

Non-traumatic shoulder pain in general practice: a pragmatic approach to diagnosis

Key points:

- ▶ Shoulder pain is a common reason for seeking health care in Australia.
- ▶ A focused clinical history and physical examination without imaging is usually sufficient to arrive at a working diagnosis and management approach for patients presenting with non-traumatic shoulder pain in general practice.
- ▶ In the absence of red flags, imaging for non-traumatic shoulder pain has limited benefits and is not likely to influence management.
- ▶ Where imaging is warranted, ensure appropriate clinical details are provided in the referral to help focus the investigation and assist the radiologist's interpretation of the findings.
- ▶ Explain to and reassure patients that most episodes of shoulder pain have favourable outcomes.

Shoulder pain: complex, not complicated

The shoulder is a complex structure which is highly dependent on ligaments and tendons for stability, making it prone to a range of problems.¹ However, complex doesn't necessarily mean complicated when assessing shoulder pain, and an overcomplicated approach to diagnosis is unlikely to alter early conservative management.²

Shoulder pain is a common reason for seeking medical care in Australia, with shoulder complaints accounting for 1.2% of all presentations to general practitioners in 2015–16.³ Data from the Medicare Benefits Scheme (MBS) indicate that shoulder problems were the third most common reason for imaging between July 2016 and June 2017.⁴

Clinical assessment remains the cornerstone in formulating a working diagnosis and guiding the clinical management of shoulder pain.

Heavy reliance on imaging in general practice may be related to low levels of practitioner confidence about making a clinical diagnosis. Patients may also expect to be told the exact cause of their pain, which could pressure GPs into ordering imaging early.^{5,6}

Keeping it simple

A simple approach, based on history and targeted physical examination, is recommended for the assessment and management of shoulder pain. Each element of history and examination has limited reliability and validity⁷ but collectively they show patterns which usually lead to a working diagnosis that can inform management. Good management has the potential to improve the prognosis of shoulder pain.⁸

The pain history should consist of an assessment of the location, nature, severity, onset and duration of pain as well as risk factors for shoulder pain. A past history of malignancy or recent infection or trauma should alert doctors that red flags may be present.¹

It's also important to consider that shoulder pain may be referred pain from the neck and could also be a symptom of ischaemic heart disease.¹⁹ Key history points for the main pain locations are outlined in Table 1.

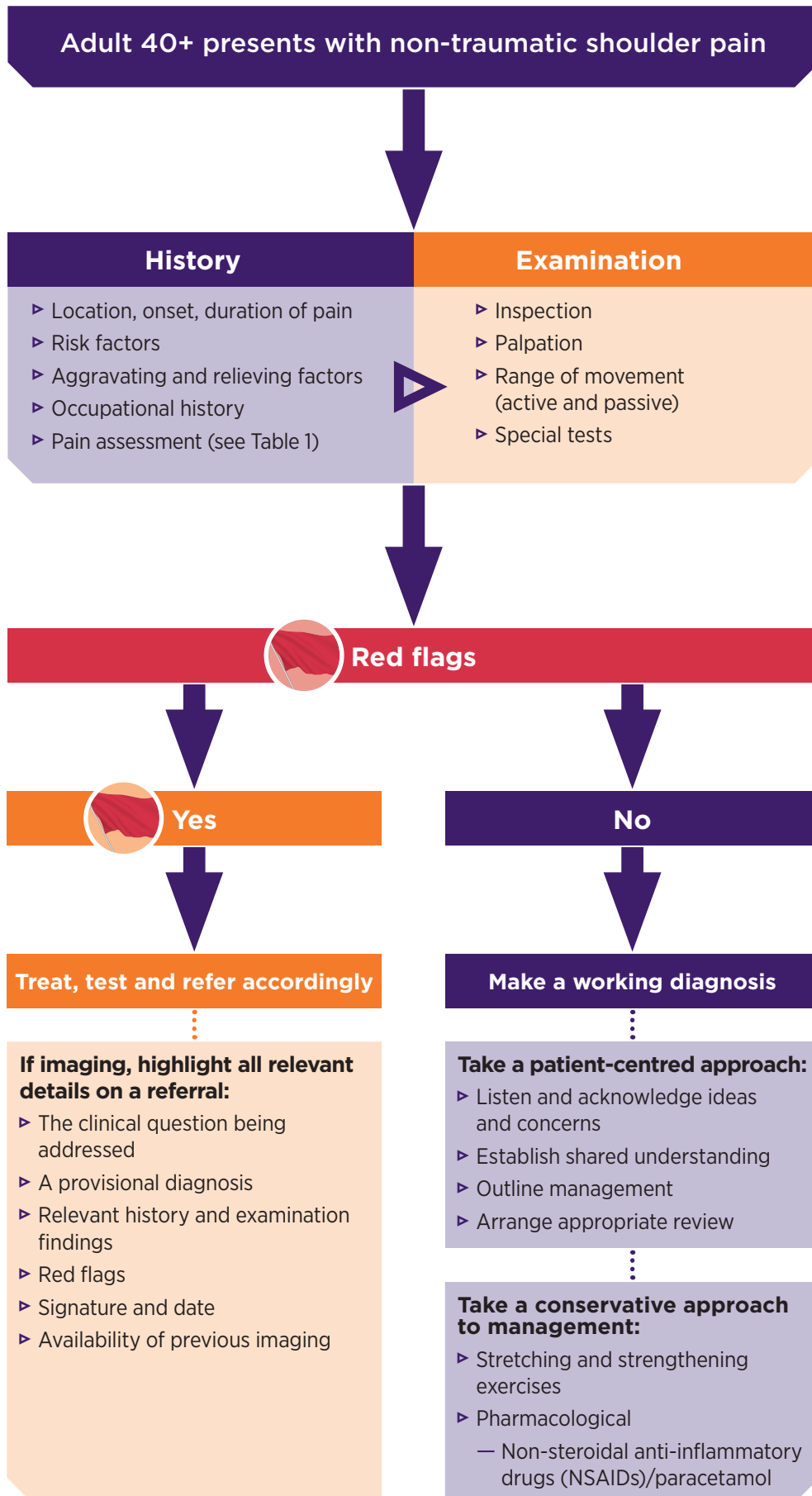
A focused history is the most valuable yet least effectively used tool in clinical medicine.

TABLE 1

KEY CLINICAL FEATURES OF NON-TRAUMATIC SHOULDER PAIN^{7,10-13}

HISTORY	EXAMINATION	THINK OF
<ul style="list-style-type: none"> ▶ Over 50 years, female ▶ Anterior and lateral pain ▶ Nocturnal pain 	<ul style="list-style-type: none"> ▶ Diffuse tenderness ▶ Painful reduction all movements, including external rotation 	<ul style="list-style-type: none"> ▶ <i>Capsulitis</i> ▶ <i>Calcific tendinitis</i>
<ul style="list-style-type: none"> ▶ Over 70 years ▶ Gradual onset global shoulder pain and stiffness 	<ul style="list-style-type: none"> ▶ Variable swelling and tenderness ▶ Reduced active and passive range of most movements +/-end range pain 	<ul style="list-style-type: none"> ▶ <i>Glenohumeral joint arthritis</i> ▶ <i>Polymyalgia rheumatica</i>
<ul style="list-style-type: none"> ▶ Over 25, female ▶ Bilateral global shoulder pain, stiffness and swelling ▶ Other joints affected ▶ Worse in mornings 	<ul style="list-style-type: none"> ▶ Diffuse swelling and tenderness ▶ Painful reduction in all movements 	<ul style="list-style-type: none"> ▶ <i>Rheumatoid arthritis</i>
<ul style="list-style-type: none"> ▶ Anterolateral pain with abduction and lying on shoulder 	<ul style="list-style-type: none"> ▶ Tender rotator cuff insertion or subacromial bursa ▶ Painful arc of abduction & internal rotation. ▶ Positive impingement test ▶ Weakness on empty can test (rotator cuff tear) 	<ul style="list-style-type: none"> ▶ <i>Supraspinatus tendinopathy or subacromial bursitis</i> ▶ <i>Rotator cuff tear</i>
<ul style="list-style-type: none"> ▶ Posterior pain over upper trapezius +/- neck 	<ul style="list-style-type: none"> ▶ Shoulder movements have little or no effect on the pain ▶ Tender upper trapezius and mid to lower cervical spine ▶ Pain with cervical movements or quadrant/Spurling test (+ arm pain/paraesthesia) ▶ Negative impingement test 	<ul style="list-style-type: none"> ▶ <i>Referred pain from mid or lower cervical spine dysfunction</i>
<ul style="list-style-type: none"> ▶ Pain in parascapular region, posterolateral shoulder, upper limb +/- neck ▶ Tingling in thumb, index or middle fingers 	<ul style="list-style-type: none"> ▶ Shoulder movements have little or no effect on the pain ▶ Pain with cervical movements ▶ Tender lower cervical spine, rhomboids and infraspinatus. ▶ Upper limb pain/paraesthesia with Spurling test ▶ (+/- C6 or 7 neurological signs) 	<ul style="list-style-type: none"> ▶ <i>C6 or 7 radicular pain or radiculopathy from disc/osteophyte complex</i>

Characteristics of a clinical history are outlined in Figure 1.



A targeted physical examination

A targeted shoulder examination consists of inspection, palpation and movement testing. Comparison with the other shoulder, as appropriate, and having the shoulders adequately exposed is important.¹⁴ NPS MedicineWise has developed a **clinical examination video with Dr Michael Yelland**, general and musculoskeletal medicine practitioner, outlining the key aspects of each stage of the shoulder examination. This includes two special tests.

Be mindful that imaging rarely affects management

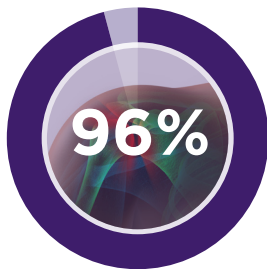
Research reports that Australian doctors rely heavily on imaging for the diagnosis and management of shoulder pain. In one Australian study, in response to a scenario of a patient with a history consistent with rotator cuff tendinopathy, 69% of GPs ordered a shoulder X-ray and 82% ordered ultrasound.¹⁵ However, the diagnostic utility of imaging is limited in non-traumatic shoulder pain and imaging is unlikely to alter management.¹⁶

Be mindful that incidental findings on imaging can lead to unnecessary further investigations and treatment

The causal link between imaging findings and shoulder symptoms is poor, with research reporting high rates of incidental findings in asymptomatic individuals.^{17,18} One study, which investigated ultrasound findings, reported that shoulder abnormalities were identified in 96% of men who did not have shoulder symptoms.^{17,19} The high prevalence of asymptomatic pathology identified in images of patients presenting with shoulder pain can complicate the interpretation of imaging

results. This may lead to inappropriate treatment if the clinician associates signs and symptoms with the reported imaging findings in the absence of clinical correlation.⁸

Imaging modalities such as ultrasound and magnetic resonance



Prevalence of shoulder abnormalities on ultrasound in men who did not have shoulder symptoms

imaging (MRI) have been reported as useful diagnostic tools in secondary care² and may be indicated in some cases of non-traumatic shoulder pain, such as in the presence of red flags.²⁰ In cases where imaging is warranted for red flags, X-ray is the recommended starting point due to its wide availability and accessibility.²¹

Definitive anatomical and pathological diagnosis of non-traumatic shoulder pain can be difficult and may not always be reliable.²²⁻²⁶

In recent years, approaches that reduce the emphasis on patho-anatomically based diagnostic labelling and highlight more pragmatic, functional assessment have been proposed.^{22,23} This approach is similar to the recommended approach to low back pain.

In this video interview, Professor Karen Ginn, musculoskeletal anatomist, physiotherapist and clinical researcher, describes her approach to assessing patients presenting with non-traumatic shoulder pain.

Make the most of your imaging request – if absolutely necessary...

The information provided on an imaging request form has a direct impact on patient care and safety. One study reported that the information on 34% of request forms contained no contributory history or clinical information for the radiologist.²⁷ To allow the radiologist to interpret the results and provide a clinically appropriate report, it is important that key clinical details are conveyed clearly in the referral.^{28,29} These include:²⁸

- ▶ the clinical question being addressed: including a clear diagnostic question will help focus the radiologist's interpretation of results
- ▶ a provisional diagnosis: a provisional diagnosis on the request can help guide the protocol for imaging investigation. This will help to determine what conditions should be ruled in and out
- ▶ relevant history and examination findings: can help indicate the most likely diagnosis as well as the area to focus on
- ▶ red flags: make note of any red flags which are indicators for specific clinical suspicion
- ▶ availability of previous imaging.

Take a conservative and patient-centred approach to management

A conservative approach to management, which includes a combination of activity modification, physical therapy and symptom-relieving medicines, produces satisfactory results for most patients.³⁰

If analgesia is required, paracetamol should be offered as a first-line option. Non-steroidal anti-inflammatory drugs (NSAIDs) may also be used in combination with or instead of paracetamol if the patient does not find paracetamol alone helpful³¹ and if there are no contraindications.

Physical therapy can help maintain function of the shoulder joint but should be undertaken with caution,³⁰ so referral to a

physiotherapist for specific advice is recommended.³¹ A supervised exercise regime has demonstrated benefit in both the short and longer term for some patients.³²

A strong therapeutic partnership will improve patient satisfaction as well as clinical outcomes.

Establishing a shared understanding with the patient is essential.

Listening to and acknowledging each patient's concerns and ideas about their shoulder pain can also improve patient satisfaction.³³

Points for discussion with patients

- ▶ A history and physical examination will help diagnose shoulder pain and plan treatment.
 - ▶ X-rays and ultrasound are not usually necessary for diagnosing shoulder pain.
 - ▶ Although medical imaging is useful to help diagnose problems such as fractures and dislocations, it is unlikely to have an impact on the treatment of other shoulder conditions.
 - ▶ Often what is seen in imaging is not the cause of shoulder pain and, in most cases, results from imaging cannot reveal what's causing the pain.
 - ▶ There are a range of treatments for shoulder pain which have been linked to positive outcomes.
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Expert reviewer

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