FROZEN SHOULDER (Periarthritis of the shoulder)

By

Dr John Ebnezar

Introduction

- In this condition your extremely mobile shoulder joint strikes work and is hence called the frozen shoulder.
- Medically this condition is called Periarthritis of the shoulder joint.
- In this condition the sac (capsule) which is enclosing the shoulder joint becomes thick, severely restricting its movements (Fig No 1).
- This condition commonly affects the elderly age group and is more frequently seen in diabetics (a disturbing fact, but the reasons is not clear).
- It is also seen in situations where the shoulder joint is kept immobile for long durations of time (like in fractures of your upper limb bones and in heart attacks patients’ etc.), See box below.

<table>
<thead>
<tr>
<th>Causes which can lead to a stiff Shoulder:</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Injuries around the shoulder.</td>
</tr>
<tr>
<td>▪ Prolonged immobilization of the shoulder in fractures of the upper limbs.</td>
</tr>
<tr>
<td>▪ Immobilization following fracture clavicle.</td>
</tr>
<tr>
<td>▪ Advancing age leading to osteoarthritis of the shoulder joint.</td>
</tr>
<tr>
<td>▪ Diabetics</td>
</tr>
<tr>
<td>▪ Previous history of dislocations</td>
</tr>
<tr>
<td>▪ Athletes and sports persons involved in throwing games like javelin, baseball etc.</td>
</tr>
<tr>
<td>▪ People with Ischemic heart disease who are bed ridden for longer durations</td>
</tr>
<tr>
<td>▪ Unknown cause (called Idiopathic)</td>
</tr>
</tbody>
</table>

Note: Any activity which causes the shoulder to be kept immobile for more than two to three weeks can result in stiffening.
Figures No 1: Showing the involvement of the soft tissues and the capsule in frozen shoulder

The Presentation

- Pain and restricted shoulder movements are the two common complaints.
- The pain usually does not radiate below the elbow and is dull aching in nature. (Fig 2).
- Patient cannot sleep on the side of the affected shoulder.
- It usually runs a self-limiting course for one year.

In the initial stages pain is predominant and in the later stages it is the restriction of the shoulder movements.

Figure No 2: Showing radiation of pain in frozen shoulder

- Both active and passive movements of the shoulder especially abduction and internal rotation cannot be done and is the hallmark of this condition.(Fig No3)
- Patient experiences considerable difficulty in carrying out day to day normal routine activities with the affected shoulder (See box and Fig No 4).
A person suffering from this condition has difficulty in carrying out these day to day functions:

- Combing the hair.
- Travelling by catching a railing in a bus.
- In ladies to wear the buttons of their blouses.
- Lift the upper arm above the shoulder level.
- Sleep on the affected upper arm.

Fig No 3: In frozen shoulder both active (left) and passive (right) shoulder movements are restricted

Fig No 4: In-patients suffering from frozen shoulder all these day to day routine activities are severely curtailed
**Investigations:**

Laboratory investigations are usually within normal limits.

Even X-rays of the shoulder are normal in most cases. However in few cases a dense white band (called the sclerosis) may be seen on the outer edge of the head of the Humerus (Figure No 5). Arthrogram of the shoulder shows restricted joint space and is more reliable test than the x-rays (Fig No6).

**REMEDY:** The remedial measures consist of

**During The Initial Painful Stages:**

- Taking painkillers, muscle relaxants etc at the advice of the doctors.
• Physiotherapy like ultrasound massage, short wave diathermy, TENS etc. The heat helps to improve the blood circulation to the areas and relaxes the muscle pain and also brings down pain

**Goals of treatment**

While you begin to understand the details about various treatment methods for managing frozen shoulder, it has to be clearly understood that there is *no permanent cure* for this disease. However the goal of treatment is to achieve the following objectives:

♦ Relieving pain.
♦ Preventing further progression of the disease.
♦ Helping the patient to mobilize the stiff shoulder joint.

**Treatment Methodologies**

This includes drug therapy, physiotherapy, exercises etc. Now let us discuss each medical treatment modality in greater detail:

**Drug Treatment**

Drugs commonly used in the treatment of painful stages of the frozen shoulder aims at reducing the pain, muscle spasm, bringing down the swelling, regenerating the worn out cartilage if the cause of frozen shoulder is degeneration of the joints.

• **Painkiller drugs** like Aspirin, Ibuprofen, Diclofenac sodium, Nimesulide, Valedoxib, and Rofexocib etc. Pain is an important symptom that brings the patient to the doctor and it needs to be tackled effectively to give relief to the patient. However all the drugs have to be taken at the advice of the doctors as most of the drugs are known to cause side effects like pain abdomen, gastritis, bleeding, vomiting etc. These drugs should preferably be taken after meals to avoid the above side effects. One word of caution, do not take these drugs for a longer duration without the advice of the doctors due to their potential complications.

• **Injection treatment**: This consists of injecting locally acting steroid preparations (E.g. In. Kenacort, In Depomedrol etc) into the joint. This has to be given by experts with full aseptic precautions. Not more than two or three injections can be given into the joints at an interval of one month. This is indicated when the drugs fail to provide necessary relief even after 3-4 months of treatment. (Fig No 7).
Physiotherapy

A brief mention of the various modalities of physiotherapy treatment in frozen shoulder is made here:

- **Heat Therapy**: This is given by way of Ultrasound Massage or Short Wave Diathermy for a period of 2-3 weeks depending upon the severity of pain. Heat therapy helps to alleviate pain and muscle spasm and makes the patient feel better.
- **Cold Therapy**: This is useful in acute conditions of pain and spasm and is not preferred for pain of longer duration. This also works in the same way as the heat therapy.
- **TENS (Transcutaneous electrical nerve stimulation)**: This is another form of heat therapy useful in painful conditions of the shoulder.
- **Infra Red**: This is inferior to the heat therapies mentioned above as it is known to heat only the superficial structures like the skin, subcutaneous tissue etc. However the patient can do himself at home.
- **Massage**: Regular, rhythmic massaging of the painful joints with the application of painkiller ointments or oils is known to induce relaxation of the muscles and cause pain relief. Moderate forces have to be used during the massage

Alternate Therapies

- **Acupressure**: Stimulating appropriate acupoints 5 to 10 times every day helps to relieve pain and muscle spasm of the shoulder. Simple effective and easy to perform by the patient themselves at home. (fig No 8)

![Fig 8: Showing the various acupoints for pain relief in shoulder problems](image)

- **Magnet Therapy**: Placing small magnets on either side of the painful shoulder helps to relieve pain and spasm. This is a very useful Adjuvant, cheap, simple, and effective and can be practiced by patients at home themselves. (Fig 9)
Fig No 9 Showing magnet therapy.

Caution: Never attempt vigorous exercises during the acute painful stages of the frozen shoulder, as it may aggravate the problem and lead to more stiffness.

2. During the Later Stages

In this phase, pain is less and the stiffness of the shoulder is more. Hence efforts are directed towards restoring back the shoulder movements. Exercises play a key role in realizing this objective. Below are mentioned some useful shoulder exercises and other measures:

- Exercises of the shoulder joint by using the shoulder wheel are carried out by a therapist in the clinic.
- Certain home exercises are useful in mobilizing the shoulder by the patient themselves in the comfortable confines of their homes (See Box).
- Your doctor in severe cases contemplates manipulation under general anesthesia. This is a double-edged weapon. If done forcefully it may damage the capsule and increase the stiffness. An expert should do this. Keep yourself away from quacks for such manoeuvres.
- In intractable cases locally acting cortisone injections as mentioned earlier into the joint helps considerably to reduce the pain.

DO THESE SHOULDER EXERCISES YOURSELF AT HOME (SELF HELP METHODS)

These exercises are aimed at mobilising and strengthening the shoulder joint muscles. Do it on a regular basis at home. You can do most of these exercises only but you may seek the assistance of somebody in your household.

SHOULDER MOBILISATION EXERCISES

1. Pulley Exercises Over an iron beam pass a skipping rope. Holding the two ends of the rope on either side, swing the rope alternatively up and down; this helps improve the flexion and extension movements of your shoulder. Do this for 5 to 10 minutes every day.
2. **Back Climbing Exercises**: In the standing position, bringing both your hands over the back. It is difficult to place the affected hand over the back in case of frozen shoulder. Now slowly climb your hands upwards alternatively with the normal and affected hand. Do this 5- to 10 times. (Fig 10)

3. **Wall Climbing Exercises**: Stand facing a wall at your house. Place both the hands over the wall at a low level. Now slowly start an upward climb over the wall first with the normal limb and then with the affected limb alternatively.

![Figure No 10 Showing wall climbing and back climbing exercises](image)

4. **Circumduction Exercises**: Stand at the edge of a table or cot. Slightly bend forwards and support the table with the normal hand. Now slowly rotate your stiff shoulder in all the directions in a circular manner. Repeat this for 5 to 10 times. (Fig 11)

5. **Pendulum Exercises**: In the same position mentioned above, swing your suspended stiff Upper limbs like a pendulum to and fro. (Fig 11)

![Figures No 11 on the left showing assisted extension and external rotation and figure at the centre showing self assisted internal rotation and pendulum exercises. Figure on the left showing assisted circumduction exercises](image)

**Instructions:**

- Do the above exercise for 5 to 10 times each.
- Do these exercises for about half an hour every day.
- Before starting these shoulder specific exercises, massage your shoulder joint with oil or a gel and give heat packs. This will relieve pain; stretch the contracted soft tissue structures and allows better extensibility.
- After the exercises, massage the joint again and repeat the heat therapy.
Note: These exercises are simple to do and can be practiced by any one at home. The results are not seen immediately but seen over a period of time. Regularity is a must to get the optimum results.

### Shoulder mobilisation exercises, which you can practice at home:
- Pulley exercises
- Back climbing exercises
- Wall climbing exercises
- Circumduction exercises of the shoulder
- Pendulum exercises

Note: These are easy to do exercises, which do not require any extensive training. They are very effective in slowly increasing the range of shoulder movements.

Figures No 12: Showing assisted shoulder exercises like extension, abduction and glide

### ASSISTED SHOULDER EXERCISES:

In some situations

- Wherein you experience difficulties in doing the above-mentioned exercises due to weakness or pain, take the assistance of any of your family member or a therapist.
- Another person can provide assistance when you are carrying out the abduction, flexion and extension and rotations exercises.
- They can also perform the passive shoulder glide (Fig 12).

### SHOULDER STRENGTHENING EXERCISES:
• Here active shoulder exercises are done with a weight attached to the wrist or resistance being offered to all the active movements either by the patient himself with his opposite hands or by a therapist or a family member.
• Exercises done against resistance help in strengthening the shoulder muscles.
• These exercises can be done after the mobilisation exercises. (Fig No 13)

Figures No 13: Showing self-resistance shoulder strengthening exercises