



Orthopaedic Associates
OF GRAND RAPIDS PC

The Painful, Stiff Shoulder

Orthopaedic Treatment Options for Shoulder Arthritis

Peter C. Theut, MD

Orthopaedic Associates of Grand Rapids

616 459-7101 www.oagr.com

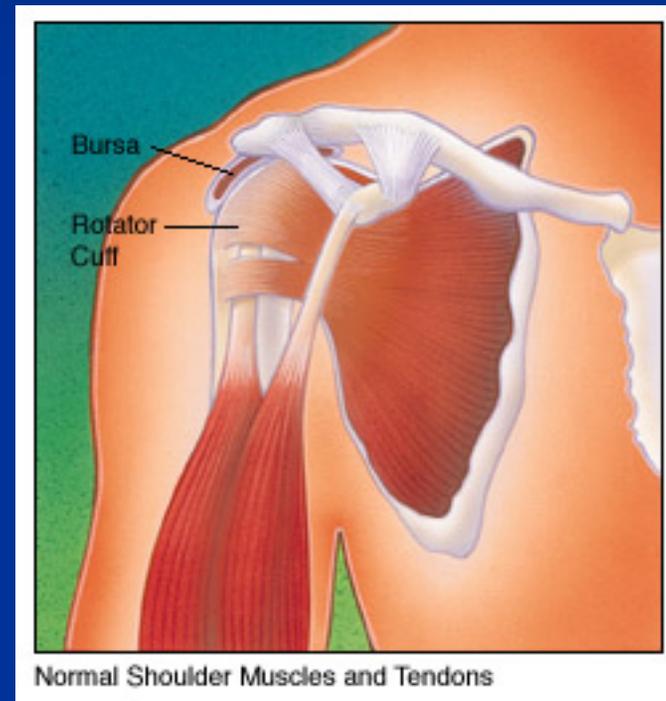
How the Normal Shoulder Works

- The shoulder is a ball-and-socket joint.
- It is made up of three bones: the upper arm bone (*humerus*), shoulder blade (*scapula*) and collarbone (*clavicle*).
- The ball at the top end of the arm bone fits into the small socket (*glenoid*) of the shoulder blade to form the shoulder joint (*glenohumeral joint*).
- The socket of the glenoid is surrounded by a soft-tissue rim (*labrum*).



How the Normal Shoulder Works

- The joint capsule is a thin sheet of fibers that surrounds the shoulder joint. The capsule allows a wide range of motion yet provides stability.
- The rotator cuff is a group of muscles and tendons that attach your upper arm to your shoulder blade.
- The muscles attached to the rotator cuff enable you to lift your arm, reach overhead, and take part in activities such as throwing or swimming.



What is Arthritis?

- Loss of the surface cartilage of the end of a bone that makes up a joint.
- The cartilage covering joint surfaces is called **articular cartilage**.
- Normally, it is a smooth, elastic, durable and well-lubricated surface that acts as a shock absorber for the joint.
- Cartilage has a limited ability to repair itself once injured or deteriorated.



What is Arthritis?

- The shoulder, elbow, hip, knee and ankle are potential sites for arthritis.
- Arthritis can lead to joint inflammation, swelling, stiffness, tenderness, redness, or warmth.



Types of Arthritis

- Degenerative joint disease that is non-inflammatory is known as osteoarthritis and is the most common type of arthritis.
- It usually affects weight-bearing joints such as the hip and knee.
- In general, the shoulder, elbow and ankle are less affected by arthritis than the hip and knee.



Types of Arthritis

- **Post-Traumatic** - previous injury or fracture. Multiple prior surgeries.
- **Osteonecrosis** – focal bone death with collapse and destruction of overlying cartilage. Steroids, alcoholism, post-fracture



Types of Arthritis

- Rheumatoid arthritis – associated with chronic inflammation of the synovium lining.
- Produces chemicals that eventually destroy the inner lining of the joint, including the articular surface.
- Commonly affects shoulder
- Female 2-3:1 preponderance



Why Does Arthritis Cause Pain?

- Damaged cartilage loses its resistance to wear.
- As the joint mechanics deteriorate, the rate of wear increases.
- The process may continue until most of the joint cartilage is gone, exposing nerve endings, and causing severe pain.
- In addition, the damaged particles of cartilage in a joint may cause inflammation, which leads to pain.



Consequences of Arthritis

- Nations leading cause of disability among Americans over the age of 15
- Second only to heart disease as a cause of work disability
- Cost to US economy of \$86 billion annually
- Half million hospitalizations and 9 million office visits annually



Prevalence of Arthritis

- Nearly 70 million Americans, or 1 in every 4 persons, have arthritis.
- Arthritis effects people of all ages, but it most often occurs as a person gets older.



Effects of Arthritis

- Arthritis bears a physical, psychological, social and economic toll on a person
- Medical and/or surgical treatment and rehabilitation can help prevent or minimize the effects of arthritis.



Symptoms of Shoulder Arthritis

- **PAIN !!** - with activity initially. As disease progresses night pain is common and sleep difficult
- **Stiffness** – trouble reaching top of head or behind back



Symptoms of Shoulder Arthritis

- Mechanical symptoms - grinding, catching, locking
- Simple daily activities become increasingly difficult



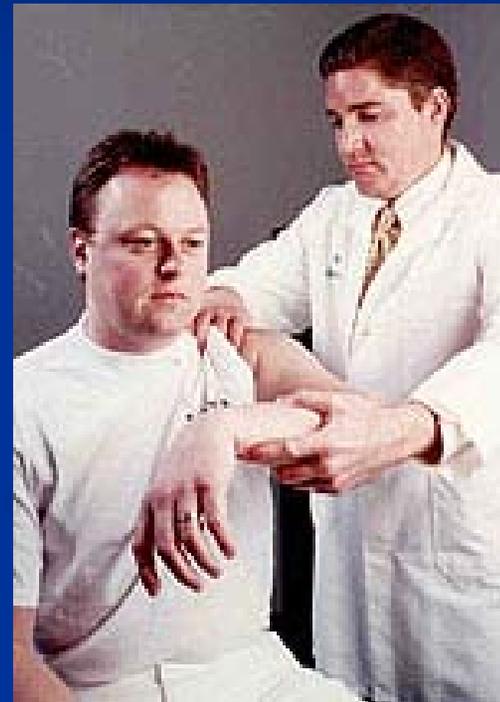
Orthopaedic Evaluation

- A medical history to gather information about current complaints; duration of symptoms, pain and limitations; injuries; and past treatment with medications or surgery



Orthopaedic Evaluation

- A *physical examination* to assess swelling, tenderness, range of motion, strength or weakness, instability and/or deformity of the shoulder



Orthopaedic Evaluation

- *Diagnostic tests* such as *X-rays* taken with the shoulder in various positions.



Orthopaedic Evaluation

- An **MRI** (Magnetic Resonance Imaging) may be helpful in assessing soft tissues in the shoulder.
- A **CT** (Computerized Tomography) scan may be used to evaluate the bony parts of your shoulder.



Shoulder Arthritis

- **Conservative non-surgical treatment** is usually considered first and can be quite effective.



Shoulder Arthritis - Treatment

- Physical Therapy
- Maintains range of motion
- Strengthens surrounding musculature
- Decreases inflammation



Shoulder Arthritis - Treatment

- Oral medications – acetaminophen, NSAID's
- Supplements – **Glucosamine** and **Chondroitin** are “building blocks” of cartilage



Shoulder Arthritis - Treatment

- Injections
- Corticosteroid injections (Cortisone)
- Viscosupplementation (Hyaluronic Acid) – natural substance found in synovial fluid inside joints – viscosity, nutrition, anti-inflammation



Shoulder Arthritis - Treatment

- Surgical
- Intervention can vary from outpatient arthroscopy to variations of total shoulder arthroplasty.



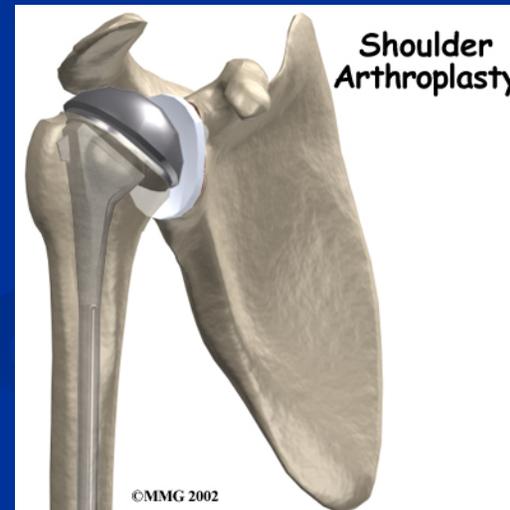
Shoulder Arthritis - Surgery

- Arthroscopic
- Minimally invasive, camera and video screen, outpatient
- Short term, limited relief (?) of mechanical symptoms
- NOT definitive



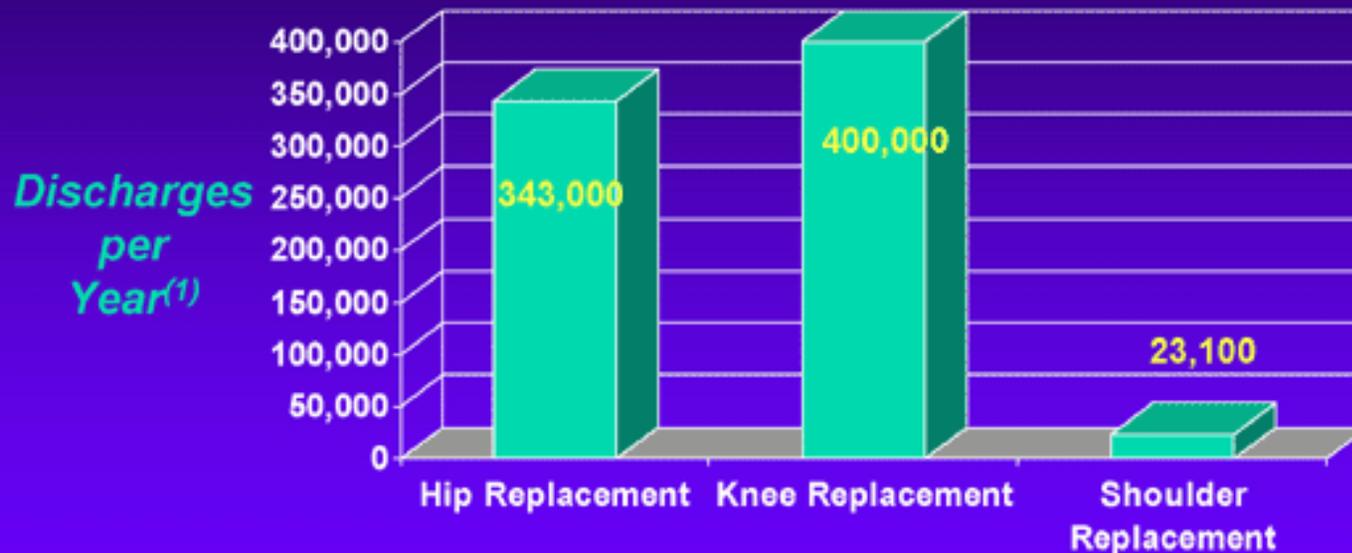
Shoulder Arthritis - Surgery

- Arthroplasty – Joint replacement
- Can be partial, total or “reverse”



U.S. Arthroplasty Volume

2002 Major Joint Replacement Volume in U.S.



¹ National Center for Health Statistics: National Hospital Discharge Survey 2002
Data extracted and analyzed by AAOS Dept of Research and Scientific Affairs

Figure 1.



Shoulder Hemi-Arthroplasty

- **“Partial” replacement** – “ball” (proximal humerus) only
- “Focal” arthritis located on humeral side only – post-traumatic, osteonecrosis
- Severe fractures
- Arthritis associated with massive, irreparable rotator cuff tear (?)



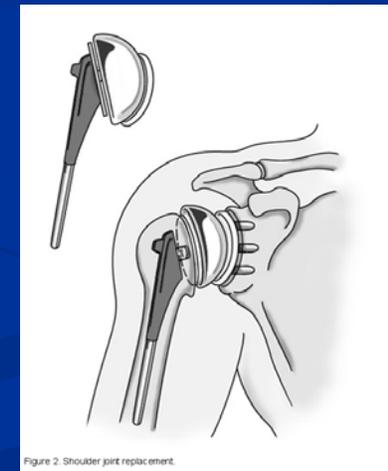
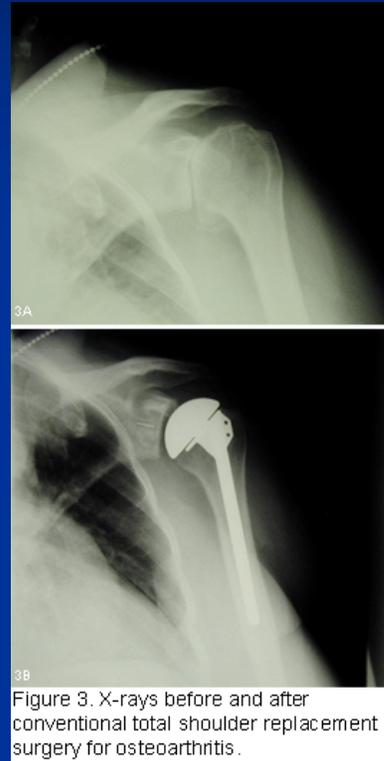
Shoulder Hemi-Arthroplasty

- Copeland – “Surface” replacement
- “Cap” at top of humerus, preserves bone
- Younger patients, rheumatoid arthritis
- Can not be utilized in advanced arthritis without adequate bone stock to support implant

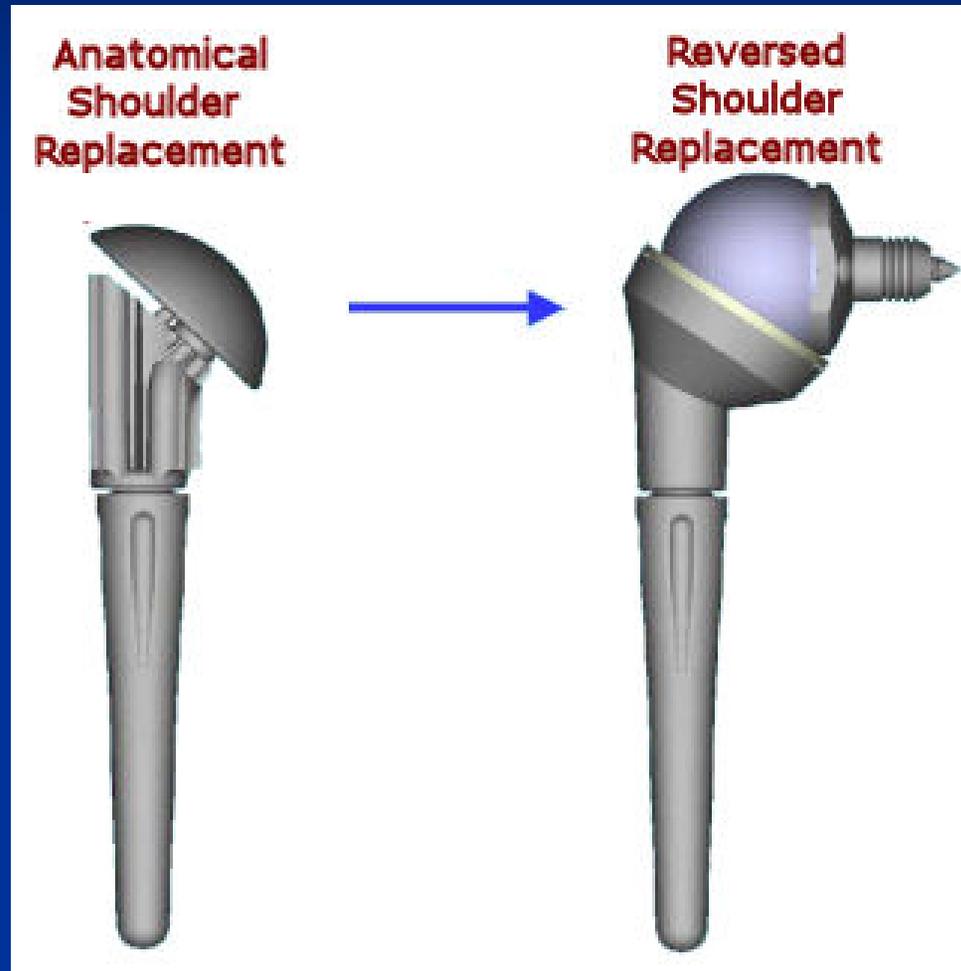


Total Shoulder Arthroplasty

- “Ball” (proximal humerus) and “Socket” (glenoid) replaced
- Arthritis involving both sides of the joint
- Requires intact or repairable rotator cuff
- Superior results when compared to hemiarthroplasty



“Reverse” Shoulder Arthroplasty



“Reverse” Shoulder Arthroplasty

- Useful in the arthritic shoulder with massive, chronic, irreparable rotator cuff – “cuff tear arthropathy”
- Standard arthroplasty techniques in this situation often did not relieve pain and left people unable to lift arm beyond horizontal.

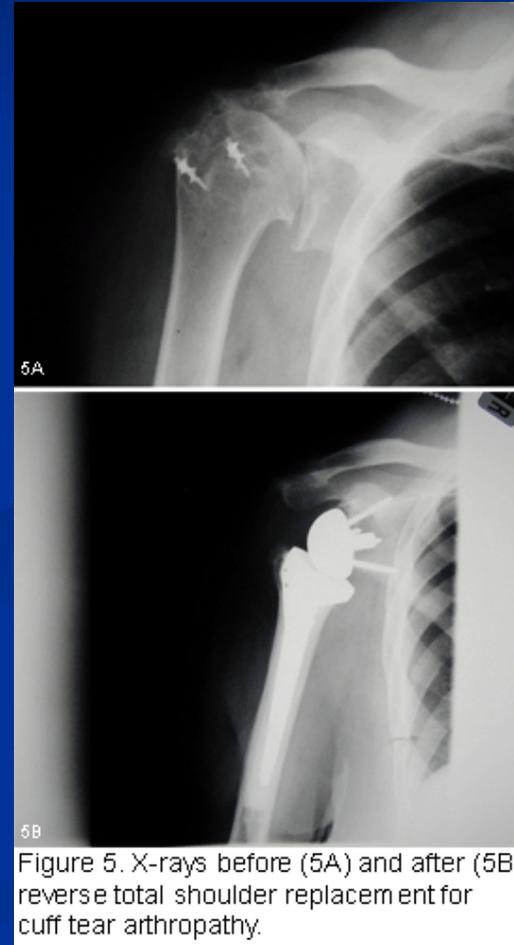


Figure 4. Reverse total shoulder replacement components.



“Reverse” Shoulder Arthroplasty

- Prevents proximal migration of humerus
- Restores soft tissue tension, improves biomechanics – allows deltoid to elevate arm in place of absent cuff
- Popularized in Europe, recently available to surgeons in US with appropriate training
- Difficult surgery, higher complication rate



Keys to Success

- Educated, motivated patient with realistic expectations
- Dedicated, capable surgeon and therapist
- First rate hospital and support staff



Rehabilitation

- A careful, well-planned rehabilitation program is critical
- Gentle physical therapy is started on the first day after the operation.
- An arm sling is worn during the day for the first several weeks after surgery. You wear the sling at night for 4 to 6 weeks.



Rehabilitation

- Most patients are able to perform simple activities such as eating, dressing and grooming within 2 weeks after surgery.
- Driving a car is not allowed for 6 weeks after surgery.
- “Full” recovery takes several months, occasionally longer.



Expectations

- Shoulder replacement is intended to relieve pain!
- Motion will probably improve as well but may never be normal.
- Allows for pain free daily activities.
- Some individuals play golf following surgery. Throwing or tennis is less common.
- Heavy overhead lifting or repetitive overhead activity is not advised.



Expectations

- Many thousands of patients have experienced an improved quality of life after shoulder joint replacement surgery. They experience less pain, improved motion and strength, and better function.





Orthopaedic Associates
OF GRAND RAPIDS PC

Thank you

Peter C. Theut, MD

Orthopaedic Associates of Grand Rapids

616 459-7101 www.oagr.com