from the tibia and the box containing the talus is widened. As little as 1mm of lateral displacement of the fibula has been shown to reduce the available tibiotalar contact area in weight bearing by 42%. A failure to recognize this instability can result in chronic disability and early arthrosis of the ankle.



Above left to right: CT scan of a chronic syndesmosis sprain. Notice lateral shift of the talus and increased medial clear space; Surgically fixed syndesmosis sprain. Talus is normal position, medial clear space is normal.

HISTORY AND PHYSICAL EXAMINATION

The patient may remember that the ankle twisted outward instead of inward. An inability to weight bear is generally more common with a syndesmosis ankle sprain.

Tenderness when palpating the deltoid ligament and syndesmosis ligaments indicates injury to these structures.

The squeeze test; The tibia and fibula are compressed together above the ankle joint (away from the injury); reproduction of pain at the syndesmosis indicates a high ankle sprain.

The external rotation stress test; The leg is stabilized and the foot is forced into external rotation, stressing the deltoid and syndesmosis. A reproduction of pain indicates injury to these ligaments.

INVESTIGATIONS

When suspicious for a syndesmosis injury, weight-bearing ankle radiographs of the affected side and the normal side for comparison are essential.

Widening of the syndesmosis may indicate a syndesmosis injury. An urgent MRI will demonstrate injury to the AITFL, syndesmosis ligaments.

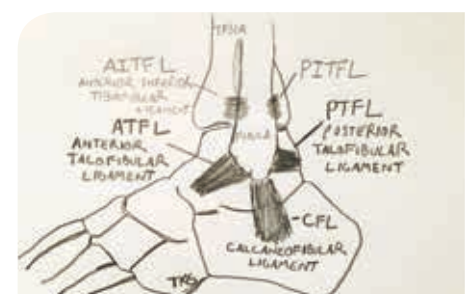
TREATMENT

Stable syndesmosis injuries can be treated non-operatively. A protective walking boot is used to allow weight bearing as tolerated. These patients must be warned of a lengthy recovery, sometimes in excess of six weeks to recover. Unstable injuries require surgical fixation to restore the anatomy and prevent the development of arthritis.

In Summary:

- The high ankle sprain involves injury to the syndesmosis ligaments and, if missed, can result in chronic disability and early ankle arthritis.
- If suspicious of a high ankle sprain, an MRI and urgent referral to an orthopaedic surgeon is essential to determine proper treatment.

Dr Todd Gothelf



Lateral Ankle Ligaments: ATFL, CFL, PITFL & Syndesmosis ligaments: AITFL, PITFL

Skier's thumb

Skier's thumb refers to a rupture of the ulnar collateral ligament (UCL) of the thumb metacarpophalangeal (MCP) joint. When chronic, this is sometimes called a gamekeeper's thumb. Skier's thumb is an acute injury caused by forceful ulnar deviation or hyperextension, sometimes caused by the ski pole during a fall. It can also occur in other sports such as football while making a tackle, having a ball come into direct contact with the thumb or falling onto an outstretched hand.



The long term problem with an untreated skier's thumb is pain and weakness. This is worst during pinch grip, where the UCL is pivotal in stabilising the thumb MCP joint.

CLINICAL FINDINGS

The injured patient will complain of pain over the ulnar side of the thumb MCP joint, perhaps with some localised swelling. There will be pain and weakness during use of the thumb, particularly during pinch grip.

Examination may show a radially deviated thumb at rest. There may be visible bruising or swelling, particularly on the ulnar side of the MCP joint.

Palpation will reveal tenderness over the ulnar side of the MCP joint. The location of the tenderness gives a clue to the location of the ligament injury. Usually, the ligament tears at its distal insertion into the proximal phalanx and this is the site of maximal tenderness. However, if the tendon has retracted or rolled back onto itself, the tenderness may be felt more proximally. In this case, the rolled tendon may be palpable as a lump.

Comparing the range of motion to the contralateral side shows flexion-extension range decreased due to pain.

Stress testing the MCP joint into radial deviation will help ascertain the stability of the joint. It is important that an X-ray is performed prior to this examination. If the X-ray shows an undisplaced avulsion fracture, then a stress test should not be performed as the fracture may displace. With the MCP flexed to about 30°, the examiner stabilises the thumb metacarpal with one hand while using the other hand to push the MCP joint into radial deviation. A complete UCL tear will normally allow 15° or greater radial deviation compared to the other thumb. The endpoint of radial deviation will be soft, rather than firm.

STENER LESION

This describes a distally torn UCL flipped up over itself, so that the distal end of the ligament is now pointing proximally. In doing so, it has allowed the aponeurosis of the thumb adductor to interpose between the UCL and its native attachment point, preventing the UCL from repairing back down. This ligament will not heal without operative intervention.

Examination of the thumb will reveal the ligament as a lump over the ulnar side of the MCP. The tenderness tends

to be more proximal where the ligament now lies, and not at the distal insertion point from where the ligament has torn.

INVESTIGATIONS

An X-ray is mandatory to look for avulsion fracture of the metacarpal or proximal phalanx. Be sure to ask for a thumb X-ray, not a hand X-ray, so that correct views are obtained.

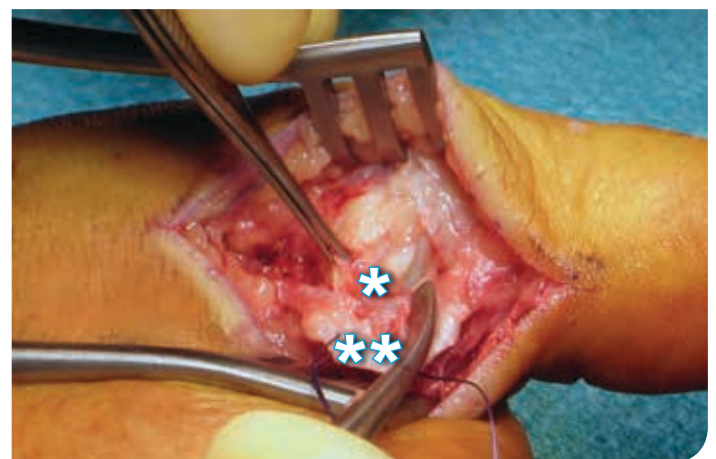
An ultrasound in good hands will allow the ligaments to be visualised and dynamically tested. An MRI will also give good visualisation of the ligaments. It is important that both these investigations are performed by a radiological centre skilled in musculoskeletal radiology.

TREATMENT

A partial UCL rupture without laxity into radial deviation can be treated in a splint for 4 weeks. Following this, gentle range of motion therapy should be started while continuing to protect in the splint for a further 2 weeks. The joint should be protected from full stress for 3 months from injury.

A complete UCL rupture with an unstable joint should be treated operatively. Surgery is likewise indicated for displaced or large avulsion fractures. If treated early enough, a direct repair of a ligament tear can be performed. However, if operative intervention is delayed greater than 3 or 4 weeks from injury, the ligament becomes more difficult to repair and reconstruction with a graft may be required.

Dr Kwan Yeoh



Intraoperative photo showing UCL remnant (*) which has avulsed from its distal insertion. The adductor aponeurosis (**) has been reflected to access the ligament.

KEY EXAMINATION POINTS



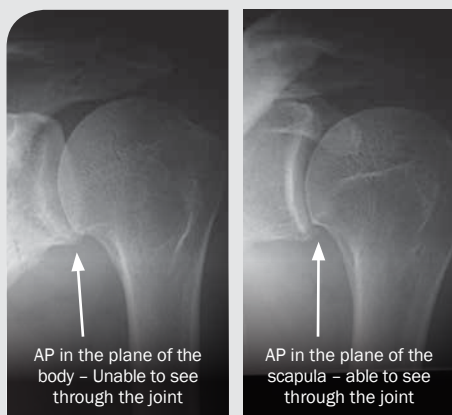
Imaging of the Shoulder

Having completed a detailed history and clinical examination we now move to imaging of the shoulder.

Plain **Xrays** are the first and most useful test to order. For a diagnosis like impingement no further investigations will be required. Xrays are useful to diagnose arthritis of the glenohumeral and acromioclavicular joint, calcific tendonitis, tumours, a hooked acromion, fractures and dislocations.

The minimum required views are:

- 1) **AP in the plane of the scapula** (If the xray is taken in the plane of the body you will not see through the joint and may miss a dislocation or arthritis of the joint)
- 2) **Lateral**
- 3) **Axillary lateral** (most useful for instability and arthritis)
- 4) **Supraspinatus outlet view** (looking for a hooked acromion)

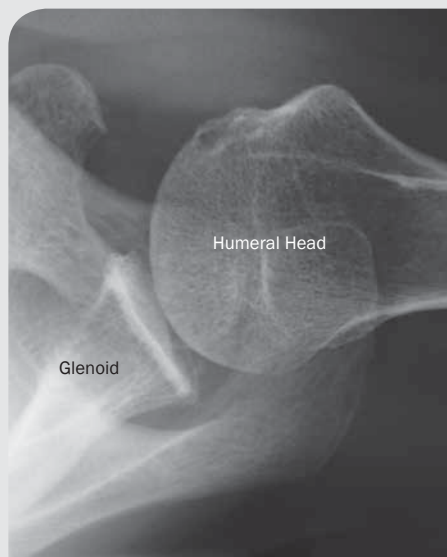


Not true AP X-ray

True AP X-ray



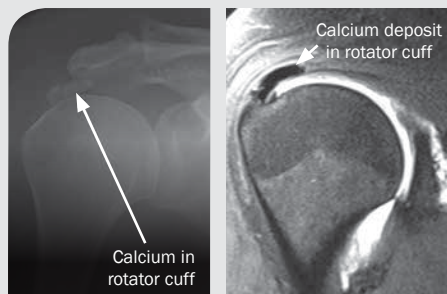
True AP showing osteoarthritis



Axillary Lateral

If the AC joint is tender then this must be specified on the request form as the AC joint is not well visualized on the above images (A Zanca view will show the AC joint nicely but just write xray AC joint on the request form).

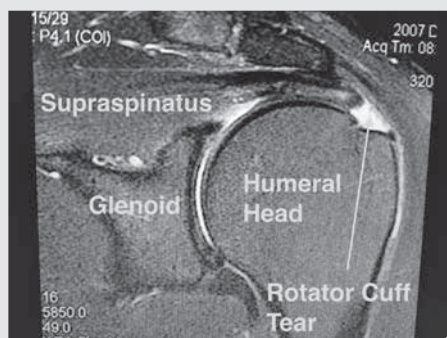
In impingement Xrays are often normal. Calcium will be seen deposited in the supraspinatus with calcific tendonitis. Further imaging is generally not required to diagnose and treat many shoulder conditions as seen in the images below.



Calcific tendonitis

MRI Labelled calcific tendonitis

If a rotator cuff tear or instability is suspected then the test needed is an **MRI** arthrogram. An MRI without the arthrogram will miss up to 10% of injuries.



MRI Rotator cuff tear

CT scanning shows the bones of the shoulder beautifully and is very useful when a fracture is suspected. This is the investigation of choice for bone loss in chronic instability and injury to the sternoclavicular joint. Surgical planning for shoulder replacement can be done on CT or MRI.



3d CT of glenoid showing bony bankart

Unfortunately **Ultrasound** is almost useless for shoulder conditions. It may be able to tell you if there is a rotator cuff tear (even this is debatable) but it gives you no information about the quality of the tendon, the degree of fatty infiltration of the muscle, the presence of arthritis in the joint and the chronicity of the condition. An MRI scan will always be required when deciding on surgical treatment so the ultrasound is usually a waste of the patient's time and money.

Bone scan is rarely used for shoulder and a labelled white cell scan is only used when looking for infection.

SUMMARY:

- Every shoulder should be xrayed before making a diagnosis and initiating treatment.
- Ultrasound generally should not be performed
- CT scanning is best for fractures
- MRI Arthrogram is the investigation of choice for soft tissue injuries around the shoulder if the xrays are normal.

Dr Doron Sher

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"I was very impressed by both the online and face to face components and found it very useful in updating my knowledge."

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