

Review

Synthèse

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Rheumatology: 6. Localized rheumatism

George E. Price

The case

A 38-year-old, left-handed lawyer consults his physician after experiencing severe pain in his left shoulder and upper arm for 2 weeks. He is concerned about possible heart trouble. The pain is made worse by movement, and he has difficulty putting on a shirt or a coat. The pain is worse at night, and he sometimes has to sleep in a reclining chair. He is otherwise well. He rarely exercises, but 3 weeks ago he helped a friend move a lot of heavy boxes. Treatment with ibuprofen has been only slightly helpful.

Localized musculoskeletal pains with associated tenderness are a common but troublesome complaint for many people because they may interfere with day-to-day activities at work or at home. In most cases these problems can be isolated, diagnosed and treated successfully with minimal complications. The key to management lies in the patient's history and careful physical examination, which allow the physician to rule out underlying systemic disease and more serious conditions. Expensive investigations are not usually required. For the most part treatment with local injections of corticosteroids and appropriate physical measures, such as the application of ice or physiotherapy, is successful.

Shoulder

Regional shoulder complaints are a frequent cause of visits to the family physician and are especially common in elderly people.^{1,2} Shoulder pain frequently occurs after recreational activities or work in the home and garden or may arise spontaneously without any remembered strain or trauma. It may also be part of the spectrum of specific rheumatic diseases such as rheumatoid arthritis or ankylosing spondylitis. Degenerative changes in the acromioclavicular joint or in tendons may contribute to shoulder pain.^{3,4}

Understanding the origins of shoulder pain requires knowledge of the complex anatomy of the shoulder joint (Fig. 1). Most shoulder problems can be readily diagnosed from the patient's history, paying special attention to the points listed in Box 1, followed by an examination with emphasis on the site or sites of maximum tenderness and the movements that provoke pain. Estimated ranges of shoulder movement should be recorded to provide a gauge of progress with treatment.

In the absence of localized findings, one must consider sources of pain outside the shoulder girdle, such as referred pain from the neck or chest, which will require further investigation.

In typical cases of localized shoulder pain, radiographs are rarely necessary.⁵ When shoulder pain does not respond to the treatments recommended here, it would be timely to consider referral to a rheumatologist or orthopedist and to reconsider the diagnosis and the need for further study with expensive investigations such as arthrography, computed tomography or magnetic resonance imaging.

Rotator cuff tendinitis

This is the most common cause of localized shoulder pain, usually arising from small tears and inflammation of the rotator cuff tendons, particularly the supraspinatus, near their insertion into the greater tuberosity of the humerus.

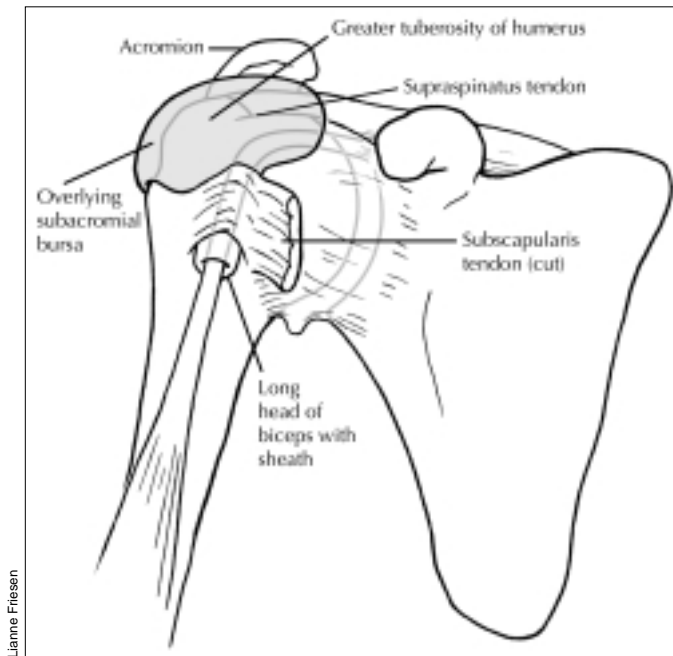


Fig. 1: Anatomy of the shoulder joint showing rotator cuff tendons, subacromial bursa and biceps tendons.

The onset of pain may be spontaneous, especially in an older patient, but it may also be related to unusual or prolonged activity often with the arm raised and especially in people who are usually sedentary. Because the pain may arise several days after such activity, an association may be missed by the patient and the physician.

The pain, which is often surprisingly severe and incapacitating, is made worse by use of the arm and is worse when the patient is supine, resulting in loss of sleep and the inability to work. It may refer into the upper arm, causing the patient to insist that the problem is in the arm, not the shoulder.

Active shoulder movements, especially abduction, are restricted by pain. Inflammation of the tendon (or the overlying bursa) causes the typical “impingement sign,” or “painful arc” on raising the shoulder as the inflamed and edematous tendon impinges on the undersurface of the acromion and coracoacromial ligament at approximately 90° (Fig. 2).^{4,5} There is localized tenderness at the insertion of the tendon on the greater tuberosity of the humerus, which is best demonstrated with the arm slightly extended posteriorly. The tenderness may disappear as the arm is flexed, or abducted.

Radiographs usually appear normal at this stage and are not necessary in typical cases.

Calcific tendinitis

This condition, which occurs in 8% of the population,³ is characterized by the deposition of calcium salts in the tendon and may be associated with calcific deposits in tendons elsewhere. However, the presence of calcium does not

usually influence treatment decisions because calcification may exist in asymptomatic tendons. In other cases calcium deposits may provoke an acute inflammatory reaction accompanied by swelling, excruciating pain and exquisite tenderness resembling gout. In such cases radiographs may be helpful for diagnosis.

Tendinitis of the long head of biceps

The mechanism behind this disorder is similar to that for rotator cuff tendinitis because the long head of the biceps is subjected to the same strains as the rotator cuff tendons.^{3,6} Thus, the 2 conditions may occur concurrently. Tenderness is found in the bicipital groove on the anterior humerus. Pain is provoked by shoulder rotation and elevation and may be reproduced by supination of the forearm against resistance (Yergason’s sign).

The tendon of the long head of the biceps may rupture occasionally, resulting in the “Popeye sign” caused by bunching up of the contracted biceps belly.⁷ This can occur spontaneously, without symptoms, but generally follows unusual strain in young patients.

Subacromial–subdeltoid bursitis

Clinically it is difficult to differentiate inflammation of the subacromial bursa from that of the underlying rotator cuff tendons, and isolated bursitis is probably rare. Onset is usually related to acute or chronic trauma or strain.⁸

There is acute pain and associated tenderness on the lateral aspect of the shoulder, inferior to the tip of the acromion, sometimes with radiation distally and proxi-

Box 1: Diagnosis of localized shoulder pain

Shoulder structures that are often sites of localized nonarticular pain

- Rotator cuff tendons
- Greater tuberosity of the humerus with tendon attachments
- Subacromial bursa overlying rotator cuff
- Tendon of long head of biceps on anterior humerus

History

- Was onset of pain associated with strain or trauma? Was onset sudden or gradual?
- Where is the pain located?
- What makes it worse (relation to movement)?
- Is there pain at night?

Examination

- Ranges of movement
- Painful arcs (impingement); which movements provoke pain?
- Point(s) of maximum tenderness

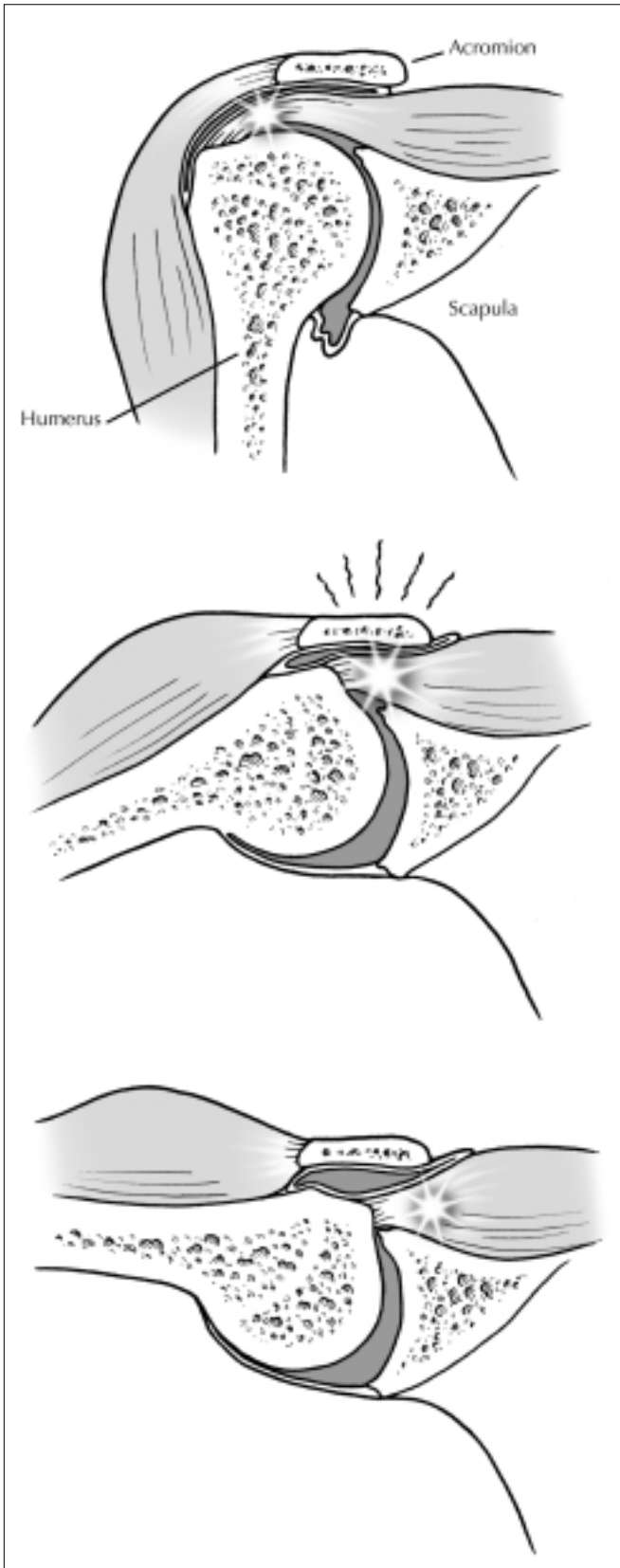


Fig. 2: Mechanism of impingement sign: inflamed region of supraspinatus tendon and/or adjacent bursa.

mally. The impingement sign is present, and shoulder range is limited by pain. Septic bursitis is rare, but if there is unusual redness, swelling or increased warmth, sepsis should be considered, especially in the presence of predisposing factors such as injection drug use. In such cases aspiration and culture are mandatory.

Rotator cuff tendinitis, tendinitis of the long head of biceps and subacromial bursitis usually respond to similar treatment. In all cases the following conservative measures should be applied, even if injection therapy is recommended. In mild or early cases these measures may provide relief as healing occurs.

- Nonsteroidal anti-inflammatory drugs (NSAIDs) may be used, though in my experience these provide only partial relief.
- Analgesics may be helpful for pain control, especially at night.
- Local ice packs and a sling may provide temporary relief of pain.
- Gentle mobilization exercises (not active resistance) may be performed.

Corticosteroid injection therapy is the most effective treatment for most localized inflammatory soft-tissue problems, particularly if used early and followed by the application of ice and mobilizing exercises (Box 2, Table 1).⁹⁻¹¹ The key to effective therapy is to inject into the most tender sites (Fig. 3).¹² For the shoulder problems described here, a small amount of the mixture should be cautiously injected after the skin has been prepared. Once analgesia has been obtained, the entire tender area can be infiltrated with the remainder of the dose. It is not uncommon to relieve most of the pain immediately with the lidocaine, indicating that the diagnosis is probably correct and that the active ingredient has been correctly placed to achieve an anti-inflammatory effect.³ Some physicians prefer to infiltrate first with lidocaine as a therapeutic trial of intervention at a particular site, followed by corticosteroid if the local anesthesia gives a preliminary favourable response.

Local corticosteroids can produce side effects (e.g., local skin and subcutaneous atrophy, discoloration and postinjection pain), but these are uncommon and usually minimal. The risk of infection is minimal with adequate skin preparation and single-use needles and syringes. There may be increased risk of tendon rupture if the needle is not properly placed.

Mobilization exercises are important to prevent stiffening. For active people, referral to a physiotherapist may not be necessary as they can apply ice and carry out appropriate range-of-motion exercises at home with minimal instruction. However, in most cases, follow-up with a physiotherapist familiar with shoulder problems is the best management. Use of weights should be avoided until pain is relieved, then strengthening exercises should be pursued.^{3,11}

In rare cases surgical removal of large calcium deposits may be helpful. In resistant cases acromioplasty for impingement with an intact rotator cuff has been effective.¹³

Box 2: Principles of soft-tissue injection with corticosteroid (methylprednisolone acetate) and lidocaine mixtures

- Use methylprednisolone acetate (40 mg/mL); some other compounds may produce more atrophy of soft tissues
- Mix with lidocaine, 1% or 2% without epinephrine
- Use #25-gauge 1½-inch needles, or 5/8-inch needles in superficial regions, to reduce pain
- Spread the medication around the inflamed area by moving needle tip (except in tendon sheaths)
- When injecting tendon sheaths, avoid the use of force; fluid mixture should flow easily into the sheath (resistance probably means the needle is in the tendon)
- Allow 3–4 weeks between injections for 1 episode and a 4-month interval for recurrent episodes

Surgical repair of a ruptured long biceps tendon is not usually indicated because the defect does not significantly compromise function and the patient may be unaware of it. However, acute ruptures in young patients may be amenable to surgical repair.⁵

Frozen shoulder (chronic adhesive capsulitis)

A “frozen shoulder” with reduced active and passive range of motion and diffuse shoulder pain occurs when shoulder pain from tendon inflammation or bursitis is prolonged and mobilization is not pursued. This may also be a result of other conditions associated with immobilization of the shoulder, such as strokes. However, the exact cause is not always clear. Localized tenderness is less marked. Without treatment, muscle atrophy or secondary involvement of the hand with reflex sympathetic dystrophy may occur.

The mainstay of treatment is active mobilizing physiotherapy. At times subacromial or intra-articular corticosteroid instillation may be helpful, but the response is not as dramatic as in the acute phase. Most cases resolve over 12–24 months.³

Most patients with these types of shoulder pain respond to the conservative measures described for tendinitis. Recalcitrant cases may require surgical treatment.

Rotator cuff tear

In younger people spontaneous tears of the rotator cuff are rare in the absence of underlying disease and are usually associated with trauma, such as a fall. However, in those over 40 years of age even minor strain may produce a cuff tear. Detection of a small or partial cuff tear, as opposed to tendon inflammation, is difficult. In these cases treatment is the same as for rotator cuff tendinitis. Tears should be suspected

if symptoms persist despite treatment or in the presence of abductor weakness. The diagnosis may involve ultrasonography, magnetic resonance imaging or arthrography, and surgical repair may be necessary to relieve symptoms.

Elbow

Epicondylitis

Epicondylitis probably results from cumulative traumatic overuse leading to minute tears and inflammation of the common extensor or common flexor tendons of the forearm, near their origins at the lateral and medial epicondyles respectively. Pain and tenderness at the entheses is common.¹⁴ This condition often occurs in people active in sports, hence the terms “tennis elbow” for lateral epicondylitis and “golfer’s elbow” for medial epicondylitis. However, the condition is common in nonathletes and may be associated with occupations such as carpentry and bricklaying.

Swelling is not a usual feature and, if present, should suggest some other pathology. The differential diagnosis of posterior interosseous nerve entrapment as a cause of forearm pain may be excluded if there is no indication of neurologic involvement (e.g., numbness or motor weakness). Radiographs are not usually needed for diagnosis; although a small area of calcification at the tendinous attachment may be present, radiographs are usually normal (Box 3).

In the treatment of epicondylitis:

- NSAIDs may be tried but they are often not helpful.¹⁴
- Many cases respond if precipitating or aggravating activities are avoided, the area is iced and a forearm Tensor bandage (“tennis elbow brace”) is placed distal to the epicondyle.
- For those who do not respond, corticosteroid and lidocaine injection is the treatment of choice. Using a #25-gauge 5/8-inch needle, the mixture is carefully and slowly injected into the area of maximum localized tenderness. If relief is not immediate, the injection was incorrectly sited and may have to be repeated at a later

Table 1: Suggested doses* of corticosteroid (methylprednisolone acetate) and lidocaine mixtures for the treatment of localized inflammatory soft-tissue problems

Area	Methylprednisolone acetate (40 mg/mL), mL	Lidocaine (1%), mL
Shoulders	1	2–3
Epicondyles	0.5	0.8–1
Olecranon bursa	0.5–1	0–1
De Quervain's tenosynovitis	0.3	0.7
Hand tendons	0.3	0.7
Greater trochanter	1	4
Bursas of the knee	0.5–1	1–3
Plantar fasciitis	0.5	1

*Some would use smaller or larger doses of corticosteroids.

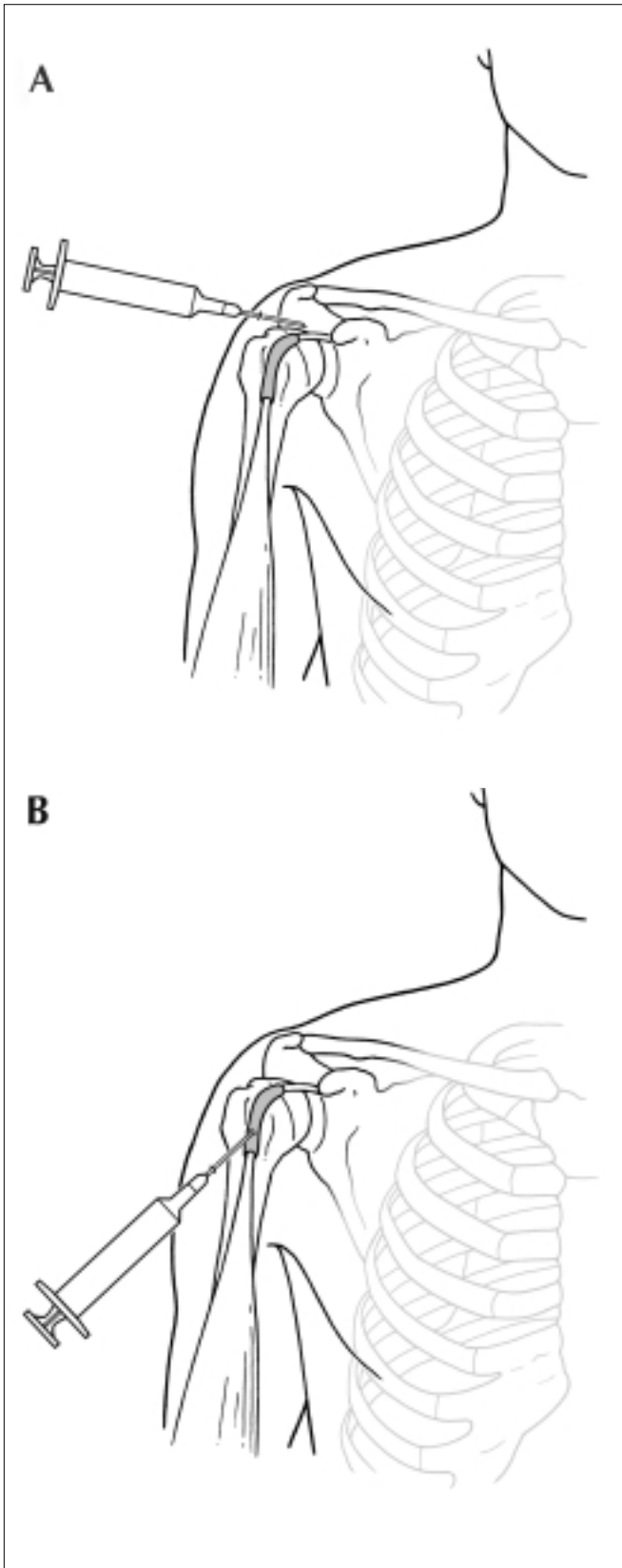


Fig. 3: Periarticular shoulder injection (A); infiltration of the tendon sheath of the long head of the biceps (B).

date. Treatment must be followed by rest for the elbow and avoidance of aggravating activities, such as sports, for at least 2 weeks, followed by a gradual return to normal activities. The use of a forearm Tensor bandage or a fitted elbow splint may assist the healing process and relieve pain. If relief is incomplete, a second injection may be required in about 4 weeks. A third injection is seldom necessary. When the pain has resolved, muscle stretching and strengthening exercises should be carried out to prevent recurrence.

Surgical consultation is indicated only rarely in resistant cases. Surgical treatment may be necessary in patients with symptoms that are refractory for more than 6-12 months.

Olecranon bursitis

With olecranon bursitis the bursa overlying the olecranon process becomes enlarged and tender. Inflammation may result from a direct blow or from repeated irritation caused by leaning on the elbow. It may also be secondary to other conditions, such as gout or rheumatoid arthritis, or may result from infection if there has been a site of entry for bacteria.

The bursa should be aspirated and, once infection has been excluded, a corticosteroid should be injected into the sac.¹⁵ Septic bursitis requires repeated needle aspiration and appropriate antibiotic treatment. Surgery is rarely required for recalcitrant, recurrent episodes.

Wrist and hand

de Quervain's tenosynovitis

Tenosynovitis of the common sheath of the abductor pollicis longus and extensor pollicis brevis tendons on the radial aspect of the wrist (Fig. 4)¹⁶ is a common painful and disabling condition. Pain is felt on the radial aspect of the wrist and may extend proximally into the forearm. It is usually caused by unusual or repeated use of the thumbs involving strain on the tendons. It may occasionally be associated with calcific deposits, although the cause cannot always be identified.

Diagnosis is by demonstration of localized tenderness of the common sheath where it crosses the radial styloid and, distally, radial to the anatomical snuff-box. Finkelstein's test should be performed by having the patient place the thumb in the palm and then clench the fist so that the fingers cover the thumb. Passive ulnar deviation of the wrist (carried out by the examiner) stretches the abductor pollicis longus and extensor pollicis brevis tendons and reproduces the pain over the ulnar side of the wrist. There may be swelling of the tendon sheaths in the distal forearm.

A splint should be used to immobilize the thumb and first metacarpal, and a small amount of corticosteroid and lidocaine mixture should be injected into the tendon sheath. Proper splinting can only be achieved with a cus-

Box 3: Diagnosis of epicondylitis**History**

- Onset following repetitive or prolonged strain of muscle group
- Pain in the forearm and elbow when using the arm and hand
- Complaint of weakness (because of pain)

Examination

- Localized tenderness at the tendinous attachments to the lateral or medial epicondyles
- Pain when stressing wrist extensors indicates lateral epicondylitis
- Pain when stressing wrist flexors indicates medial epicondylitis
- Pain on elbow extension and gripping
- Usually no swelling

tomized splint made by an occupational therapist. Surgery is occasionally required.¹⁷

Digital flexor tenosynovitis (trigger finger)

Inflammation of the digital flexor tendons in the palm, usually from overuse, results in the thickening of and formation of nodules on the tendon and sheath. Flexion is unimpaired, but attempted extension causes painful snapping and locking as the enlarged tendon enters the inflamed sheath. One can usually feel localized, tender thickening of the tendon on palpation. The possibility of other causes such as rheumatoid arthritis or, rarely, infection or tumour should be borne in mind.

Treatment is by infiltration of a corticosteroid and lidocaine mixture into the tendon sheath. Injection directly into the tendon can be avoided by using only light injection pressure and asking the patient to flex the finger with the needle in place, which should not move the needle.¹⁸ Those unfamiliar with this technique should consider referring the patient to a specialist for injection. Spontaneous improvement frequently occurs with rest, and injection is not always necessary.

Extensor tenosynovitis at the wrist

Inflammation and swelling of digital extensor tendons and their sheaths is commonly seen in people with rheumatoid arthritis and may result in tendon rupture. Inflammation may cause the “tuck sign” as the painless swelling bunches up on the dorsum of the wrist with active finger extension.

This condition usually responds to treatment of the underlying condition, splinting and, if indicated, a corticosteroid injection.¹⁹

Hip**Trochanteric bursitis and gluteal tendinitis**

Irritation of the bursa about the greater trochanter and gluteal insertions is a common cause of lateral hip pain and localized tenderness.¹⁶ The onset may be insidious and the cause not always apparent, but direct trauma or strain of the gluteal attachments from unusual gait patterns caused by other musculoskeletal problems, such as back pain or hip joint pain, may contribute to this condition.

Pain is felt laterally, with distal radiation to the lateral aspect of the thigh toward the knee. Pain is worse when sitting in a deep chair and at night when lying on the affected side. Hip motion is retained, although external rotation and resisted abduction usually increase the pain. Tenderness can be localized to the bursal region overlying the greater trochanter. Swelling and warmth are uncommon.

With the patient lying on the unaffected side, wide infiltration is performed with a corticosteroid and lidocaine mixture into the site of tenderness using a needle that is at least 1½ inches long. This is usually curative; ice may also be helpful. Correction of leg-length inequality with a shoe lift may be tried. Stretching exercises are indicated when there is a clear relation to a particular exercise (e.g., jogging). Surgical release of tight fascia or removal of a chronic inflamed bursa is rarely indicated.¹⁸

Knee

There are several bursas around the knee that may become inflamed and painful. Two of these are described here.

Key points

- Localized musculoskeletal pain is a common complaint that can usually be isolated, diagnosed and treated successfully with minimal complications.
- Soft-tissue shoulder pain frequently occurs spontaneously as a result of trauma or stress, but it may also be part of the spectrum of rheumatic diseases.
- Diagnosis of shoulder pain requires knowledge of the complex anatomy of the shoulder joint, the patient’s history and physical examination.
- Common elbow complaints include epicondylitis, usually following strain or unaccustomed repetitive motions, and olecranon bursitis, which may result from a direct blow or repeated irritation or may be secondary to rheumatoid arthritis.
- Most isolated problems around the joints of the leg and arm can be treated successfully with the application of ice, the use of braces or splints, physiotherapy and injections of corticosteroids when necessary.



Fig. 4: Tendons involved in de Quervain's tenosynovitis.

Prepatellar bursitis ("carpet layer's knee")

This condition is usually traumatic in origin and may be seen as a form of septic bursitis. Examination reveals a fluctuant swelling localized to the bursa lying anterior to the patella. There may be increased warmth and redness. Knee-joint motion is unimpaired and painless, indicating that the joint space is not involved. Aspiration is essential to rule out infection.

Treatment in noninfected cases includes a corticosteroid injection (after aspiration) and the application of a firm compressive dressing. Recurrence is common and can be prevented by avoiding the causal activity or by using padding on the knee. Recalcitrant cases may require surgical excision of the bursa.¹⁹

Anserine bursitis

The anserine bursa lies deep in relation to the tendons of sartorius, gracilis and semitendinosus as they insert on the medial aspect of the proximal tibia, just distal to the joint line. Acute inflammation of the bursa may occur with athletic activities, such as jogging or skiing, and result in medial knee-joint pain. It is often present in "flare-ups" of osteoarthritis of the knee. Stair climbing is especially painful, and there is localized tenderness, which is sometimes accompanied by swelling of the bursa with increased warmth on palpation.

The patient should be cautioned to avoid the initiating

activity and should be treated with ice and corticosteroid and lidocaine injection. Once the acute phase has passed, appropriate stretching and conditioning exercises of the knee extensors should prevent recurrence.¹⁹

Ankle and foot

Achilles tendinitis

Pain associated with swelling and tenderness of the Achilles tendon at or near its attachment to the calcaneus is often seen with chronic strain resulting from recreational athletics. It may be associated with underlying spondyloarthropathy, such as ankylosing spondylitis, psoriatic arthritis or reactive arthritis, but rarely with gout; thus, all patients with this condition should be examined to rule out associated systemic diseases. The examiner must always bear in mind the possibility of tendon rupture and should be familiar with Thomson's test — with the patient supine or kneeling on a chair and the foot extending over the end of the bed or chair, the examiner squeezes the calf and pushes toward the knee; this produces plantar flexion of the foot if the tendon is intact, but not if it has ruptured.² Suspected rupture can be confirmed with magnetic resonance imaging.

The mainstay of treatment is the use of a heel lift in the shoe and avoiding any irritating activity. Once pain free, the patient should follow a program of gastrocnemius–soleus stretching and strengthening. Injections are generally not recommended because of the possibility of tendon rupture.

Plantar fasciitis and heel pain

Heel pain is a frequent complaint in medical practice and can be frustrating to treat. With plantar fasciitis there is disabling plantar heel pain, which is worse with weight bearing and usually most severe during the first few steps after rising in the morning. Tenderness is typically located over the plantar aspect of the medial calcaneal tuberosity (site of attachment of the plantar fascia). There may or may not be a calcaneal spur, but this is not an important finding in most cases. Sometimes the plantar fascia anterior to the heel may be tender. Plantar fasciitis may be a clinical clue to the presence of an underlying spondyloarthropathy.⁷

Time often relieves this condition, and use of a soft silicone heel pad with a gel insert may be all that is required. However, when disability is pronounced, injection of the tender spot with a corticosteroid and lidocaine mixture, using a medial or lateral approach to avoid heel fat-pad atrophy, can result in rapid cure. This should be followed by the use of an impact-absorbing heel insert.^{3,19}

Treatment for our patient

During the examination our lawyer's physician found there was restriction of left shoulder movement due to pain, with a painful arc beginning at 80° of abduction. Ten-

derness was sharply localized at the greater tuberosity of the humerus in the region of the supraspinatus insertion. The joints of the upper extremities and the cervical spine were otherwise unremarkable.

A diagnosis of supraspinatus tendinitis was made and the patient was treated with corticosteroid and lidocaine injection. He was reassured and advised to use acetaminophen for pain control, apply ice daily, carry out range-of-motion exercises twice daily at home and avoid lifting until the pain was resolved. He recovered over the next 2 weeks without incident.

Competing interests: None declared.

References

- Bland JH, Merritt JA, Boushey DR. The painful shoulder. *Semin Arthritis Rheum* 1977;7:21-47.
- Chard MD, Hazleman BL. Shoulder disorders in the elderly (a hospital study). *Ann Rheum Dis* 1987;46:684-7.
- Koopman WJ, editor. *Arthritis and allied conditions*. 13th ed. Baltimore: Williams and Wilkins; 1997.
- Neer CS II. Impingement lesions. *Clin Orthop* 1983;173:70-7.
- Chard MD, Sattelle LM, Hazleman BL. The long term outcome of rotator cuff tendonitis — a review study. *Br J Rheumatol* 1988;27:385-9.
- Nevasier RJ. Painful conditions affecting the shoulder. *Clin Orthop* 1983; 173:63-9.
- Kelly WN, Harris E, Ruddy S, Sledge CB, editors. *Textbook of rheumatology*. 5th ed. Philadelphia: WB Saunders; 1997. p. 428.
- Larsson LG, Baum J. The syndrome of bursitis. *Bull Rheum Dis* 1986;36:1-8.
- Petri M, Dobrow R, Neiman R, Whiting-O'Keefe Q, Seaman WE. Randomized, double-blind, placebo-controlled study of the treatment of the painful shoulder. *Arthritis Rheum* 1987;30:1040-5.
- Dacre JE, Beeney N, Scott DL. Injections and physiotherapy for the painful stiff shoulder. *Ann Rheum Dis* 1989;48:322-5.
- Adebajo AO, Nash P, Hazleman BL. A prospective double blind dummy placebo controlled study comparing triamcinolone hexacetonide injection with oral diclofenac 50 mg TDS in patients with rotator cuff tendonitis. *J Rheumatol* 1990;17:1207-10.
- Vischer TL. *Pain in rheumatology*. Basel: ROCOM, Hoffman-La Roche; 1982.
- Hawkins RJ, Brock RM, Abrams JS, Hobeika P. Acromioplasty for impingement with an intact rotator cuff. *J Bone Joint Surg Br* 1988;70:795-7.
- Chard MD, Hazleman BC. Tennis elbow — a reappraisal. *Br J Rheumatol* 1989;28:186-8.
- Smith DC, McAfee JH, Lucas LM. Treatment of nonspecific olecranon bursitis. A controlled blinded prospective trial. *Arch Intern Med* 1989;149:2527-30.
- Vischer TL. *Slide atlas of rheumatology: non articular rheumatism*. London: Gower Medical Pubs; 1984.
- Anderson BC, Manthey R, Brouns MC. Treatment of de Quervain's tenosynovitis with corticosteroids. *Arthritis Rheum* 1991;34:793.
- Marks MR, Gunther SF. Efficacy of cortisone injection in treatment of trigger fingers and thumbs. *J Hand Surg [Am]* 1989;20:787-9.
- Maddison PJ, Isenberg DA, Woo P, Glass DN. *Oxford textbook of rheumatology*. 2nd ed. Oxford (UK): Oxford University Press; 1998. p. 1776.

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Articles to date in the rheumatology series

- Esdaile JM. Rheumatology: introduction to the series. *CMAJ* 2000;162(7):1007.
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- Shojania K. Rheumatology: 2. What laboratory tests are needed? *CMAJ* 2000;162(8):1157-63.
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