Arthritis

Arthritis (from Greek ἄρθρο-, joint + -itis, inflammation; plural: arthritides) is a form of joint disorder that involves inflammation of one or more joints.¹ ² There are over 100 different forms of arthritis.³⁴ The most common form, osteoarthritis (degenerative joint disease), is a result of trauma to the joint, infection of the joint, or age. Other arthritis forms are rheumatoid arthritis, psoriatic arthritis, and related autoimmune diseases. Septic arthritis is caused by joint infection.

The major complaint by individuals who have arthritis is joint pain. Pain is often a constant and may be localized to the joint affected. The pain from arthritis is due to inflammation that occurs around the joint, damage to the joint from disease, daily wear and tear of joint, muscle strains caused by forceful movements against stiff painful joints and fatigue.

Classification

There are several diseases where joint pain is primary, and is considered the main feature. Generally when a person has "arthritis" it means that they have one of these diseases, which include:

- Osteoarthritis
- Rheumatoid arthritis
- Gout and pseudo-gout
- Septic arthritis
- Ankylosing spondylitis
- Juvenile idiopathic arthritis
- Still's disease

Joint pain can also be a symptom of other diseases. In this case, the arthritis is considered to be secondary to the main disease; these include:
- Psoriasis (Psoriatic arthritis)
- Reactive arthritis
- Ehlers-Danlos Syndrome
- Haemochromatosis
- Hepatitis
- Lyme disease
- Inflammatory bowel disease (Including Crohn's Disease and Ulcerative Colitis)
- Henoch-Schönlein purpura
- Hyperimmunoglobulinemia D with recurrent fever
- Sarcoidosis
- TNF receptor associated periodic syndrome
- Wegener's granulomatosis (and many other vasculitis syndromes)
- Familial Mediterranean fever
- Systemic lupus erythematosus

An undifferentiated arthritis is an arthritis that does not fit into well-known clinical disease categories, possibly being an early stage of a definite rheumatic disease.\[^5\]

**Signs and symptoms**

Regardless of the type of arthritis, the common symptoms for all arthritis disorders include varied levels of pain, swelling, joint stiffness, and sometimes a constant ache around the joint(s). Arthritic disorders like lupus and rheumatoid can also affect other organs in the body with a variety of symptoms.\[^7\]

- Inability to use the hand or walk
- Malaise and a feeling of tiredness
- Weight loss
- Poor sleep
- Muscle aches and pains
- Tenderness
- Difficulty moving the joint

It is common in advanced arthritis for significant secondary changes to occur. For example, in someone who has limited their physical activity:

- Muscle weakness
- Loss of flexibility
- Decreased aerobic fitness

These changes can also impact on life and social roles, such as community involvement.
Disability

Arthritis is the most common cause of disability in the USA.[8] More than 20 million individuals with arthritis have severe limitations in function on a daily basis. Absenteeism and frequent visits to the physician are common in individuals who have arthritis. Arthritis makes it very difficult for individuals to be physically active and many become home bound.[9]

It is estimated that the total cost of arthritis cases is close to $100 billion of which nearly 50% is from lost earnings. Each year, arthritis results in nearly 1 million hospitalizations and close to 45 million outpatient visits to health care centers.[10]

Arthritis can make it very difficult for an individual to remain physically active, contributing to an increased risk of obesity, high cholesterol or vulnerability to heart disease. Individuals with arthritis are also at increased risk of depression, which may be related to fear of worsening symptoms.

Diagnosis

Diagnosis is made by clinical examination from an appropriate health professional, and may be supported by other tests such as radiology and blood tests, depending on the type of suspected arthritis. All arthritides potentially feature pain. Pain patterns may differ depending on the arthritides and the location. Rheumatoid arthritis is generally worse in the morning and associated with stiffness; in the early stages, patients often have no symptoms after a morning shower. Osteoarthritis, on the other hand, tends to be worse after exercise. In the aged and children, pain might not be the main presenting feature; the aged patient simply moves less, the infantile patient refuses to use the affected limb.

Elements of the history of the disorder guide diagnosis. Important features are speed and time of onset, pattern of joint involvement, symmetry of symptoms, early morning stiffness, tenderness, gelling or locking with inactivity, aggravating and relieving factors, and other systemic symptoms. Physical examination may confirm the diagnosis, or may indicate systemic disease. Radiographs are often used to follow progression or help assess severity.

Osteoarthritis

Osteoarthritis is the most common form of arthritis.[11] It can affect both the larger and the smaller joints of the body, including the hands, feet, back, hip, and knee. The disease is essentially one acquired from daily wear and tear of the joint; however, osteoarthritis can also occur as a result of injury. Osteoarthritis begins in the cartilage and eventually causes the two opposing bones to erode into each other. Initially, the condition starts with minor pain during activities, but soon the pain can be continuous and even occur while in a state of rest. The
pain can be debilitating and prevent one from doing some activities. Osteoarthritis typically affects the weight-bearing joints, such as the back, spine, and pelvis. Unlike rheumatoid arthritis, osteoarthritis is most commonly a disease of the elderly. More than 30 percent of women have some degree of osteoarthritis by age 65. Risk factors for osteoarthritis include prior joint trauma, obesity, and a sedentary lifestyle.

Osteoarthritis, like rheumatoid arthritis, cannot be cured, but one can prevent the condition from worsening. Physical therapy to strengthen muscles and joints is very helpful. Pain medications are widely required by individuals with osteoarthritis. For some patients, weight loss can reduce the stress on the joints. When the disease is far advanced and the pain is continuous, surgery may be an option. Unlike rheumatoid arthritis, joint replacement does help many individuals with osteoarthritis.[12]

**Rheumatoid arthritis**

Rheumatoid arthritis is a disorder in which the body’s own immune system starts to attack body tissues. The attack is not only directed at the joint but to many other parts of the body. In rheumatoid arthritis, most damage occurs to the joint lining and cartilage which eventually results in erosion of two opposing bones. Rheumatoid arthritis often affects joints in the fingers, wrists, knees, and elbows. The disease is symmetrical (appears on both sides of the body) and can lead to severe deformity in a few years if not treated. Rheumatoid arthritis occurs mostly in people aged 20 and above. In children, the disorder can present with a skin rash, fever, pain, disability, and limitations in daily activities. Often, it is not clear why the rheumatoid arthritis occurred. With earlier diagnosis and aggressive treatment, many individuals can lead a decent quality of life. The drugs to treat rheumatoid arthritis range from corticosteroids to monoclonal antibodies given intravenously. The latest drugs like Remicade can significantly improve quality of life in the short term. In rare cases, surgery may be required to replace joints but there is no cure for the illness.[13]

**Lupus**

This is a common collagen vascular disorder that can be present with severe arthritis. Other features of lupus include a skin rash, extreme photosensitivity, hair loss, kidney problems, lung fibrosis and constant joint pain.[14]

**Gout**

Gout is caused by deposition of uric acid crystals in the joint, causing inflammation. There is also an uncommon form of gouty arthritis caused by the formation of rhomboid crystals of calcium pyrophosphate known as pseudogout. In the early stages, the gouty arthritis usually occurs in one joint, but with time, it can occur in many joints and be quite crippling. The
joints in gout can often become swollen and lose function. Gouty arthritis can become parti-
cularly painful and potentially debilitating when gout cannot successfully be treated.[15] When
uric acid levels and gout symptoms cannot be controlled with standard gout medicines that
decrease the production of uric acid (e.g., allopurinol, febuxostat) or increase uric acid elimi-
nation from the body through the kidneys (e.g., probenecid), this can be referred to as refrac-
tory chronic gout or RCG.[16]

<table>
<thead>
<tr>
<th></th>
<th>Osteoarthritis</th>
<th>Rheumatoid arthritis</th>
<th>Gouty arthritis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Speed of onset</strong></td>
<td>Months</td>
<td>Weeks-months[18]</td>
<td>Hours for an attack[19]</td>
</tr>
<tr>
<td><strong>Main locations</strong></td>
<td>Weight-bearing joints (such as knees, hips, vertebral column) and hands</td>
<td>Hands (proximal interphalangeal and metacarpophalangeal joint) wrists, ankles and knees</td>
<td>Great toe, ankles, knees and elbows</td>
</tr>
<tr>
<td><strong>Inflammation</strong></td>
<td>May occur, though often mild compared to inflammation in rheumatoid arthritis</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Radiologic changes</strong></td>
<td>Narrowed joint space, Osteophytes, Local osteosclerosis, Subchondral cysts</td>
<td>Narrowed joint space, Bone erosions</td>
<td>&quot;Punched out&quot; bone erosions</td>
</tr>
<tr>
<td><strong>Laboratory findings</strong></td>
<td>None</td>
<td>Anemia, elevated ESR and C-reactive protein (CRP), rheumatoid factor, anti-citrullinated protein antibody</td>
<td>Crystal in joints</td>
</tr>
<tr>
<td><strong>Other features</strong></td>
<td>No systemic signs, Bouchard’s and Heberden’s nodes</td>
<td>Extra-articular features are common, Ulnar deviation, swan neck- and Boutonniere deformity of the hand</td>
<td>Tophi, Nephrolithiasis</td>
</tr>
</tbody>
</table>

Other

**Infectious arthritis** is another severe form of arthritis. It presents with sudden onset of chills, fever and joint pain. The condition is caused by bacteria elsewhere in the body. Infectious arthritis must be rapidly diagnosed and treated promptly to prevent irreversible and perma-
nent joint damage.[20]

**Psoriasis** can develop into psoriatic arthritis. With psoriatic arthritis, most individuals devel-
op the skin problem first and then the arthritis. The typical features are of continuous joint pains, stiffness and swelling. The disease does recur with periods of remission but there is no cure for the disorder. A small percentage develop a severe painful and destructive form of arthritis which destroys the small joints in the hands and can lead to permanent disability and loss of hand function.[21]
Treatment

There is no cure for either rheumatoid or osteoarthritis. Treatment options vary depending on the type of arthritis and include physical therapy, lifestyle changes (including exercise and weight control), orthopedic bracing, medications. Joint replacement surgery may be required in eroding forms of arthritis. Medications can help reduce inflammation in the joint which decreases pain. Moreover, by decreasing inflammation, the joint damage may be slowed.[22]

Physical and occupational therapy

In general, studies have shown that physical exercise of the affected joint can have noticeable improvement in terms of long-term pain relief. Furthermore, exercise of the arthritic joint is encouraged to maintain the health of the particular joint and the overall body of the person.[23]

Individuals with arthritis can benefit from both physical and occupational therapy. In arthritis the joints become stiff and the range of movement can be limited. Physical therapy has been shown to significantly improve function, decrease pain, and delay need for surgical intervention in advanced cases.[24] Exercise prescribed by a physical therapist has been shown to be more effective than medications in treating osteoarthritis of the knee. Exercise often focuses on improving muscle strength, endurance and flexibility. In some cases, exercises may be designed to train balance. Occupational therapy can provide assistance with activities as well as equipment.

Medications

There are several types of medications that are used for the treatment of arthritis. Treatment typically begins with medications that have the fewest side effects with further medications being added if insufficiently effective.[25]

Treatment also depends on the type of the arthritis. For example, the first-line treatment for osteoarthritis is acetaminophen (paracetamol) while for inflammatory arthritis it involves non-steroidal anti-inflammatory drugs like ibuprofen.

Epidemiology

Arthritis is predominantly a disease of the elderly, but children can also be affected by the disease. More than 70% of individuals in North America affected by arthritis are over the age of 65. Arthritis is more common in women than men at all ages and affects all races, ethnic groups and cultures. In the United States a CDC survey based on data from 2007–2009 showed 22.2% (49.9 million) of adults aged ≥18 years had self-reported doctor-diagnosed
arthritis, and 9.4% (21.1 million or 42.4% of those with arthritis) had arthritis-attributable activity limitation (AAAL). With an aging population this number is expected to increase.[26]

**History**

While evidence of primary ankle (kaki) osteoarthritis has been discovered in dinosaurs, the first known traces of human arthritis date back as far as 4500 BC. In early reports, arthritis was frequently referred to as the most common ailment of prehistoric peoples.[27] It was noted in skeletal remains of Native Americans found in Tennessee and parts of what is now Olathe, Kansas. Evidence of arthritis has been found throughout history, from Ötzi, a mummy (circa 3000 BC) found along the border of modern Italy and Austria, to the Egyptian mummies circa 2590 BC[28]

In 1715 William Musgrave published the second edition of his most important medical work *De arthritide symptomatica* which concerned arthritis and its effects.[29]

Blood tests and X-rays of the affected joints often are performed to make the diagnosis. Screening blood tests are indicated if certain arthritides are suspected. These might include: rheumatoid factor, antinuclear factor (ANF), extractable nuclear antigen, and specific antibodies.

**See also**

- Arthritis Care (charity in the UK)
- Arthritis Foundation (US not-for-profit)
- Knee arthritis
- Osteoimmunology

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28. Arthritis History Medical News


**External links**

- Arthritis at the Open Directory Project
- American College of Rheumatology – US professional society of rheumatologists
- Arthritis Foundation – US national not-for-profit organization for arthritis
- Arthritis Research UK (UK medical research charity)