

ADHESIVE CAPSULITIS (FROZEN SHOULDER)

DESCRIPTION

Adhesive capsulitis is a condition characterized by generalized pain and stiffness with restricted motion of the shoulder. This entity does not occur in any other joint. There is loss of motion when the patient attempts to move their shoulder (active range of motion) and when the shoulder is moved by someone else, such as in the examination by a physician (passive range of motion). Because it is common for patients to complain of loss of motion from a variety of diagnoses which cause pain, it is incumbent upon the physician to determine whether this represents loss of motion as a result of guarding to avoid pain or true stiffness. When frozen shoulder occurs there is thickening and scarring of the joint capsule or ligaments causing the restriction of motion.

DEMOGRAPHICS

The causes of adhesive capsulitis are not completely understood. It is most commonly observed in patients in their fifth and sixth decades of life. In this age group the incidence is 2-5% with a much higher frequency in women. There is recent literature to support a relationship between hormonal changes in women during menopause and frozen shoulder. There is a much higher incidence in patients with diabetes mellitus (10-35%) and an increased incidence in people with Parkinson's disease, and closed head trauma. An association between immobilization of the arm and frozen shoulder has been observed. There is some evidence of increased frequency in those with thyroid disease, cardiopulmonary disease, cervical spine degenerative disc disease, and personality disorders although no specific causal relationship has been clearly established.

NATURAL HISTORY AND PHASES OF ADHESIVE CAPSULITIS

In general there are three phases of frozen shoulder and the presenting symptoms and examination findings vary depending on the phase.

1. The inflammatory phase or freezing phase - the patient has a spontaneous and gradual onset of aching pain at rest which progresses to pain with use. As the pain worsens there is frequently night pain which interferes with the patient's ability to sleep comfortably. It is common for patients to associate the development of symptoms with a trivial trauma, however, there is usually no causal relationship. During this phase the patient has very significant pain and a gradual increase in stiffness. This phase can last from 3-9 months, however in some cases it can last longer.
2. The frozen phase - the patient has a slow improvement in rest pain (pain without use of the arm) but little change in the range of motion and stiffness or the pain at the extremes of motion. This phase characteristically lasts 4-12 months.
3. The thawing phase - there is resolution of the pain and shoulder motion gradually returns toward normal. This can last from 3 months to 2-3 years.

DIAGNOSIS

The diagnosis of adhesive capsulitis is made from the history and physical examination. There is loss of both active and passive range of motion, and frequently there is pain on strength testing which can lead to confusion with regard to other diagnoses such as bursitis, tendonitis, impingement syndrome and rotator cuff tears. X-rays should be taken to eliminate other diagnoses with similar symptoms such as calcific tendonitis, arthritis, or chronic rotator cuff tear. In some cases x-rays of the cervical spine (neck), chest or arm are indicated.

Advanced imaging studies such as MRI are frequently performed to be sure of the diagnosis; however, they are usually unnecessary. Care must be taken in interpreting these studies, since patients with these symptoms will frequently demonstrate abnormalities of the rotator cuff which has little relationship to this diagnosis and may lead to treatment that is unnecessary. The most significant finding on MRI in patients with frozen shoulder is thickening of the inferior (lower) joint capsule (ligaments) and occasionally of the region known as the rotator interval.

TREATMENT OPTIONS

Treatment of this condition is carried out on an individual basis because of the significant variability in response to clinical treatment options. The treatment of frozen shoulder depends to a great extent on the stage during which the patient presents to the physician. The goal of treatment is to decrease pain and increase motion. The literature indicates that this is a self limiting disorder the symptoms of which will eventually resolve in one to three years regardless of treatment. Numerous studies, however, have shown that symptoms and disability can persist for many years in 20-50% of patients. For this reason we have taken a more definitive approach to this problem than the benign neglect which has in the past been recommended by some physicians.

In general treatment can be divided into nonsurgical and surgical options.

NONSURGICAL TREATMENT

The nonsurgical options include anti-inflammatory medications, and stretching which can be carried out at home after appropriate instruction and/or with a physical therapist. In some cases a short course of oral cortisone and/or cortisone injections may be beneficial. In addition, we recommend a diet which does not contribute to the inflammatory response, especially in the early phases. This is essentially a "Mediterranean diet" which minimizes intake of complex carbohydrates including gluten and increases the intake of antioxidants.

SURGICAL TREATMENT

If symptoms persist despite conservative measures, the surgical options include manipulation under general anesthesia and in some cases arthroscopy with surgical release of the tight structures.

DR. RUBIN'S APPROACH TO TREATMENT

Patients who present in the inflammatory phase with severe pain are frequently treated with a short course of oral cortisone and oral analgesics (pain medication). Depending on the response to this, the patient may undergo injection of cortisone into the joint. In some cases this is done by a radiologist who performs the injection under fluoroscopy (x-ray

visualization). In most cases the patient is started on a non-steroidal anti-inflammatory (NSAID) drug and we recommend a diet low in complex carbohydrates to minimize the inflammatory response. As the pain decreases a gentle home stretching program for 10-15 minutes three times per day under the supervision of the doctor and a physical therapist is initiated. I have found that the application of heat before stretching relaxes the tissues around the shoulder and improves the comfort and response to stretching. We frequently recommend that patients do this in a warm shower or in a heated pool or spa when available. There is no place for aggressive stretching or aggressive massage in the treatment of this disorder. I have found that this keeps the shoulder tissues inflamed and inhibits progress. The patient is monitored by me every 4-6 weeks and this approach is continued as long as there is improvement in pain and range of motion.

In general, if a patient fails to respond to the aforementioned non-operative treatment program, if there is a plateau in the progress or worsening of symptoms, I will usually discuss surgical intervention with the patient and family. In some cases the patient will opt to try more physical therapy either at home or in a formal therapy setting. Others will undergo either 1) manipulation under anesthesia which involves putting the patient to sleep and forcing the shoulder to move which causes the tight structures to stretch or tear, 2) arthroscopy whereby a few small incisions are made, the joint is visualized and instruments are introduced to cut through the tight portions of the capsule or 3) a combination of manipulation and arthroscopic capsular release. The decision regarding these options is made on an individual basis and is determined by the patient's response to previous therapy, range of motion and pain. These procedures are done under general anesthesia in our outpatient facility. Postoperatively a nerve block is performed for pain control. At home the patient usually uses a continuous passive motion machine (CPM) to maintain the gains that are made in the operating room and a cooling unit to help control postoperative discomfort. Analgesic medication is also utilized. Postoperative rehabilitation usually lasts approximately 3 months.