ORTHOSPORTS



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Welcome to the Spring edition of Orthosports news.

In this issue Dr Ivan Popoff discusses Posterior Interosseuous Nerve Entrapment on page 1.

Dr Todd Gothelf presents an interesting article on calcific tendonitis and Dr Doron Sher concludes the knee examination series on page 3.

The 2017 Latest Orthopaedic Updates take place at UNSW, 4th November. Please see page 4 for further information.

- The Team at Orthosports

Posterior Interosseous Nerve Entrapment/ Radial Tunnel Syndrome

Entrapment of the posterior interosseous nerve (PIN) is the third most common nerve compression

syndrome affecting the forearm, behind carpel tunnel syndrome (median nerve) and cubital tunnel syndrome (ulna nerve). It is commonly seen in people performing repetitive tasks such as baristas, keyboard/ mouse operators and assembly workers.

The radial nerve divides at the elbow into superficial and deep branches. The deep branch is the posterior interosseous nerve which curves around the radial neck entering the deep posterior lateral aspect of the forearm before entering the supinator muscle under a fibrous arch known as the arcade of Frohse. It runs though the supinator muscle, dividing into its terminal motor branches as soon as its exits. It is within the supinator that it is usually compressed. The motor supply is to the wrist extensors (except extensor carpi radialis longus), the finger extensors, extensor pollicis longus and brevis, abductor pollicis longus and the supinator.

The sensory supply is to the dorsal wrist only, there is no supply to the skin.

Entrapment usually occurs with repetitive activities and concurrent hypertrophy of the supinator muscle leading to a slowly progressive compression of the nerve. Although occasionally there can be other causes such a ganglion from the proximal radio-ulna joint.

The patient usually complains of pain in the posterior-lateral aspect of the forearm and because of this the syndrome is often confused with lateral epicondylitis. The pain in PIN entrapment however is more distal over the radial tunnel (P on image 1)



Image 1



Image 2: Dissecting the posterior interosseous nerve free of the supinator muscle

rather than over the common extensor origin (L on image 1). Also pain in lateral epicondylitis is exacerbated by resisted wrist and middle finger extension where as PIN nerve entrapment is not.



WHO ARE WE?

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

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www.orthosports.com.au				
Or visit our website				
>	Randwick	02	9399	5333
>	Penrith	02	4721	7799
>	Hurstville	02	9580	6066
>	Concord	02	9744	2666

To confuse things further they can coexist.

The pain is initially intermittent associated with repetitive activity and over time may become constant and more neuralgic in nature. Occasionally patients complain of dorsal wrist pain and exacerbation with resisted supination. They are generally tender over the radial tunnel. Muscular weakness only occurs late in the syndrome.

Because there is no associated paresthesia diagnosis is often difficult.

Nerve conductions studies and MRI scans are helpful if they are positive but a negative result (which is common) on either or both of theses modalities does not exclude the diagnosis.

The most accurate diagnostic modality is relief of symptoms (even temporarily) with an ultra sound guided injection of local anaesthetic and cortico- steroid into the radial tunnel by a skilled radiologist.

If symptoms recur after injection the patient is best treated by release of the nerve from the supinator (refer image 2).

Dr Ivan Popoff

Calcific Tendonitis

Calcific tendonitis is a less common cause of shoulder pain.

It is a self-limiting condition where a portion of the rotator cuff tendons calcifies and then over time spontaneously absorbs. Patients often present with a traumatic intense shoulder pain that may mimic an infection. Once the diagnosis is made with a simple x-ray, patients can be reassured that this condition resolves completely on its own, and is easily managed non-operatively in most cases.

Calcific Tendinitis typically occurs in patients aged 30 to 60 years. Studies have shown a possible relationship with hormonal abnormalities yet the cause of this condition is unknown. As the condition progresses through stages of forming a calcified lesion and then resorption and resolution of the lesion, patients can present with pain at any time during these stages.

STAGES OF CALCIFIC TENDONITIS:

There are three main stages that occur with calcification: precalcific, calcific, and postcalcific. In the precalcific phase the tendon cells transform into cartilage cells. The calcific stage can be subdivided into three phases: formative, resting, and resorptive.

Formative phase: calcium crystals are deposited into the tendon. During this phase the lesion is a chalk-like material. In the resting phase, the deposition of calcium stops and the lesion remains inactive. Pain that occurs during this phase is mild.

Resorptive phase: begins when the lesion spontaneously begins to resorb. The creamy, toothpaste like material is under pressure. Pain can be spontaneous and very severe, causing difficulty sleeping at night and rest pain. On radiographs, the lesion may look fluffy and more ill-defined. The intense pain occurs when the lesion causes pressure and exudes into the subacromial space, causing bursitis and inflammation.



From left to right: AP x-ray of calcific tendinitis of the suprasinatus in the resting phase. Note the homogeneous nature and well defined margins; AP x-ray of calcific tendinitis in the resorption phase. Note the fluffy nature with less well-defined edges; and MRI demonstrating calcific tendinitis of the infraspinatus.

INVESTIGATIONS:

- X-rays will demonstrate calcium deposits and are diagnostic. Initial radiographs should include AP and Y views in the scapular plane, as well as an axillary view.
- MRI can be helpful to look for other pathology, such as rotator cuff tears, especially when other pathology is suspected to be causing symptoms.
- Ultrasound can be useful in identifying the presence and location of deposits.

MANAGEMENT:

Initial treatment should be non-surgical, consisting of NSAIDs, physical therapy, and corticosteroid injections. This treatment has been shown to be successful 73% of the time.

Subacromial cortisone injection is very effective in reducing the intense pain. Injections and NSAIDS are often all that is needed to manage the pain until the lesion fully resorbs by its natural process. Alternative options to assist in removing the lesion include ultrasound guided needle lavage (UGNL), extracorporeal shock-wave therapy (ESWT), and surgery.

Ultrasound guided Needle Lavage: A subacromial injection of cortisone and anaesthetic is given, and then a large bore needle is introduced into the lesion with a lignocaine saline mixture. The syringe is pulsated to loosen the calcification, and then the fluid and lesion particles are removed. The procedure helps to break up the lesion and may assist resorption. The procedure can be repeated in six weeks.

Extracorporeal Shock-Wave Therapy:

ESWT involves the use of a monophasic pressure pulse to affect a local injury to the tendon. ESWT has recently become a popular treatment for calcific tendinitis of the shoulder, although there is only moderate evidence in the literature supporting its use.

Surgery: Surgery is usually effective during the formative phase when non-operative therapies have failed to help symptoms. During the resorptive phase, natural mechanisms usually succeed in removing the deposit, and surgery is rarely indicated. With arthroscopy, the lesion is identified and an incision made in the outer rotator cuff. A curette is used to remove the calcific material in full. A subacromial decompression is performed if there are signs of impingement present. The success rate of surgical treatment is 75% to 90%.

SUMMARY:

- Calcific Tendinitis is a common cause of shoulder pain that occurs spontaneously without injury.
- Patients should be counselled that the condition usually resolves on its own.
- Initial treatment should consist of NSAIDS, physio and cortisone injections.
- 4) UGNL or ESWT can be considered in patients when initial treatments have failed to help.
- 5) Surgery is considered when nonoperative treatments fail to help after 6 months.

Dr Todd Gothelf



Knee Examination Series (Part 2)

EXAMINING THE FRONT OF THE KNEE

Having examined the patient for an effusion, meniscal tear and instability we move on to the front of the knee.

The patient may describe knee pain with walking up or down slopes or stairs or with running or jumping. They may have the sensation that the patella moves out of joint, clicking, grinding or locking and may feel pain when sitting for extended periods of time.



The patients legs and feet are exposed and viewed from the front.

Inspect the front of the knee with the patient standing looking for a high (alta) or low (baja) patella which may lead to instability or overuse respectively. In the standing position, ask the patient to contract their quadriceps and identify the size and tone of the VMO (vastus medialis obliguus, medial and superior to the patella). Ask the patient to carefully squat - initially with both legs, then with one leg. A painful squat is significant. As a general rule patients who have pain squatting at less than 90 degrees of knee flexion have difficulty negotiating stairs. On the whole the patient should avoid lunges and deep squats which tend to aggravate this condition.

With the patient sitting, look for 'grasshopper' patellae indicating lateral tracking and perhaps instability. The tibial tubercle may be very prominent from previous Osgood Schlatters disease (Adolescents may have apophysitis with fragmentation of the accessory ossification centre of the tibial tubercle and while it is painful at the time, it results in a painless lump in the long term).

Listen and feel for crepitus as the patient takes their knee through a range of motion. Check the other knee as this may be bilateral and asymptomatic. Check also for lateral tracking of the patella as the knee reaches full extension.

Palpate each structure around and attached to the patella. The patellar tendon may be tender at its insertion onto the patella (usually medially) or more distally (patella tendonitis or Sinding- Larsen-Johansson syndrome). The patient will complain of pain in the patellar tendon and pain with resistance against extension or performing a squat. The patella tendon may be the site of repetitive strain injuries (jumper's knee) and is often associated with tight hamstrings.

Palpate the patella itself, there may be tenderness of the bone or more likely the soft tissues attached medially which tear with a patella dislocation.



Everting the lateral edge of the patella towards neutral checking for lateral retinacular tightness

Patellar tilt: Hold the edge of the patella between your thumb and index finger and find the axis of the patella. See if this is parallel to the horizontal plane and try to lift first the medial and then the lateral side of the patella. An increased tilt medially can be caused by a medial retinacular tear

and a decreased tilt laterally can be associated with patella instability.

The patella may be said to squint (convergent or divergent squint). Broadly speaking, a convergent squint tends to occur in anterior knee pain syndrome, while a divergent squint would be more likely in recurrent dislocation.



Pushing the patella laterally with the knee at 30 degrees of flexion watching the patient's face carefully for discomfort or signs of apprehension

APPREHENSION SIGN

The patient is positioned supine, with the knee flexed between 0° and 30°.

The examiner gently but firmly pushes the patella in a lateral direction. The patient usually stops the examiner because they are worried the patella may dislocate (In this position the patella is at its highest point in the femoral groove (trochlea). pressure from the medial side will push the patella in a lateral direction, causing it to sublux or dislocate from the groove). In the past very large surgery was required to correct patella instability, Almost always the operation can now be corrected with an MPFL (medial patellofemoral ligament) reconstruction which is a relatively small operation with a much faster recovery time.

CONCLUSION

Non surgical treatment is the mainstay of treatment for most anterior knee pain with a hamstring stretching quadriceps strengthening programme. If this fails surgery may be indicated.

Dr Doron Sher

Orthopaedic Surgeons and their Interests

CONCORD

47-49 Burwood Road Concord NSW 2137 Tel: 02 9744 2666

Dr Todd Gothelf	Foot & Ankle, Shoulder
Dr David Lieu	Knee, Shoulder and Elbow
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

HURSTVILLE

Waratah Private 29-31 Dora Street Hurstville NSW 2220 Tel: 02 9580 6066

Dr Jerome Goldberg	Shoulder
Dr Todd Gothelf	Foot & Ankle, Shoulder
Dr Andreas Loefler	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
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PENRITH

Suite 5B, 119-121 Lethbridge Street Penrith NSW 2750 Tel: 02 4721 7799

Dr Todd Gothelf	Foot & Ankle, Shoulder
Dr Kwan Yeoh	Hand, Upper Limb and General Orthopaedics

RANDWICK

160 Belmore Road Randwick NSW 2031 Tel: 02 9399 5333

Dr Jerome Goldberg	Shoulder
Dr Todd Gothelf	Foot & Ankle, Shoulder
Dr Andreas Loefler	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

BELLA VISTA

Suite 116, Building B, 20 Lexington Drive Bella Vista NSW 2153 Tel: 9744 2666

Dr Kwan Yeoh

Hand, Upper Limb and General Orthopaedics

Sport & Exercise Medicine Physicians

Dr Paul Annett	Hurstville
Dr John Best	Randwick
Dr Mel Cusi	Concord Hurstville Randwick Penrith

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Saturday, 4th November, 2017 University of NSW – 8am to 12.30pm

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