Musculoskeletal pain management

At I-MED Radiology we are committed to setting, promoting and continuously improving our standards, practices and techniques in pain management.

Our specialist radiologists are experts in interventional procedures and offer a range of pain management options using minimally invasive interventional techniques. Injections are accurately guided either under CT or ultrasound, improving clinical outcomes, ensuring minimal patient discomfort and risk, and often avoiding surgery altogether.

Our radiologists are happy to consult with referrers and/or patients directly to discuss interventional needs and risk/benefits.

Pain management procedures:

- Image guided cervical nerve root sleeve corticosteroid injections
- Image guided lumbar epidural corticosteroid injections
- Bursal injections
- Image guided facet joint corticosteroid injections
- Joint injections
- Carpal tunnel ultrasound and injections

"At I-MED Radiology, we have a special interest in musculoskeletal pain management. We work with referring practitioners and specialists with a common goal in mind - the best health outcomes for our patients. Our minimally invasive musculoskeletal interventions are designed to lead to a reduction in inflammation and alleviation of pain, allowing patients to regain mobility and quality of life."

Dr Ron Shnier
Chief Medical Officer, I-MED Radiology

"We have a special interest in musculoskeletal pain management."

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Quick reference guide:

Image guided cervical nerve root sleeve corticosteroid injections

Indications

- Cervical radiculopathy from disc protrusion or degenerative disease narrowing the intervertebral foramen.
- Inflammation of a cervical nerve root as a result of postoperative scarring after discectomy and/or fusion.
- As a diagnostic procedure to ascertain the cause of neck/shoulder/arm pain when exact root involvement is uncertain. However, there is limited evidence for this indication.

Prerequisites

Clinical evidence of radiculopathy without acute muscle weakness as a result of degenerative changes and not malignancy or infection.

CT or MRI will have been carried out before this procedure is considered, and will often show degenerative changes and/or disc compression of the neural foramen. Discussion with the patient about other conservative (e.g. anti-inflammatory medications, physiotherapy) and surgical options for management of the pain is recommended.

A general anaesthetic is not appropriate, as patient input is required for safety of the procedure. However, the procedure may at times be carried out with sedation in patients with an intellectual disability or dementia. An interpreter may be required with language difficulties.

Absolute contraindications

- Imaging and/or clinical evidence of spinal cord compression due to any cause.
- Local infection involving the injection site in the skin or deeper soft tissues.
- Acute muscle weakness in the distribution of the compressed root.

Relative contraindications

- Patient unwell (septic, uncontrolled coughing bouts or delirious).
- Severe uncontrolled hypertension; systolic blood pressure of 200+ and a diastolic blood pressure of 140+ increases the risk of haemorrhage.
- Known allergy to iodinated contrast media without any steroid premedication

Antiplatelet agents and other anticoagulants may need dose adjustment or cessation. Generally, an INR of 1.5 or less and cessation of antiplatelet agents for 10 days before the procedure is recommended, although aspirin is usually allowed to continue. It is recognised that this may pose a significant risk to some patients; for example, those with atrial fibrillation or recent coronary stents. Therefore, there needs to be discussion with the radiologist in this situation about the relative risks of ceasing medication versus the haemorrhagic complications of the procedure.

Image guided lumbar epidural corticosteroid injections

Indications

- Short term (i.e. up to 3 months) relief of radicular back pain.
- Causes may include spinal stenosis, foraminal stenosis, disc protrusion, annular fissure in the disc and traumatic disc tear.
- The procedure has been used as an interim measure to delay surgery, and post-spinal surgery to reduce oedema and inflammation in selected cases.

Prerequisites

- Clinical history and examination indicative of lumbar radicular pain.
- Good quality recent imaging, either MRI or CT.
- Consultation with a specialist highly desirable.
- Exclusion of infection, malignancy or acute fracture as the cause for pain.

Absolute contraindications

- Epidural infection or meningitis.
- Coagulation defects. Patients taking anticoagulants and/or antiplatelet agents need to have these discontinued for a period of time before the procedure.
- Features of cord compression or pain associated with significant weakness as a result of root compression.

Relative contraindications

- Severe hypertension.
- Diabetes – steroid may raise blood sugar.
- Known allergy to contrast anaesthetic agents and particular steroid preparation.
- Chronic low back pain without radiculopathy.

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Bursal injections

Indications

- Bursitis from any cause not responding to conservative measures (anti-inflammatories, activity modification and physical therapy). Common sites of inflammation include trochanteric bursitis, subacromial bursitis, pes anserine bursitis, prepatellar bursitis and olecranon bursitis.
- Occasionally, bursal injections are undertaken to treat symptomatic tendinopathy in adjacent structures (gluteal and rotator cuff tendinopathy being the commonest).
- Gout is an occasional cause of bursitis, and although an injection is an effective therapy, the underlying disorder needs to be assessed and treated.

Prerequisites

- Patients who are on coumarin anticoagulants need to have an up-to-date INR before the injection.
- Other anticoagulants, such as clopidogrel, dabigatran, prasugrel, dipyridamole or asasantin, are not usually stopped for these more superficial procedures.
- Diabetics should be warned about the possibility of a temporary elevation in blood glucose levels related to the effects of the corticosteroid.

Absolute contraindications

Infection in or around a bursa.

Relative contraindications

Uncontrolled diabetes and high levels of anticoagulation.

Image guided facet joint corticosteroid injections

Indications

Image guided facet joint corticosteroid injections can be used for diagnostic or therapeutic purposes.

Diagnostic indications:

- Pain with features of facet joint syndrome and thought to be of facet joint origin.
- Contemplation of radiofrequency neurotomy.

Therapeutic indications:

- Known facet joint syndrome with chronic pain localised to the joint. Usually after failure of conservative measures.
- Previous pain syndrome relieved by facet joint injection.

Prerequisites

- History and clinical examination suggesting facet joint origin of back or neck pain, with pain persisting beyond 3 months.
  - History
    - low back pain;
    - deep, aching quality;
    - localised unilateral or bilateral;
    - referral to flank, buttock, upper thigh, iliac crests, groin;
    - ensure there are no red flags such as fever, chills, sweats, weight loss that would suggest neoplastic of infective causes of the symptoms;
    - previous injections: Where? Response?
  - Examination
    - point tenderness;
    - exacerbation with extension and rotational manoeuvres.
- Recent quality imaging CT or magnetic resonance imaging showing facet joint pathology of the relevant area and excluding other serious pathology.
- Information about anticoagulants and bleeding diathesis. It may be necessary to stop or adjust the dosage. The reason for anticoagulants may determine what can be stopped.
- Knowledge of patient allergies and history of diabetes.

Absolute contraindications

- Skin infection.
- Coagulopathy.
- Pregnancy.

Where it is not possible to withhold anticogulant agents, the added risk of significant bleeding, including intraspinal/epidural haemorrhage, should be discussed with the patient in order to allow for fully informed consent.

Joint injections

Prerequisites

- Generally the patient will require at least a plain X-ray of the joint and often an ultrasound, CT scan, or MRI. These imaging studies should be brought to the appointment.
- Reasonable suspicion of synovitis as cause for the patient's symptoms, and a failure to respond to a trial of NSAIDs and physical therapy, is the commonest reason to refer a patient for Joint Injection.

Absolute contraindications

Infection in or overlying the joint

Relative contraindications

- Reflex sympathetic dystrophy:
  Any procedure or minor injury may reactivate or aggravate the symptoms. The Reflex Sympathetic Dystrophy Syndrome Association guideline recommends the avoidance of all types of even minor procedures on the affected limb Avascular necrosis of bones adjacent to the affected joint:
  Anecdotal reports suggest that intraarticular injection aggravates the pain of avascular necrosis.
- Anticoagulation:
  There is no evidence to suggest that injection is contraindicated for patients on anticoagulation within the normal therapeutic range.
- Failure to respond to previous injection.

Carpal tunnel ultrasound and injections

Indications

There are two main indications for carpal tunnel ultrasound:

- diagnosis of the condition; and
- an aid for guiding therapeutic injection.

Diagnosis of carpal tunnel syndrome is usually clinical, but might need to be confirmed in patients who are being considered for surgery or in patients where the diagnosis is uncertain, or there are atypical features.

Ultrasound for carpal tunnel syndrome has been carried out over the past 20 years and is considered accurate as a diagnostic test.1 It is also able to show pathology of the adjacent structures that might be contributing to compression of the median nerve, such as synovitis or ganglia.

Ultrasound has the additional benefit of guiding an injection, which is recommended in managing carpal tunnel syndrome (level A evidence).2 It can provide temporary or occasionally longer lasting relief. Injection of the carpal tunnel is helpful in confirming reversible symptoms before surgery, delaying surgical treatment, avoiding surgical treatment in some cases and providing symptomatic relief particularly where the long-term prognosis is good. It is less likely to help in longstanding and chronic cases, or cases where there is motor weakness and significant nerve dysfunction.

Prerequisites

- Any patients who are on coumarin anticoagulants need to have an up-to-date INR before the injection.
- Diabetics should be warned about the possibility of a temporary elevation in blood glucose levels.
- Patients with motor weakness might require further evaluation by a specialist before the injection.

Absolute contraindications

Uncontrolled anticoagulation or active local infection are the only absolute contraindications.

Relative contraindications

Uncontrolled diabetes, clotting disorders and uncontrolled therapeutic anticoagulation.

Information courtesy of The Royal Australian and New Zealand College of Radiologists

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