Treatment of rheumatic lesions with corticosteroid injections

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Successful corticosteroid injections require correct diagnosis and sound technique. For GPs to acquire this skill confers great advantage to both patient and doctor.

Injection of corticosteroids into a painful joint, tendon or enthesal lesions has become widely accepted as a relatively safe and effective form of treatment. The opportunity to treat painful symptoms on the spot and without the need for oral or other treatment is attractive. Prime prerequisites for successful local corticosteroid injections are correct diagnosis and sound technique. Local corticosteroid injections lend themselves readily to use by generalists in the community as well as to specialists in hospitals (see Table 1).

For GPs to acquire the skills and confidence to diagnose and inject some common musculoskeletal lesions on a “one-stop” basis confers great advantage to both patient and doctor. Generally these injections should be seen as “one-off” treatments; repeating on one or two further occasions if the injection is ineffective or lasted insufficient duration, provided that the initial diagnosis is assured.

Risks of local injection therapy

When intralesional corticosteroid injections are used judiciously, serious side-effects are rare. Even when combined with local anaesthetic, usually 1 or 2 ml of 1 per cent or 2 per cent lidocaine, local injections are usually painful and post-injection exacerbation of pain for 24–48 hours is common. Injection of any site more than three times over a 12 month period is not recommended.

Major risks involve introduction of infection, weakening or rupture of tendons and very rare systemic effects. With sound aseptic technique the risk of introducing infection is likely to be less than the estimated 1 in 15,000–50,000 infection risk after arthroscopy. However corticosteroid injections should be avoided if local infection cannot be excluded or
the patient is significantly immuno-suppressed. Moreover injections should not be given through abnormal, e.g. psoriatic, skin nor into joints containing any implanted material.

Subcutaneous fat atrophy may occur at the injection site, especially if potent steroid rather than hydrocortisone is used. Injection into tendons or entheses must be avoided as this may lead to rupture, though infiltration over entheses or into associated bursae (e.g. Achilles’ tendon bursa) may be helpful. A transient rise in blood glucose may occur in diabetics; this usually settles within 24 hours and does not contraindicate local steroid injection other than in very brittle diabetics. Large doses of lidocaine may lead to tachyarrhythmia in susceptible individuals. Anticoagulation with an INR ≤3 need not contraindicate intrale- sional corticosteroid injections but caution should be observed in the presence of other bleeding diatheses.

**Ultrasound guidance**

Injections at complex sites adjacent to sensitive structures, especially if the key target structure cannot readily be identified, may be better given by a musculoskeletal radiologist under imaging control. For the lesions discussed below, such guidance and additional expertise are not usually necessary.

**Clinical indications**

Local corticosteroid injections are most readily applied to common soft tissue lesions as described below. Intra-articular injections may also be useful in the management of inflammatory arthritis in which one joint is especially involved, though this must be seen in the overall context of the management plan. In osteoarthritis of the knee, especially when other measures are contraindicated or ineffective, occasional intra-artic- ular corticosteroid injections may improve comfort and function for useful periods.

The prerequisite for a successful local corticosteroid injection is correct diagnosis. The following lesions are especially more amenable for treatment by non-specialists.

**Trigger finger**

*Diagnosis* A flexor tendon is unable to slide smoothly within its sheath; as a result the finger locks/clicks into a flexed position and it may be painful to straighten. A nodule is often palpated at the distal palmar crease.

*Causes* Primary or secondary (gout, renal disease, inflammatory arthritis).

*Treatment* Injection of 25mg hydrocortisone with lidocaine is often successful and may be repeated if symptoms recur. Triamcinolone (5–10mg) or methylprednisolone (20mg) may also be used. If this fails, surgical release is often effective.

*Caution* Misplacement of the injection may lead to local skin atrophy, hypopigmentation or transient numbness of the finger.

**De Quervain’s tenosynovitis**

*Diagnosis* Inflammation of the synovial lining of the common tendon sheath of the extensor pollicis brevis and abductor pollicis longus tendons. There is usually pain and swelling along the line of the affected tendons, with pain on thumb grip. Flexion of the thumb and ulnar devi- ation of the wrist (Finkelstein’s text) causes pain, but is not pathognomonic.

*Causes* Inflammatory arthritis, gout, infection or tendon entrapment (after pregnancy/occupational).

*Treatment* Injection of 25mg hydrocortisone with lidocaine into the common tendon sheath. If this fails, surgical decompression is usually curative.

*Caution* Misplacement of the injection may lead to local skin atrophy and hypopigmentation.

**Medial and lateral epicondylitis**

*Diagnosis* Lateral epicondylitis (tennis elbow) presents with insidious onset of pain localised to the lateral epicondyle or radiating along the extensor tendons of the forearm. Shaking hands or forming a tight grip may exacerbate pain. Examination reveals tenderness over the lateral epicondyle and pain on resisted wrist dorsiflexion or supination, with the elbow held in extension. Medial epi- condylitis (golfer’s elbow) is associated with pain localised to the medial epicondyle or forearm, provoked by resisted pronation of the forearm with the elbow held in extension or by resisted finger flexion.

*Treatment* Epicondylitis is often self-limiting so that the value of corticosteroid injection is controversial. When symptoms are severe and not associated with brachial neuralgia, up to three injections may be helpful. Conservative management is equally effective over 12 months.

*Caution* When elbow pain is part of a wider pain syndrome, injection may aggravate pain without benefit. Care must be taken to avoid the ulnar nerve when injecting the medial epicondyle.

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**Corticosteroid** | **Trade name, dose, duration of action**
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Methylprednisolone acetate | *Depo-medrone*, Dose: 40–80mg according to size, Price: 40mg/ml 1ml vial = £3.44, Intermediate acting approx 24 hours
Hydrocortisone acetate | *Hydrocortistab*, Dose: 25–75mg, Price: 25mg/ml 1ml vial = £6.87, Short acting approx 12 hours
Triamcinolone acetonide | *Adcortyl*, Dose: 2.5–20mg, Price: 10mg/ml 1ml vial = £0.89, Intermediate acting approx 24 hours, *Kenalog*, Dose: 5–40mg (max dose 80mg), Price: 40mg/ml 1ml vial = £1.49, Intermediate acting approx 24 hours

Table 1. Available local corticosteroid injections and suggested dose
Olecranon bursitis

Diagnosis An olecranon bursa may form superficially over the olecranon process at the elbow. There may be tenderness to local pressure and a visible fluctuant swelling.

Causes Repetitive local pressure, inflammatory arthritis, gout, infection.

Treatment Olecranon bursitis may resolve spontaneously but may become chronic and indolent in spite of treatment. If infection is excluded, injection with 25–50mg hydrocortisone or 40mg methylprednisolone with lidocaine is often helpful.

Caution Misplacement of the injection may lead to local skin atrophy and hypopigmentation.

Frozen shoulder (adhesive capsulitis)

Diagnosis Frozen shoulder affects the anterosuperior joint capsule of the shoulder causing painful restriction of all shoulder movements. It is self-limiting but may be exquisitely painful. Onset is insidious, with pain when sleeping and restriction of active and passive movement in absence of an intrinsic shoulder disorder. The initial intensely painful phase is followed, after some weeks or months, by an “adhesive phase” in which stiffness remains but pain gradually subsides. Diagnosis is essentially clinical.

Treatment Since the condition usually resolves, the decision whether to offer a corticosteroid injection depends on the severity and tolerability of pain. Anterior or posterior injection of the shoulder joint with methylprednisolone 40mg with lidocaine often improves comfort though may not shorten the overall duration of the episode.

Caution Where the range of movement is normal or near-normal the diagnosis may be referred pain from the neck. In this circumstance, local injection is inappropriate.

Subacromial bursitis

Diagnosis The subacromial bursa lies beneath the acromion process of the scapula; the supraspinatus muscle and tendon run through it. Shoulder tip pain is present at rest and is accentuated by abduction of the shoulder, typically with a painful arc.

Treatment Injection of either 50mg hydrocortisone or 40mg methylprednisolone, with lidocaine, into the bursa face of the heel. An X-ray or CT scan may help to rule out calcaneal stress fracture.

Caution Recurrent injections may further damage an already partially ruptured supraspinatus tendon so ultrasound examination may be helpful. In elderly people physical impingement syndromes are unlikely to respond to corticosteroid injections; referral to a shoulder surgeon should be considered.

Trochanteric bursitis

Diagnosis A trochanteric bursa may form over the greater trochanter at the outer aspect of the hip, causing local tenderness usually aggravated by internal rotation of the hip. Ultrasound or magnetic resonance imaging may confirm diagnosis.

Causes Idiopathic, overuse, trauma, infection.

Treatment Injection of 75mg hydrocortisone (a large injection volume is useful here) or comparable dose of triamcinolone (10–20mg) or methylprednisolone (40mg) over the point of maximal tenderness may be effective. In unusual cases imaging guidance may be necessary. Mild symptoms should be managed conservatively.

Caution Diffuse tenderness around the hip region is often referred from the lumbosacral spine or hip. In this circumstance, local injection is inappropriate.

Plantar fasciitis

Diagnosis Enthesitis at the plantar surface of the calcaneum is associated with heel pain especially with the first steps of the day or prolonged walking. There is local tenderness on deep pressure to the undersurface of the heel. An X-ray or CT scan may help to rule out calcaneal stress fracture.

Causes Mechanical (especially in heavy people with poorly padded shoes or minor gait abnormalities) or spondylarthritides.

Treatment Injection of 50mg of hydrocortisone with lidocaine to and around the point of maximal tenderness is often helpful when symptoms are severe. Biomechanical factors must be treated and heel pads/foot orthose should also be considered.

Caution The injection is painful and may need to be repeated. Misplacement of the injection may lead to local fat atrophy.

Conclusion

The above lesions can usually be treated confidently and quickly during a consultation with minimal equipment and a low risk of serious adverse events. Where the diagnosis is uncertain, specialist referral is appropriate and if the precise target for an injection cannot be identified, assistance of a musculoskeletal radiologist, using ultrasound guidance is often helpful.

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