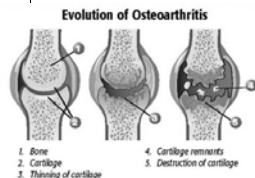


Osteoarthritis

Degenerative joint disease, OA, Osteoarthrosis

Piedad Suarez, DDS



- Osteoarthritis is characterized by degeneration of cartilage and its underlying bone within a joint as well as bony overgrowth.
- The breakdown of these tissues eventually leads to pain and joint stiffness

Osteoarthritis

- Is the most common form of arthritis.
- It causes
 - Pain
 - Swelling
 - Reduced motion.
- It can occur in any joint
 - Knees
 - Hips
 - Hands
 - Spine

Osteoarthritis

- Osteoarthritis breaks down the cartilage in the joints.
- Over time, this rubbing can permanently damage the joint.
- The specific causes of osteoarthritis are unknown,
 - but are believed to be a result of both mechanical and molecular events in the affected joint.

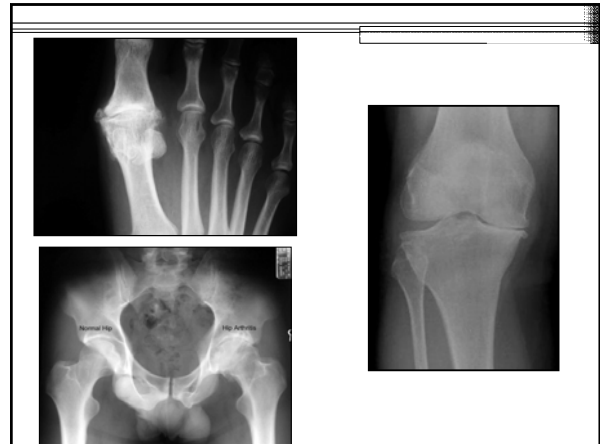
Osteoarthritis

- Factors that may cause osteoarthritis include
 - Being overweight
 - Getting older
 - Injuring a joint
- Disease onset is gradual and usually begins after the age of 40.

Osteoarthritis Classification

- Idiopathic: localized or generalized
- Secondary
 - traumatic, congenital, metabolic/endocrine/neuropathic and other medical causes
- Focal and progressive loss of the hyaline cartilage of joints
 - underlying bony changes.

- Usually defined by symptoms, pathology or combination
 - Pathology = radiographic changes (joint space narrowing, osteophytes and bony sclerosis)
 - Symptoms = pain, swelling, stiffness
 - The American College of Rheumatology (ACR) has published diagnostic algorithm for clinical classification of OA of knee, hand and hip



Modifiable

- Excess body mass (especially knee OA).
- Joint injury (sports, work, trauma).
- Occupation (due to excessive mechanical stress: hard labor, heavy lifting, knee bending, repetitive motion).
- Men — construction/mechanics, agriculture, blue collar laborers, and engineers.
- Women — cleaning, construction, agriculture, and small business/retail.
- Structural malalignment, muscle weakness.

Non-modifiable.

- Gender (women higher risk).
- Age (increases with age and levels around age 75).
- Race (some Asian populations have lower risk).
- Genetic predisposition.

Tests

The goal of testing is to diagnose OA, to distinguish it from other forms of arthritis and causes of joint pain and stiffness, and to monitor the side effects of various treatments.

Laboratory Tests



- There is no specific laboratory test to diagnose OA.
- It is diagnosed by a doctor using a patient's medical history
- Physical exam
- X-rays
- In some cases with an examination of synovial fluid from an affected joint.

Tests that may be ordered to rule out other conditions and to evaluate the patient's health include:

Laboratory Tests



- Rheumatoid factor (RF) and Cyclic Citrullinated Peptide Antibody (CCP) – used to help diagnose rheumatoid arthritis and differentiate it from osteoarthritis.
- Synovial fluid analysis – to detect crystals that may be present in the joint and to look for signs of joint infection.
- Erythrocyte sedimentation rate (sed rate or ESR) – this test shows the presence of inflammation in the body. ESR will be increased in RA but not in osteoarthritis.

Laboratory Tests

- C-reactive protein test (CRP) indicates inflammation and tests for the activity of the disease. It may be
 - used to help differentiate osteoarthritis and RA. An increased level of CRP occurs in RA but not in osteoarthritis.
- Complete Blood Count (CBC) are used to help evaluate the patient's red and white blood cells and hemoglobin. It may be ordered to monitor the side effects of some OA treatments.
- Comprehensive Metabolic Panel (CMP) may be used to help evaluate and monitor the patient's kidney and liver function.

Non-Laboratory Tests



- X-rays of the affected joints may show loss of cartilage and narrowing of the joint space but will frequently not show significant changes early in the disease.
- MRI (magnetic resonance imaging) – may also be used to examine affected joints.

10 ways to protect your joints

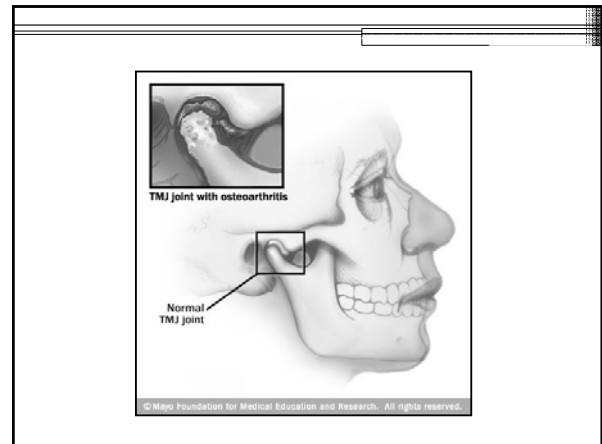


- **Maintain your ideal body weight.**
- **Move your body.** Exercise protects joints by strengthening the muscles around them. Strong muscles keep your joints from rubbing against one another, wearing down cartilage. We can help you get started on an exercise program that works for you.
- **Stand up straight.** Good posture protects the joints in your neck, back, hips and knees.
- **Use the big joints..**
- **Pace yourself.** Alternate periods of heavy activity with periods of rest. Repetitive stress on joints for long periods of time can accelerate the wear and tear that causes OA.

- **Listen to your body.**
- **Don't be static.**
- **Forget the weekend warrior.** Don't engage in activities your body for which your body isn't prepared. Start new activities slowly and safely until you know how your body will react to them. This will reduce the chance of injury.
- **Wear proper safety equipment.**
- **Ask for help.**




Management of Osteoarthritis of the Knee
Nonpharmacologic treatment <i>plus</i> Acetaminophen (Tylenol) in a dosage of up to 4 g per day to control pain and other symptoms, and before activity
Add topical capsaicin cream (e.g., ArthriCare) applied four times daily, if needed.
If joint effusion is present, consider aspiration and intra-articular injection of a corticosteroid, such as 40 mg of triamcinolone (Aristocort).
If more pain or symptom control is needed, add an NSAID in a low dosage, such as 400 mg of ibuprofen (e.g., Advil) taken four times daily, or a nonacetylated salicylate such as choline magnesium trisalicylate (Trilisate) or salsalate (Disalcid).
If more pain or symptom control is needed, use the full dosage of an NSAID, add a proton pump inhibitor or cyclo-oxygenase-2 inhibitor. Some patients may benefit from intra-articular injections of a hyaluronate acid-like product
If the response is inadequate, consider referring the patient for joint lavage, arthroscopic debridement, osteotomy or joint replacement.




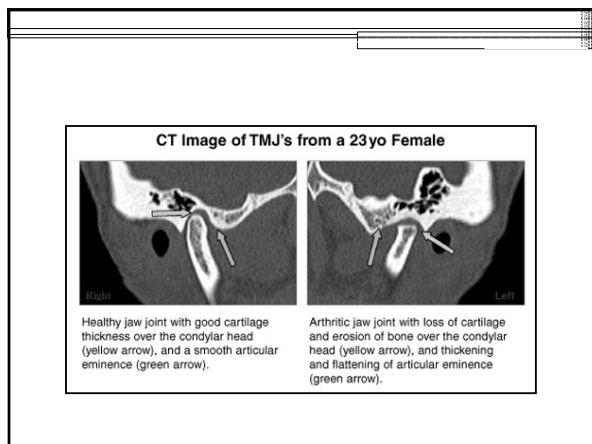
DENTAL MANAGEMENT AND TREATMENT PLANNING MODIFICATIONS:

- Ensure patient comfort while in chair (chair position, pillows or supports, particularly of the cervical spine, as needed)
- Be aware of potential for increased bleeding in patients on aspirin products or NSAIDs (not clinically significant)
- Antibiotic prophylaxis may be indicated for *some* patients with joint prostheses



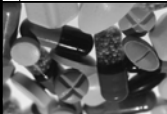
DENTAL MANAGEMENT AND TREATMENT PLANNING MODIFICATIONS:

- Technical modifications determined by patient disabilities:
- OH: may need special techniques (electrical toothbrush, modified handles, elbow support)
- Ability to insert/remove appliances
- TMJ involvement: monitor and treat appropriately

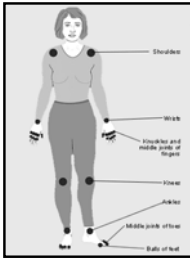



ANTIBIOTIC PROPHYLAXIS FOR DENTAL PATIENTS WITH TOTAL JOINT REPLACEMENTS

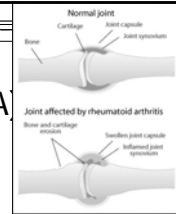
- First 2 years after prosthetic joint replacement
- Immunocompromised/immunosuppressed patients:
 - Inflammatory arthropathies: RA, SLE
 - Disease, drug or radiation induced immunosuppression
- Previous prosthetic joint infections
- Patients with co-morbidities:
 - Malnourishment
 - Hemophilia
 - HIV infection
 - Insulin dependent (type 1) diabetes
 - Malignancy



RHEUMATOID ARTHRITIS (RA)



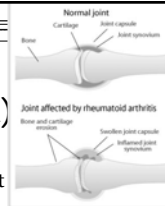
RHEUMATOID ARTHRITIS (RA)



- Is a systemic inflammatory disease which manifests itself in multiple joints of the body.
- The inflammatory process primarily affects the lining of the joints (synovial membrane), but can also affect other organs.
- The inflamed synovium leads to erosions of the cartilage and bone and sometimes joint deformity.

RHEUMATOID ARTHRITIS (RA)

- Pain, swelling, and redness are common joint manifestations.
- Although the definitive causes are unknown, RA is believed to be the result of a faulty immune response.
- RA can begin at any age and is associated with fatigue and prolonged stiffness after rest.
- There is no cure for RA, but new drugs are increasingly available to treat the disease.
- In addition to medications and surgery, good self-management, including exercise, are known to reduce pain and disability



Rheumatoid arthritis

- An autoimmune condition
- Chronic inflammatory polyarthritis
- Natural history studies of RA suggests that RA follows one of three courses
 - Monocyclic in 20%
 - Polycyclic in 70%
 - Progressive and unremitting condition in 10%
- Another natural history study found that 75% of people with RA experienced remission after five years.

Diagnosis

- American College of Rheumatology criteria are used in the clinical diagnosis of RA.
- Persons must meet four of seven ACR criteria these criteria are based on clinical observation
 - number of joints affected
 - laboratory tests (e.g., positive rheumatoid factor)
 - radiographic examination (e.g., X-rays evidence of joint erosion)
- Early RA is typically defined as RA that is diagnosed within 6 months of symptom onset.

Risk factors

- A range of environmental and genetic variables have been evaluated:
 - hormonal exposures
 - tobacco use
 - dietary components
 - HLA genotype
 - microbial exposures
- Of the environmental factors examined
 - the most consistent evidence exists for an association between tobacco use and RA with increased risks ranging from 1.3 to 2.4.

The role of the following four estrogenic factors in RA etiology has been studied extensively:



- Oral contraceptives(OC).
- Hormone replacement therapy (HRT).
- Live birth history — Most studies have found that women who have never had a live birth have a slight to moderately increased risk of RA.
- Breastfeeding — The most recent studies have found that RA is less common among women who breastfeed; this is in contrast with earlier studies which found an increased risk associated with breastfeeding.

Co-morbidities



- Cardiovascular disease (CVD) is responsible for approximately half of all deaths among people with RA. It is unknown whether the increase in CVD mortality is due to the risk factor profile of people with RA (e.g.,Ht, more likely to be smokers), or the effects of the drugs used to treat the condition.
- Infections have also been cited as another important and primary cause of death among people with RA; It is unclear whether this increased susceptibility arising from immunosuppression is due to the intrinsic immune dysfunction in people with RA, the effects of the drugs used to treat it, or both.

Co-morbidities

- An increased incidence of lymphoproliferative malignancies (such as leukemia and multiple myeloma). The cause of this increase is unknown.



Symptoms of RA

- Painful and swollen joints, especially in hands, feet and knees
- Difficulty moving joints
- Stiffness and pain in affected joints (especially after sleeping)
- Fever
- Red, puffy hands
- Fatigue
- Hard bumps (called rheumatoid nodules) just under the skin near the joints
- Loss of appetite

	Symptoms	Signs
OA	<ul style="list-style-type: none"> Pain and stiffness: 1-2 joints at a time Poor correlation between joint pain and radiographs Morning stiffness: usually < 15 minutes Pain affected by weather changes: ↑ with cool, damp, rainy weather 	<ul style="list-style-type: none"> Bony enlargement, tenderness, limitation of movement Crepitus sounds with movement of the joint X-ray: osteophytes, narrowing of joint space, subchondral sclerosis, subchondral cysts Signs of mild inflammation periodically No specific laboratory abnormalities Commonly involves: hips, spine, knees, feet, hands Heberden's nodes (DIP), Bouchard's nodes (PIP) No systemic involvement
RA	<ul style="list-style-type: none"> Multiple symmetric joints involvement Morning stiffness usually lasting >1 hour Periods of remission and exacerbation 	<ul style="list-style-type: none"> Warm, swollen joints (variable) Joint deformity, erosion Limitation of movement Joints commonly involved: cervical spine, shoulder, elbow, hand, hip, knee, feet and ankle Swan-neck fingers deformity (DIP), ulnar deviation (MCP), Boutonniere deformity Systemic manifestations: fatigue, weakness, malaise Multisystem: dermatologic, ocular, respiratory, cardiac, neurologic, hematologic

DENTAL MANAGEMENT AND TREATMENT PLANNING MODIFICATIONS:

- Follow the same considerations as for OA, plus the following:
- Patients on corticosteroids may have adrenal suppression ⇒ may require steroid supplementation for some surgical procedures
- Be alert for the possible side-effects of DMARDs (immunosuppression, anemia, decreased platelets, decreased white cells, impaired liver function, decreased coagulation factors, stomatitis)

DENTAL MANAGEMENT AND TREATMENT PLANNING MODIFICATIONS:

- If any concerns about bleeding or infection, consult physician for current lab values (CBC with differential, PT/INR, PTT, liver function tests)
- Antibiotic prophylaxis may be indicated for patients with RA and joint prostheses
- Treat stomatitis symptomatically and notify physician since it may be a sign of drug toxicity
- RA of TMJs \Rightarrow usually managed conservatively (analgesic, anti-inflammatory, orthotic, PT); surgery for severe cases
- Attention to acute changes in occlusion, especially “sudden” development of an anterior open bite

DENTAL MANAGEMENT AND TREATMENT PLANNING MODIFICATIONS:

- Late morning or early afternoon
- When medication is most effective
- Provide stability of neck/and/or back
pad the dental chair with special pillows to support or comfort
- May require mouth props
- May require rest periods

