



Frozen Shoulder

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The term 'frozen shoulder' was first used by Codman¹ to describe 'many conditions which cause spasm of the short rotators or adhesions about the joint or bursa'. In the pre-arthroscopic era, Neviasser² used the term 'adhesive capsulitis' to describe the findings of chronic inflammation and fibrosis of the joint capsule. This term is no longer recommended as arthroscopic examinations show an absence of adhesions.

The term 'stiff shoulder' should be used to describe the patient who presents with a restricted range of motion. The aetiology can be due to primary or secondary causes. The term 'frozen shoulder' should be used exclusively to describe the primary idiopathic stiff shoulder. The term 'secondary stiff shoulder' should be used to describe all other cases of shoulder stiffness with a known aetiology³.

The aetiology of frozen shoulder is not clearly understood. However, it is a common condition affecting approximately 2 to 5% of the general population. There is a slightly greater prevalence in women aged between 40 and 60 years. The non-dominant arm typically is most affected. Frozen shoulder does not tend to affect the same shoulder twice but sequential bilateral occurrence is seen in about 20% of cases. There is a strong association with diabetes⁴. Thyroid disease, nephrolithiasis and cancer patients have similarly been found to have a higher incidence than in the general population.

The natural history of frozen shoulder is one of a painful, debilitating disease with an often protracted course. Whilst Codman¹ stated that 'recovery is always sure and may be confidently expected', a number of studies have demonstrated long-term residual stiffness. Commonly, external rotation is most affected, but this may not always result in functional impairment.

Three phases have been described⁵ (Figure 1). The disease begins in the painful or 'freezing' phase. Typically, pain precedes restriction in motion and this phase lasts between 2 to 9 months. The freezing phase is followed by the stiff or 'frozen' phase in which the pain gradually decreases but there continues to be a reduction in motion. This phase lasts anywhere from 4 to 12 months. In the final

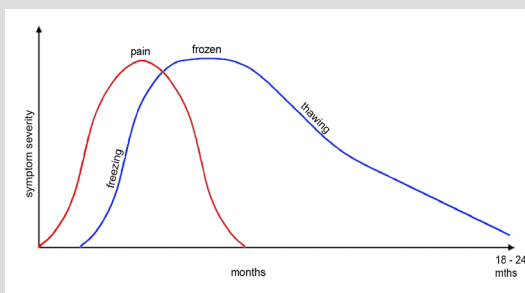


Figure 1. Continuum of phases in frozen shoulder

Table 1. History

- Insidious onset of pain (several months' duration)
- Pain in the region of the deltoid insertion
- Night pain is common (patients typically cannot sleep on affected side)
- Accompanied loss of motion (more prominent with disease progression)
- Difficulty dressing, combing hair, reaching behind back

Table 2. Examination

- No specific point of tenderness
- Normal rotator cuff strength
- Global restriction of both active and passive motion (reduced passive external rotation with the arm at the side is the hallmark of frozen shoulder)

Table 3. Investigation

- Radiographs are typically normal but are important to eliminate other causes such as:
 - arthritis
 - calcific tendinitis
 - unrecognised shoulder dislocation
- Disuse osteopenia may be seen in patients with long- standing disease
- MRI is not usually necessary for the diagnosis but shows thickening of the joint capsule and a diminished axillary pouch

phase, the 'thawing' phase, shoulder mobility and function is gradually restored. This can take a further 5 to 26 months. Some patients regain full use of their shoulder within 12 to 18 months, but others may have persistent symptoms for years. The contralateral shoulder may become affected between 6 months to 7 years after the initial symptoms of the first shoulder.

The level of evidence of studies regarding the various treatments for frozen shoulder is limited. A multitude of conservative treatment options exist, all with positive short term results, but regardless of choice, a minimum of 6 months of supervised conservative treatment should be attempted before any more invasive treatments are considered.

Although there is no literature to support the use of non-steroidal anti-inflammatory drugs (NSAIDs) in the treatment of frozen shoulder, they are commonly prescribed in the early, inflammatory phases to provide short term pain relief. There is evidence that treatment of frozen shoulder with only NSAIDs has no effect on the natural course of the disease⁶.

Oral corticosteroids have been shown to improve pain and range of motion in the short term (6 weeks). A more prolonged course of oral corticosteroids could have a longer lasting effect⁷.

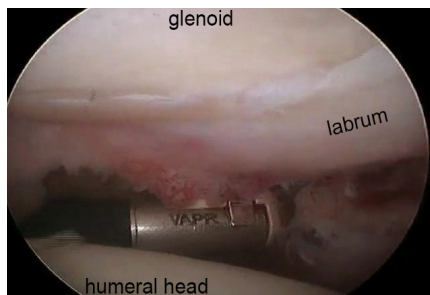


Figure 2. Arthroscopic image showing radiofrequency ablation of the joint capsule

Intra-articular corticosteroid injections are a common intervention in treating frozen shoulder. There is evidence for short-term pain relief. Repeated injections can be beneficial, with a maximum of three. The effectiveness of an image-guided intra-articular injection is more predictable than that of a 'blind' injection⁸.

There is conflicting evidence on the effects of physiotherapy for frozen shoulder. Supportive therapy combined with a simple home exercise program, or 'supervised neglect', has been shown to be effective⁹. In general, a physiotherapy program should include: exercises to increase both active and passive range of motion, capsular and muscle stretching, soft tissue manipulation, joint mobilisation techniques, patient education about the disease, and a program for home

Multiple Myeloma (continued from page 6)

CONCLUSION

Although multiple myeloma remains an incurable disease, the treatment options are increasing with better efficacy, tolerability and side effect profile. This has prolonged survival and quality of life of many patients.

References available on request.

exercises. All treatment must be pain-free to avoid contractures and reflex spasms which will lead to greater stiffness and inflammation. Joint distension or hydrodilatation has been shown to improve pain relief, range of motion and shoulder function¹⁰. The optimal time seems to be when recovery of mobility during rehabilitation plateaus. There is no beneficial effect shown for more than 2 sessions of joint hydrodilatation.

In cases with residual restriction of motion after conservative treatment, manipulation under anaesthesia (MUA) may be indicated. Surgical intervention is best avoided in the freezing phase when inflammation is strong as it has been shown to aggravate the patient's symptoms and restricted range of motion¹¹. Complications such as proximal humeral fractures, glenoid fractures, shoulder

dislocations and brachial plexus palsies have been reported. Prior to the widespread use of arthroscopy, MUA was the standard of care for the management of refractory frozen shoulder.

Arthroscopic capsular release (ACR) allows complete inspection of the joint, confirmation of the diagnosis, and a more precise capsulotomy (Figure 2) without the risks of manipulation. ACR can result in immediate relief of symptoms and faster recovery of shoulder function than any other treatment modality. Furthermore, the results tend to be longer lasting. Regardless of whether capsular release is achieved arthroscopically or through manipulation, it should be followed by early, diligent and directed therapy to prevent recurrent stiffness.

References available on request.

GRAND ROUND DATES 2016		
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Wednesday 24 August	A/Prof Peter Papantoniou	Orthopaedics
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Monday 17 October	A/Prof Alvin Ing	Respiratory
Wednesday 9 November	Dr Karen Mizia	Diagnostic Radiology and Ultrasound

Refreshments from 12 noon. Presentation 12:30 to 1:30pm.
Level 2 Conference Room Tulloch Building SAH Campus 185 Fox Valley Rd Wahroonga.
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