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How to perform local soft-tissue glucocorticoid injections?

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A B S T R A C T

Inflammation of periarticular soft-tissue structures such as tendons, tendon sheaths, entheses, bursae, ligaments and fasciae is the hallmark of many inflammatory rheumatic diseases, but inflammation or rather irritation of these structures also occurs in the absence of an underlying rheumatic disease. In both these primary and secondary soft-tissue lesions, local glucocorticoid injection often is beneficial, although evidence in the literature is limited. This chapter reviews local injection therapy for these lesions and for nerve compression syndromes.

Introduction

Many inflammatory rheumatic diseases are characterised not only by joint inflammation but also by inflammation of periarticular so-called soft tissues: tendons, tendon sheaths, entheses, bursae, ligaments and fasciae. These local inflammations can be treated by local glucocorticoid injection in addition to systemic anti-inflammatory therapy. Local soft-tissue structures can also be painful in the absence of a generalised inflammatory rheumatic disease and show inflammatory signs, probably secondary to microtrauma or overloading. Although this pathogenesis questions the rationale of glucocorticoid injection, in practice often also for these lesions local glucocorticoid injection is beneficial. The injection and post-injection rest diminish swelling and possibly in that way enhance healing of the lesion.

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This chapter reviews injection of soft-tissue structures to diminish local inflammation or irritation or to treat nerve compression syndromes (see Table 1). In general, there is limited evidence to support the superiority of glucocorticoid injections over other kinds of treatments, such as rest, local cooling, analgesics and non-steroidal anti-inflammatory drugs [1]. In most randomised controlled trials a superior effect of glucocorticoid injection is seen in the short term, but no clear difference in the long term, compared to other treatment modalities. On the other hand, glucocorticoid injection usually is perceived as simple, safe and effective. In this chapter, for each indication the scarce literature on indications, efficacy and adverse effects will be summed and the most common method of injection will be described [2]. Of course other useful alternative methods of injection exist and other preparations of glucocorticoid and dosages [3,4]; but it seems best to gain experience with limited techniques and dosages. In addition, only general guidelines can be given; for example, the length of the needle used would also depend on the thickness of the skin and subcutaneous fat tissue layer of the individual patient.

General considerations and technical recommendations, materials

The previously described lack of evidence is not equivalent to evidence of lacking relevance or efficacy. The efficacy of injection depends on various patient's and physician's variables. Local injection therapy should first of all be based on a clear and accurate diagnosis; the effect depends upon the right diagnosis. For example, pain in the shoulder located in the C4 region suggests an origin in the cervical spine; a local shoulder injection will not be effective. The physician should have good knowledge of the local anatomy, indications and contraindications and other technical details of the procedure and be experienced with the injection technique, as accuracy of injection also could significantly affect the clinical effect [5]. When considering injection of inflamed tendon sheets or bursae, one should realise that the cause of inflammation could indeed be overloading or an inflammatory rheumatic disease, but that crystal-induced inflammations are not rare (gout and olecranon bursitis; calcium pyrophosphate dehydrate disease and wrist tenosynovitis; cholesterol deposition and wrist tenosynovitis) and neither are bacterial infections (mycobacterial and gonococcal infections and tenosynovitis; staphylococcus infections and olecranon bursitis). These disorders may warrant additional systemic therapy, for example, urate-lowering drugs or antibiotics. So, aspirate for polarisation microscopy and cultures. In the case of diagnostic uncertainty and for difficult injections, ultrasound can be very useful. Ultrasound-guided injection may improve accuracy and effectiveness of injection therapy [6], as discussed in Chapter 9. Clinical experience indicates that compared to acute conditions (up to 2 weeks in duration), the effect of glucocorticoid injections is less in chronic disorders (over 6 weeks), especially if also other generalised complaints are present like in fibromyalgia [7]. If after consideration of these facts an injection seems indicated, the patient should be informed about possible benefits and adverse effects and alternative therapeutic approaches. General contraindications for local glucocorticoid injection are given in Table 2.

General injection technique

To start with, wash your hands. Mark the site of injection and bony landmarks with a skin pencil or eye pencil or the site of injection by a pressure mark and swab the patient's skin with iodine in ethanol or

Table 1
Common indications for soft tissue glucocorticoid injection.

Anatomical region	Soft tissue disorder
Shoulder	Rotator cuff tendinitis; subdeltoid or subacromial bursitis; bicipital tendinitis or tenosynovitis, subacromial impingement
Elbow	Olecranon bursitis; lateral and medial epicondylitis
Wrist and hand	Extensor and flexor tenosynovitis; trigger fingers, carpal tunnel syndrome; de Quervain's tenosynovitis
Hip	Trochanteric, iliopsoas or ischiogluteal bursitis; adductor tendinitis; meralgia paresthetica
Knee	Pes anserinus lesions and anserine bursitis; patellar tendinitis; prepatellar bursitis
Ankle and foot	Tarsal tunnel syndrome; posterior tibialis or peroneus tenosynovitis; plantar fasciitis; Morton's metatarsalgia