

'THE FROZEN SHOULDER'

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The reason why I have chosen this subject is to try to differentiate pain in the shoulder from the many conditions which are lumped together under the stupid term 'the frozen shoulder'. We are so used to hearing this, that we are in great danger of accepting this loose terminology as fact, as we accept the diagnosis of tennis elbow, slipped disc, or to our sorrow sometimes, sprained wrist.

The frozen shoulder is on the way out, except for one or two specific conditions, especially since hydrocortisone came in as a form of treatment applied in the acute or active stage. The causes of frozen shoulder have been discussed every five years over the last 60 years with a different cause each time, which was believed to be true at that time. I must speak to you about the biceps tendon, and bursitis of the sub-deltoid and subacromion bursa in relation to frozen shoulder, especially if calcification is present. In fact there is seldom a specific cause laid down by the patient, other than direct or indirect trauma, and these do not necessarily give rise to the real frozen shoulder.

It is necessary to divide the main causes of pain in the shoulder into four main categories. I except, fractures, dislocations, disease or congenital conditions.

- (1) The first of these conditions represented as a frozen shoulder is the mono-articular rheumatoid type of capsulitis, which is usually arthritic with a toxic background.
- (2) Traumatic capsulitis is the second condition; it is a partial capsulitis with a possible tear in the capsule and adhesions giving rise to pain and limitation of movement.
- (3) Referred conditions through to the dermatomes; i.e. osteopathic lesions; pressure on the nerve roots, inflammatory oedema around the articular facets, lesions in the discs or cartilages. Here we must remember that the deeper the structures involved the further will be the reference of pain to the dermatomes, (the 'constant length phenomena').
- (4) Injury to muscle, tendon and local structures. Here the limitation of movement is voluntary by the patient because of actual localised

pain in the contractile tissues and inert tissues. No direct pain is present except under muscle control and subsequent movement.

A small stimulus represents a small amount of pain. While all these conditions integrate to a certain extent and certain symptoms are common to all, it is up to us to isolate them and attempt to arrive at a differential diagnosis. This is absolutely essential if we are to be able to give specific and correct treatment, advice for the quick recovery of the patient and a controlled prognosis.

Now let us take the first of these:

- (1) The Mono-articular Rheumatoid Capsulitis This is of arthritic origin and a possible toxic focus of infection present somewhere in the body, which, of course, must be searched for and eliminated. It is associated, in many ways with an acute form of spondylosis in the spine and indeed in any other joint.

We find the gleno-humeral joint is relatively limited in local mobility and when pain is present, it is constant from any angle of movement, and from the very commencement of that movement. We can be sure we are dealing with a case of what we call a frozen shoulder, or what we call here a mono-articular rheumatoid capsulitis. The driving mechanism of the joint is interfered with, and pain and decrease of movement increases in proportion and keeps on to proportionate limitation in movement.

The history of onset in these cases is difficult to access. In fact the patient is not conscious of any known cause. He may say that weeks or months ago he felt something in the forearm or around the deltoid muscle insertion but it passed away. Nobody seems to know the real cause of this painful type of shoulder. It has been said to follow some operations, neck or coronary conditions, and upper rib conditions. The E.S.R. is usually slightly raised as indeed it should be with some infection present.

These are the cases, which, before the introduction of hydrocortisone. were left to recover by what must surely facetiously be known as 'spontaneous recovery'. They were expected to be pain free and almost

fully mobile within 16 months to 2 years. We, as osteopaths, and without hydrocortisone, are expected to do better than this, and indeed we do. But, I assure you, I have had shoulder cases which have not recovered within a reasonable time, and I think the answer lies in them being this particular type of painful shoulder. Perhaps one which we did not recognise from the beginning, and neither did anyone else, until the condition was established.

It is certainly insidious in its onset with perhaps the patient remembering a vague pain usually somewhere around the deltoid insertion which then went away. This is usually the beginning, when the stimulus of slight inflammation in some part of the shoulder, be it in capsule, muscle, ligament, tendon, leads to inflammatory oedema around the articulating facets. When this is present and when the stimulus is small, the reference of pain is small. As the stimulus and inflammation is increased we have the reference of pain going further down the arm until it reaches the dermatomes at the wrist or even the thumb. In other words, the greater the stimulus or the deeper the structures involved, the greater the pain length down the limb covering the dermatomes. This is Cyriax's 'constant length phenomena'¹ which we will refer to later.

This at least should give us a pointer as how to start the treatment of these cases. There has been worked out by Cyriax and others a pattern of diagnosis in these cases, called the capsular pattern. It is rather rough but accurate enough to give us a fairly constant pattern in a particular type of shoulder condition such as this.

Let us review what happens in cases such as this, where the patient is left to go on, untreated, to the 'spontaneous recovery.

(a) First 4 months - the pain increases and movement decreases and there may be a spot of pain at the deltoid insertion.

(b) Second 4 months - there is still pain with the limitation of movement getting worse.

(c) Third 4 months - the pain settles down but the movement of the arm is very limited.

(d) Fourth 4 months - pain receding or almost gone but the range of movement still limited.

When cases come to you with this condition you must apply the capsule pattern test and marry the results with those of any other tests you do. This test reads:

(i) You hold the scapula and when abduction is tried it is found to be limited by 15° approximately.

(ii) From the side you try external rotation and find it is limited by 45° approximately.

(iii) When internal rotation is limited by putting the hand behind the back, it is limited by 50° approximately.

You can multiply these figures by two if abduction is doubled. You will notice that these figures are in multiples of three, i.e. 5, 15 and 45.

When you have this pattern it is an odds on chance that you will have referred pain down the whole length of the arm; a condition Cyriax called the constant length phenomena. This means that all the dermatomes below the shoulder are involved, and this means that you have constant pain below the elbow and into the wrist and hand. This in turn means there is still active inflammation in the capsule and three conditions exist which prohibit forced manipulation of the shoulder.

(i) When pain is felt below the elbow.

(ii) When pain is felt at rest.

(iii) When the patient cannot lie on the affected side.

This is the time when you should use hot and cold packs to the shoulder, pay more attention to the soft tissues in the neck and upper dorsal area, and apply very gently gapping traction to the gleno-humeral joint. This is also the time when hydrocortisone helps most, that is, during the active inflammatory condition.

When this constant length phenomena begins to recede you find that:

(a) There is no pain below the elbow

(b) There is no pain when at rest.

(c) There is no pain when the patient lies on the affected side.

It is then that full manipulative procedures are indicated, locally to the shoulder joint as such, and to the deep tissues and underlying lesions in the cervical area. By this time the patient himself is moving his shoulder freely and with your help will be very soon completely normal.

By the way, it is said that this condition never recurs in the same shoulder; that I wouldn't know, but this is your real 'frozen shoulder'.

(2) Traumatic Capsulitis

This is due to severe injury inflicted on the shoulder such as a sudden jerk on a bus especially if 'strap hanging', a sudden blow over the acromio-clavicular area from above, certain strain or stress applied to any or more of the muscles involved in the rotor cuff group or any of the external rotator group arriving from the spine to the shoulder. Even the latissimus dorsi can be involved here as a cause of pain in the shoulder.

If the trauma is severe it can even result in a tear in the capsule with adhesion formation not only in the capsule but also in the ligaments, tendons and bursae. Pain here is not necessarily due to capsulitis, but by the limitation of movement caused by injury to any of the above mentioned structures. Some disuse - atrophy may be obvious at this stage especially in the deltoid group.

In fact, this condition can reproduce most of the symptoms associated with the previous syndrome. If left untreated the pain may eventually go but the limitation of movement is worse owing to excessive muscular contraction and full recovery of normal movement is doubtful.

If necessary, tests must be carried out on each individual muscle for interference with function and conduction. Treatment here takes the form of local manipulation direct to the shoulder and to any individual muscle that you find involved, plus ancillary treatment by exercises such as weight swinging, wall crawling or towel pulling, or anything else you use yourself such as active, passive, or resistant isometric

exercises or even a sling in certain conditions which will be mentioned later.

(3) Osteopathic Lesions referred through to the dermatomes

These can give rise to pressure on the dural investment covering the nerve roots or inflammatory oedema around the articular facets, ligaments, cartilages or discs. Here again, one must remember the deeper the structures involved the further is the reference of pain to the dermatomes. This points to the particular segment of the cervical-dorsal area which is the cause of the trouble. This condition is closely allied to No.4.

(4) Injury to muscles, tendons, ligaments and surrounding structures

The limitation to movement here is voluntary on the patient's part because of localised pain in the contractile or inert structures. No direct pain is present except under muscle control and subsequent movement. The stimulus may be small and indicate that only one muscle or ligament is involved. Therefore, the reference of pain will be small and refer only to these structures and the treatment here must be obvious.

Examination of these cases can only be accepted as part of a differential diagnosis - we must find the underlying reason.

There are certain acute conditions allied to the shoulder that stand out conspicuously and are better dealt with by some form of specific treatment that is not necessarily adjustive as we understand the word. I refer, of course to a severe brachial neuritis, and to the inflamed condition and swelling of the sub-acromion and sub-deltoid bursa. You have all had cases of these conditions, and no doubt, have your own method of dealing with them.

But I would like to say that I have treated cases of brachial neuritis, severe and acute, by strong traction, in flexion on the McMurray table, by manipulation under anaesthesia and by all known osteopathic, adjustive procedures to the lower cervical, and 1 and 2 dorsal vertebrae including the 1st and 2nd ribs, with a view to relieving not only nerve

root and nerve trunk pressure, but also to try to normalise the scalenus anterior syndrome, which is in part responsible for this painful condition. I have had a very great percentage of good and permanent results by these various methods especially following specific adjustment of 2 and 4 dorsal vertebrae and accompanying ribs. But it is not always possible to use these methods because of:

- (a) Age group - 40-70 years
- (b) Constitutional condition
- (c) Time limit
- (d) Excessive size and obesity
- (e) Chronic fibrositis condition in the deeper structure

Now over recent years, while attempting normalisation of the structures involved, I place my patient in a cuff and elbow sling, and in most cases guarantee complete relief from pain in 6 weeks even without osteopathic treatment.

In acute cases of bursitis of the sub-acromion and sub-deltoid bursa with or without calcification, I also place the patient in a cuff and elbow sling and the patient is usually pain free within 10 days.

In both of these cases the patient is instructed to rotate the arm internally and externally while in the sling, which makes sure abduction of the arm is free when the sling is removed. Do please try these treatments before trying traction, manipulation or ruthless correction of the neck. Certainly in both cases it pays to examine the neck and give treatment to lesions as found, as long as the lesions are connected to the condition found.

Sometimes this sling idea when presented to the patient is not received with pleasure, but I can assure you, it works, and the patient will indeed be grateful afterwards.

SUMMARY

In the shoulder, as in any other joint, nothing is lost by a little patience in differential diagnosis. We must remember that local trouble in a muscle as such does not refer pain. Whereas trouble in tendons,

ligaments or capsules do have a reference of pain to these dermatomes. Any tenoperiosteal junction has a great reference of pain, e.g. at the elbow joint. We must check:

- (1) Each muscle, separately if necessary, by passive, active and resisted movements
- (2) The acromioclavicular articulation
- (3) The thoracic outlet, especially if the 1st rib is in lesion and the nerve trunk is involved
- (4) Thoroughly for trouble anywhere between 4C and 4D
- (5) For conduction loss and relate this amount of loss to the extent of pain and weakness found
- (6) For weakness
- (7) Wasting
- (8) Alteration in sensation, e.g. 'pins and needles'
- (9) Alteration in temperature (numbness or burning feeling)
- (10) Anesthesia
- (11) Paraesthesia

If by our examination we find two or more spinal segments involved, particularly in reference to C6, 7 8, and T1 and 2 nerve roots, we should think very seriously of a differential diagnosis, between a root palsy, neuroma, posterior displaced disc and even a spinal tumour, especially if the nerve root damage refers pain to both arms.

FINDINGS WHEN TESTING AGAINST ISOMETRIC RESISTANCE

- (1) Strong and painless - *nothing wrong*
- (2) Strong and painful - *muscle lesion either in tendon, muscle-tendon junction or teno-periosteal junction*
- (3) Weak and painful - *partial rupture or growth lesion in the muscle or bone*
- (4) Weak and painless - *neurological condition; complete rupture of muscle or root palsy*
- (5) All resisted movements weak in everything (even if painful or painless) - *may be psychological or again a growth bone lesion, (osteomyelitis or sarcoma)*

N.B. There are two principle sites for sarcoma - lower end of the humerus and lower end of the femur. Any growth lesion of a bone will give pain on movement due to the pull on the bone.