



Treating the Young Degenerative Shoulder

EFFECTIVE OPTIONS ARE AVAILABLE FOR YOUNGER PATIENTS

Khemarin R. Seng, MD
Mapleton Hill Orthopaedics



Shoulder pain is a disabling condition of multiple etiologies which include impingement, instability, rotator cuff tears, trauma, and arthritis. Mechanism of injury, age, occupation and sporting activity can lead a clinician to suspect one or a combination of etiologies. Usually, the younger, more active population is pre-disposed to the treatment strategies that are amenable to physical therapy and arthroscopic intervention.

However, what do we do for the young active patient with degenerative arthritis of the shoulder? How appropriate is physical therapy? What is the role for injection therapy? When is it the right time for a shoulder replacement? And what are the patient options in replacement?

Diagnosis

Shoulder pain caused by arthritis can cause pain, activity-related pain, nighttime pain, and loss of motion. It is marked by a debilitating, slowly progressive time course, and is associated and often confused with cervical etiologies of

pain. Shoulder motion can be limited, but rotator cuff strength is still usually present. Radiographs are marked by joint space narrowing, bone spur formation, sub-chondral sclerosis and possible cyst formation. If the examination is marked by rotator cuff weakness/dysfunction and the radiographs show a high riding humeral head, then rotator cuff deficient arthritis should be suspected and managed appropriately. (That topic is beyond the scope of this article). CT scans will confirm radiographic views, but also add information about the glenoid, its bone stock and associated deformity. MRI can be valuable in assessing the rotator cuff.

Physical therapy

Because of pain and the apprehension of moving a painful joint, the shoulder ends up losing strength and motion. Physical therapy is useful in improving motion, strength and scapulo-thoracic kinetics. However, therapy is often limited because of pain, and patients typically end up dissatisfied.

Injection therapy

Local anesthetic with steroid can offer pain relief. The lasting effects are temporary and difficult to predict. Sub-acromial injections are helpful. However, gleno-humeral injections target the degenerative compartment more specifically. A recent cadaveric study cites the reliability of medication administration into the desired compartment and showed the accuracy rate is best from an anterior approach into the gleno-humeral joint.

Cartilage viscosupplementation

This approach has recently gained attention. It is widely used for the knee and shows benefit. Unfortunately, it is not yet FDA-approved for the shoulder. However, a recent Level I article showed efficacy in the shoulder for arthritis. Therefore, we should look for its implementation and application on the horizon.

Arthroscopy

The role of arthroscopy is emerging and gaining acceptance as a valuable tool in degenerative shoulders. With its low morbidity, the cost benefit ratio may be favorable. Removing mechanical impingement and loose bodies may be of value. Releasing the shoulder capsule can improve motion. Marrow stimulating techniques (microfracture and abrasion chondroplasty) that are proven in the knee have shown benefit in the shoulder.

Arthroscopic biologic resurfacing has recently gained attention with good early outcomes. This type of resurfacing places biological tissue such as a meniscal allograft or fascia lata autograft as an interposition between the painful bone of the humeral head and glenoid. In general, arthroscopic results are better with early treatment and arthritic disease that is limited to one side of the joint.

Shoulder replacement: partial, half or whole?

Patients are ready for replacement when they have exhausted and failed more conservative treatments and injection therapy, or the benefits of replacement outweigh those of arthroscopic treatment. Radiographic and CT imaging should confirm and help with preoperative planning.

Hemi-arthroplasty or replacing the humeral side of the joint delivers good pain relief. These are usually stemmed implants requiring removal of the entire humeral head and can be cemented or un-cemented into place. Total shoulder arthroplasty replaces the humeral side with metal and the glenoid side with plastic. Studies show superior pain relief compared to hemi-arthroplasty, but the procedure can be associated with increased blood loss, higher risk of transfusions, increased operative times, increased morbidity, and glenoid component loosening requiring a more complex revision surgery.

Resurfacing

Joint resurfacing surgery has been around for a long time. The concept is now thriving because of improved instruments, metals, and material



Both the glenoid and humeral side have been replaced. The glenoid is replaced with high molecular weight polyethylene. The humeral head has been cut and replaced with a stemmed metal implant.



The humeral head has been resurfaced and a smooth metal cap has been placed onto the bone.

science. It has recently gained popularity with the trends of “minimal invasiveness” and “bone sparing” techniques. Hip surgeons are more frequently performing hip resurfacing in young patients with good bone stock. While this operation is not minimally invasive, it is bone preserving, affords excellent function and a more “normal feeling” hip for our younger, more athletic population.

Shoulder resurfacing has been around since 1980. Instead of cutting off the humeral head, the surgeon sculpts it and a metal cap is placed. The advantages include restoration of anatomy, preservation of bone stock, potential decreased operative time, potential decreased blood loss, and facilitation of an easier revision at a later date. A recent study looking at patients under 50 years of age shows promising early clinical outcomes. In some cases of isolated, focal cartilage defects of the humerus, a limited or partial resurfacing can be performed for the diseased portion of the humeral head. Biologic resurfacing of the glenoid also shows promise as an alternative to traditional glenoid replacement with the advantage of eliminating the plastic glenoid loosening problem.

Young patient dilemma

It is hard to define the young patient. Chronologic age is not a good measure. Physiologic age is a better measure but one must account for activity level and

how much wear will be placed on the joint. Younger patients exert more wear and tear on their joint and will most likely require multiple operations in the future. Seeking the one best surgery is a good philosophy, but it may be unrealistic as we see physiologically younger and more active patients. Rather, creating a lifelong treatment strategy that balances with an active lifestyle may be the more prudent paradigm. Low risk, low morbidity treatments are a good place to start as long as there is reasonable benefit to our patients.

The process at Mapleton Hill Orthopaedics

Same day appointment and referrals are available. We have in-office X-ray capabilities, and office-based injection of steroids and anesthetics is readily available. Hyaluronate injections into the shoulder will require pre-authorization and will most likely be an out-of-pocket patient expense until the FDA approves the indication. CT and MRI evaluation may be ordered and a treatment plan can be implemented within two weeks.

Khemarin Seng, MD is an orthopaedic surgeon at Mapleton Hill Orthopaedics. A graduate of the University of Colorado School of Medicine, Dr. Seng completed his orthopaedic surgical residency at Harvard Medical School and a sports medicine fellowship in Taos, New Mexico at the Taos Orthopaedic Institute.

If you would like the references for this article, email Dr. Seng at seng@mapletonhill.com.