# Treatment of Arthritis in the Athletic Shoulder – Agenda

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Utilization of ACI/OATS and Biologic Resurfacing, Glenoidplasty
Osteocapsular Arthroplasty

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Early glenohumeral degeneration is, at best, a difficult condition for the competing athlete. This is especially true of athletes who participate in overhead sports of baseball, tennis, swimming, and volleyball.

Glenohumeral arthritis is a disabling condition and may severely affect quality of life and activities of recreation and daily living. Over the years, several treatment options have been suggested; these involve debridement and capsular release, different arthroscopic approaches, humeral hemiarthroplasty with either concentric glenoid reaming or open biological glenoid resurfacing, and total shoulder arthroplasty.

Not all patients with primary or secondary glenohumeral arthritis are ideal candidates for total shoulder replacement, because of age, activity level, or associated pathology.

Arthroscopic management for early stages of osteoarthritis in young individuals has been shown to provide short-term pain relief even in the presence of grade IV osteochondral lesions.

According to Beer et al, arthroscopic debridement with or without biceps procedures and resurfacing of the glenoid using an acellular human dermal allograft scaffold is a minimally invasive therapeutic option for pain relief and functional improvement in glenohumeral osteoarthritis in the intermediate-term.
According to Savoie III et al, squaring of the head on the axillary view may be a relative contraindication for isolated arthroscopic glenoid resurfacing arthroplasty. They concluded that severe glenohumeral arthritis represents a difficult and perhaps unsolved problem, arthroscopic glenoid resurfacing by use of a biologic patch seems effective in the management of grade IV glenohumeral arthritis in the young, active patient at midterm follow-up.

One case report describes a 16-year-old athlete with a humeral head articular defect who underwent ACI using cartilage from the knee. Excellent clinical results were noted at 1 year, with no pain and full range of motion.

In the review of literature, we could just find isolated reported cases for Osteochondral autograft transfer and Osteochondral allograft.

Reineck et al in a review paper concluded that arthroplasty in all its forms (resurfacing, hemiarthroplasty, biologic resurfacing, and total joint arthroplasty) can reliably provide pain relief. However, this is often at the expense of the high functional level demanded by the competing athlete. Furthermore, concerns of implant longevity are amplified. Therefore, decisions to proceed with arthroplasty must be carefully made between the patient and surgeon, while ensuring full understanding of the implications and subsequent expectations of performance. Studies suggest that conventional shoulder replacement techniques may not be as successful in this population due to issues of durability in these higher-demand patients.

Techniques using autograft were also numerous, like periosteum, fascial and muscle flaps, bursal flaps, fat, cartilage transfers, and skin. Xenograft with chromatized pig bladder has also been described. Unpredictable outcomes and concerns regarding the durability of those
tissues have led to a predominance of allograft usage for either interposition arthroplasty or biologic resurfacing.

• SHOULDER ARTHRITIS IN YOUNG PATIENT
  o PATIENT UNDERSTAND THE PROBLEM
  o Anti-inflammatory and Analgesic Medications /Corticosteroids/
    Viscosupplementation
  o Physical Therapy
  o Arthroscopic Techniques
  o Humeral Surface Replacement
  o Interpositional Arthroplasty and Biologic Glenoid Resurfacing
  o Shoulder arthroplasty

REFERENCES:


Treatment of Arthritis in the Athletic Shoulder -

Shoulder resurfacing for the young athletic patient

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Arthritis of the shoulder in young patients are challenging for treatment. One would like to use minimal invasive and arthroscopic techniques to treat arthritis in the young to achieve maximal pain relief and function, trying to avoid arthroplasty as much as possible.

Young patients have higher functional demand and would like to resume all their activities including all sporting activities. Non surgical and arthroscopic procedures should be tried first, but what to do when these procedures fail to provide pain control and adequate function? What one should do when joint destruction has progressed with severe bone loss, beyond these arthroscopic techniques?

Performing a shoulder arthroplasty in a young patient is not often indicated but when required particular concerns include the risks of failure and need for revision. Any artificial joint may have limited life span, the higher functional demand of the young patient may accelerate the joint wear.

Sperling et al. specifically focused on outcome of shoulder stemmed arthroplasty in patients of 50 years or less by concluded that this operation can provide marked long-term relief of pain and improved motion. However, 50% of the patients were disappointed with their results. There was high failure rate, with 17% (19 of 114) of the stemmed total shoulder arthroplasties needing revision; 14%(11 patients) of the hemiarthroplasties required revision for painful glenoid erosion, as well as, other causes: aseptic loosening (4 patients), infection (3 patients), and unexplained pain (1 patient).

Surface replacement seems a way to perform a conservative arthroplasty, preserve bone stock and enable easier future revision should the need arise.

We have reviewed a series of surface replacement arthroplasty performed in young people (under 50 years of age) between 1988-2000 with mean follow up of 15.2 years (9 - 22
There were 39 Cemented surface replacement arthroplasties (CSRA) in 35 patients (4 bilateral); 22 hemiarthroplasties and 17 total shoulder replacements. Average age of the patients at the time of surgery was 39 years (range 25-50) and mean follow up was 15.2 years (9 - 22 years).

The indications for surgery included rheumatoid arthritis (17), osteonecrosis (10), instability arthropathy (5), primary osteoarthritis (4), post trauma (1), ankylosing spondylitis (1), and post septic arthritis (1). All elements of the Constant score were significantly improved in all diagnostic categories. Overall 23 shoulders were considered by the patients to be much better, 8 to be better, and 2 to be the same or worse. 5 of 39 (12.8%) shoulders required revision; 2 for persisting instability at the early stage, one for infection and two were revised to stemless reversed total shoulder replacement (Verso) due to rotator cuff failure 16 years and 22 years post the surface replacement respectively.

Most patients maintained a dramatic improvement in range of motion and function, improved Constant scores, remained satisfied with the outcome of the operation. The majority of the patients returned to their sports, including: Tennis, Golf, Horse riding, Gym and Weight lifting, Sailing and Flying, Judo and Martial arts and more.
The glenohumeral joint is a place of a wide range of inflammatory and degenerative diseases. When comparing to joints that hold weights, the glenohumeral arthritis is relatively uncommon. Its occurrence is 300 times lower than the degenerative knee joint disease and 100 times lower than in the hip. The prevalence has been reported between 0.1 % and 0.4 % in several populations, with higher prevalence in female patients over 60 years old.

The arthritis of the shoulder is a progressive disabling condition that can lead to a grave limitation for sports practice, especially for throwing and contact sports.

The origin can be attached to repetitive micro traumas, glenohumeral instability, and as a complication of using articular suture anchors or as a iatrogenic disease.

The typical clinical frame is an aching-type pain, moderate at the beginning and characteristically associated with articular mid range movements, different from the impingement syndrome and the instability pain. The most advanced cases can present occasional locking caused by articular loose bodies.
Even in the initial stages of articular degeneration, non incapacitating for non-athletes patients, is sufficient to lead a grave lost of performance in athletes, especially in throwing athletes.

With the advent of the video-arthroscopy, the anatomy of the shoulder could be studied in a more detailed way and therefore the possibilities for a surgery approach have increased significantly. Nowadays, several surgery approaches have their arthroscopic indications well defined. However, the glenohumeral arthritis is an exception.

When the non-surgery actions fail in the treatment, the open debridement and the realignment of the arthritic shoulder articulation has led to several failures. This is why the surgical treatment has been carried out through classic arthroplasty replacement.

Recently, the arthroscopy has been seen as a feasible therapeutic option for this pathology.

Olgivie-Harris and Willey (1986) presented arthroscopic debridement as an option for treatment of the shoulder arthritis.

The arthroscopic techniques can be carried out in young patients and athletes that are willing to postpone one arthroplasty replacement.

The author presents his experience in 52 patients (54 shoulders), 22 of them are recreational athletes, operated under arthroscopy between Nov./1999 and May/2009.

A personal technique for approach to subcondral bone cysts and bone grafting will be presented as the results of arthroscopic treatment of the shoulder arthritis, accordingly to the UCLA
score, modified by Ellmann. These results are very encouraging, especially in respect to pain relief, function, range of movements and patient satisfaction.