



Osteoarthritis (OA)

Introduction: OA is by far the most common form of arthritis in the United States, affecting up to 15% of the general population. If x-ray studies are performed on all individuals over the age of 80, the majority exhibit evidence for OA, whether or not the changes seen are causing pain, stiffness, or other symptoms. For this reason, OA is the major reason behind joint replacement surgery in this country. Women have a higher prevalence of OA than men for every joint but the hip, where men tend to predominate.

Features of OA: The strong association of OA with advanced age has led many people to believe that OA is simply “old age,” but it is much more than this. It is a disease affecting the cartilage, the layer of cushioning between the joints that normally allows the bony surfaces to glide smoothly. When the cartilage becomes worn down, joint movement is restricted and often painful or accompanied by a “crunching” sensation we call *crepitus*. This is a result of the smooth surface of the cartilage being worn away. Aging, obesity, injury, repetitive overuse, and coexisting inflammatory diseases such as rheumatoid arthritis (RA) all predispose an individual to developing OA of a given joint.

Joints most commonly affected by OA are weight-bearing joints such as the knees, hips, neck, and lumbar spine (lower back). In the hands, the two rows of knuckles at the end of the fingers and the joint at the base of the thumb are commonly involved, as are the balls of the feet and tips of the toes. The wrists, elbows, and ankles tend to be spared unless another inflammatory disease or injury is also present.

While many patients with OA may have symptoms in many joints, it is more common to see only a few joints at a time to become symptomatic. The onset of pain is usually gradual but may be accompanied by brief morning stiffness as well as swelling or local warmth over an involved joint. Nonetheless, the intensity of the inflammation is generally less than what is observed in RA or gout. Bony enlargement often occurs around affected joints, which is viewed as a reaction of the underlying bone to joint damage.

A special form of OA isolated to the hands and occurring more commonly in women in their 40's or 50's is referred to as *erosive* or *inflammatory* OA. This condition tends to be hereditary and is accompanied by more prominent signs of inflammation over the finger joints, such as redness, swelling, or warmth. Typically, the active inflammatory phase of erosive OA lasts up to 10 years, after which time the disease

“burns out” and usually leaves behind areas of bony enlargement near the fingertips known as *Heberden’s nodes*.

Diagnosis: OA is often suspected when the pattern of symptoms, the joints involved, and the physical examination findings are consistent with this diagnosis. For example, a chronically painful knee with crepitus and restricted range of motion in patient over the age of 65 or findings of bony enlargement over the fingers would strongly suggest OA.

X-ray studies can confirm the diagnosis as well as helping to exclude other conditions that may be present along with OA (see section on Calcium Pyrophosphate Disease/Pseudogout, e.g.). The typical finding is joint space narrowing. It cannot be assumed from this finding alone, however, that the joint space narrowing is the cause of the symptoms. Moreover, x-rays are useful in assessing the severity or progression of joint damage and may assist the doctor in determining whether joint replacement surgery is an appropriate option.

There are no laboratory tests that help to confirm the diagnosis of OA. Most forms of OA are associated with negative tests for many of the standard “autoimmune” diseases and normal markers of inflammation. One exception may be erosive OA, where the inflammatory markers may be somewhat elevated. Aspirating fluid from a swollen joint may be necessary in certain situations and can help distinguish OA from a more inflammatory condition by measuring the number of white blood cells present in the joint fluid. The white blood cell count should be much lower in OA than in RA or gout, for example.

Treatment: While OA is very common, we unfortunately lack specific therapies that have been proven to address the basic problem in this condition: loss of cartilage. For this reason, treatment is focused on reducing symptoms and minimizing other factors, such as obesity, that may lead to worsening of joint damage. Depending on the complexity of each case, OA may be appropriately managed by primary care physicians without the aid of a rheumatologist.

Exercises focusing on improving muscle tone around affected joints are quite useful. Studies indicate that poor muscle tone in the thigh muscles increases the risk of progressive OA of the knees, and similar measures to improve tone around symptomatic joints is also appropriate. These exercises should be *symptom-limited*, that is, performed as long as the activity does not result in prolonged pain after finishing. A physical therapist may be helpful in supervising an exercise program consisting of muscle strengthening, stretching, and enhancing range of motion. Also, the therapist may be helpful in instructing a patient on the use of assistive devices such as a cane, walker, or splint.

Medications used to treat OA include simple analgesics such as acetaminophen (Tylenol) for mild symptoms, and non-steroidal anti-inflammatory drugs (NSAIDs) for more prominent symptoms (*see Medications section*). Depending on other factors, your

doctor may determine that you are better suited to receive one of the new NSAIDs that are called “COX-2 selective” drugs. Among these medications are celecoxib (Celebrex) and valdecoxib (Bextra). These drugs reduce the incidence of ulcer formation or bleeding in the gut. While all of these medications typically reduce symptoms of OA, however, they do not delay the progression of damage to the joint.

The use of over-the-counter glucosamine and chondroitin sulfate preparations has grown popular in recent years. These preparations are made of components of normal cartilage and appear to reduce symptoms in patients with OA after 1-2 months of use, although studies are inconsistent. A bolder claim is that these agents reduce damage to the joint or actually “build cartilage,” neither of which has been clearly documented. At present, these agents may be useful and are worth trying in certain patients, but would not be expected to offer benefit in any other condition besides OA.

Injections containing steroid preparations with or without anesthetic may be performed in certain joints, such as the knee, and may be quite helpful in reducing symptoms in an involved joint. The steroid itself is not given in sufficient amounts to result in side effects in the rest of the body, and the risk of the injection itself mostly consists of a 1 in 20,000 chance if infection being introduced into the joint by the needle. Conventional wisdom used to dictate that there was a limit to the number of injections that could be given, but recent studies indicate that if they are given in intervals of no more than every 3 months, steroid injections do not result in further damage to the joint.

Other substances that may be injected into the joint include preparations containing *hyaluronic acid* or a derivative known as *hylan*. This is a component of normal joint fluid that becomes depleted in OA, and when injected into an involved joint, these substances provide lubrication and possibly coat the damaged cartilage. Currently available preparations include Synvisc, Hyalgan, Supartz, and Orthovisc, all of which may be given in a series of 3 to 5 weekly injections. At present, all of these medications are FDA-approved only for injection into the knee. On the average, approximately 2/3 of patients undergoing these injections experience relief of symptoms for up to 6 months at a time. Most of these preparations are most appropriately used in patients who have failed to respond to more conservative treatments or who are not good candidates for surgery.

Surgery may be viewed as the only truly definitive therapy for OA. The key issue in determining whether surgery is the right option depends on many factors, including, age, health status, which joint is involved, lack of success of other therapies, the degree of joint space narrowing, and most importantly, the degree of pain and limitation in function the patient is experiencing. A dialogue between you and your doctor is of utmost importance when making this decision.

The choice of a skilled and experienced surgeon is crucial, but up to 90% of patients undergoing hip or knee replacement surgery report either good or excellent results. Surgery involving the spine or other joints is met with lower success rates, but if patients are carefully selected for such procedures, they too may experience significant

relief of pain and recovery of function. While the short-term risk and rehabilitation process afterward are considerations, the long-term investment is usually worthwhile.