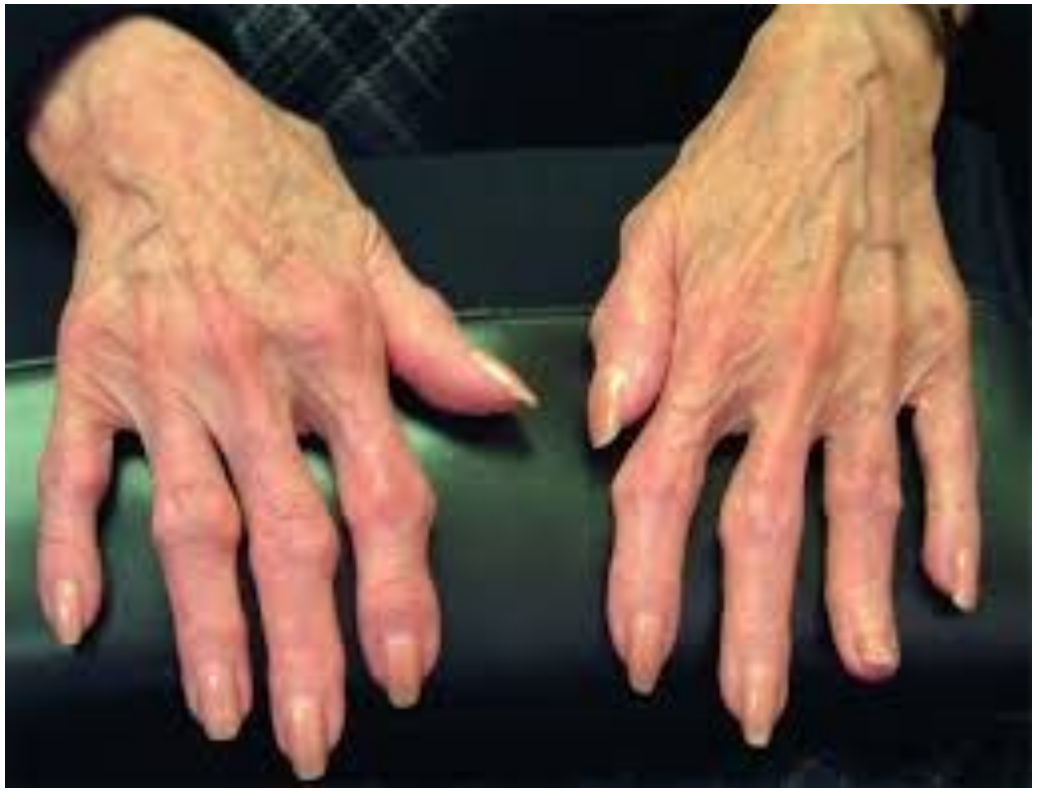


OSTEOARTHRITIS

Fiona Rattray & Linda Ludwig
Pg.637

OSTEOARTHRITIS

- **Osteoarthritis is a group of chronic, generative conditions that affect joints, specifically that articular cartilage and subchondral bone.**
- Degenerative joint disease and osteoarthrosis are other terms used to describe this disease process.
- Spondylitis is used for arthritis affecting the vertebral column.
- Osteoarthritis is the most common form of arthritis, or inflammation of a joint.
- **Primary OA is idiopathic and either local (involving 1-2 jt groups) or generalized (involving 3+ joint groups).**
- **Secondary OA is the result of a known cause, such as jt trauma or an underlying pathology.**

OSTEOARTHRITIS

- Arthritis is one of the most common ancient pathological conditions affecting animals, and humans.
- The social and economic costs of OA are enormous. P and the reduced ability to move affected joints diminish the quality of life for those with the disease.
- In Canada 2.7 million people have OA. For many people it is possible to continue working, with an average 2.5 days per month lost due to the disease becomes physically and emotionally debilitating.

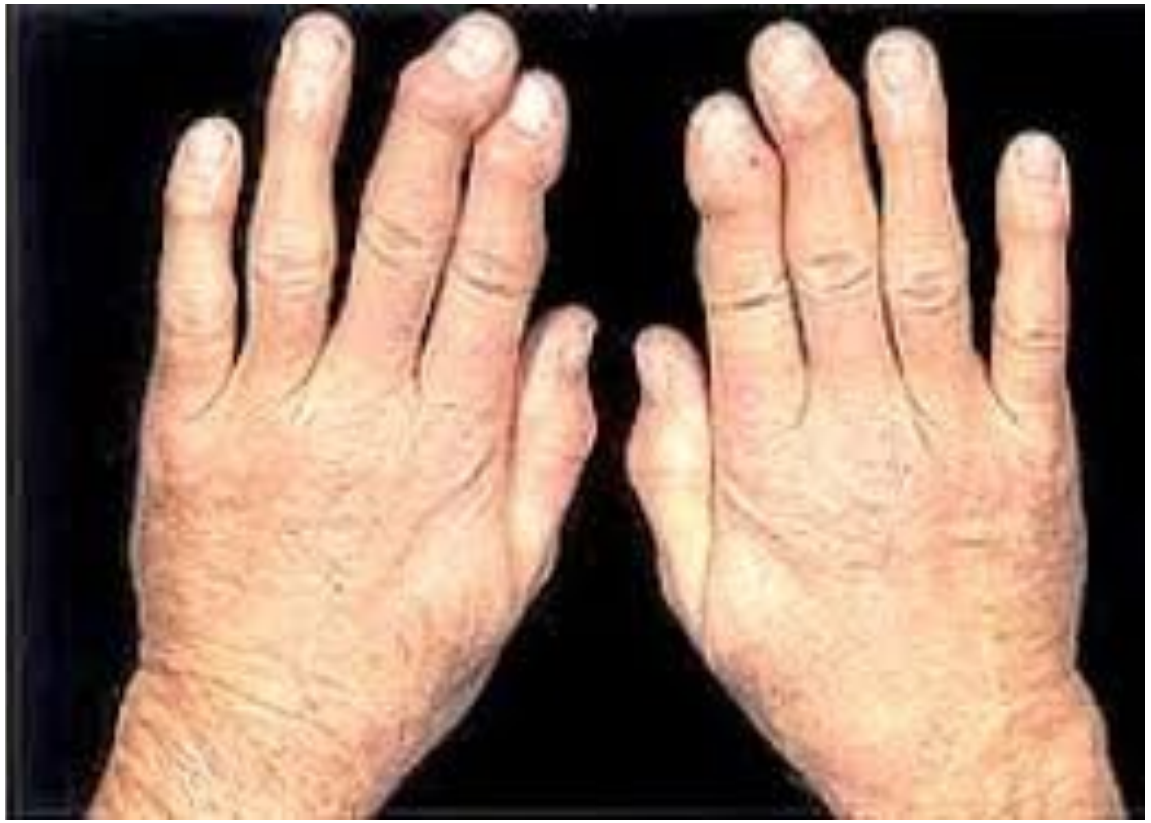
PATHOLOGICAL PROCESS OF OA

- A synovial jt is composed of hyaline cartilage covers bone ends connected by a fibrous jt capsule, reinforced by extracapsular ligaments.
- Mm's and tendons cross the joint and control its movement.
- The jt capsule is lined with synovial tissue, which produces synovial fluid to nourish and lubricate the cartilage.
- Healthy cartilage of synovial jts is resilient and able to yield under compression.
- With OA, the load bearing portions of articular cartilage are affected first. Repeated stress causes the collagen fibres to break. Cartilage initially responds by increasing both its water content and the number of proteoglycans present in attempts to repair itself.
- Cartilage is avascular and not able to repair itself using the normal inflammatory process.

PATHOLOGICAL PROCESS OF OA

- OA in its **early stage** is considered non-inflammatory. May last for years, the cartilage is actually thicker than normal.
- OA in its **later stage**, other changes occur besides the degeneration of cartilage. The subchondral bone remodels and thickens; its exposed surface becomes polished or eburnated from the contact of bone to bone.
- Microfractures and cysts appear below the surface of the bone and weaken it.
- Bone spurs, or osteophytes alter the shape of the jt, and they may also restrict movement.
- Vertebral osteophytes compress nerve roots.
- A mild chronic synovitis can occur, when the cartilage fragments and enzymes released by inflammation irritate the synovial lining. The synovium and jt capsule thicken in response to the irritation, reducing ROM. Mm wasting occurs in mm's that cross the affected jt.

CAUSES OF OA



- Idiopathic; not clearly understood
- Altered biomechanics; surgery, dislocation
- Immobilization; which reduces circulation of synovial fluid to the cartilage
- Trauma: either acute such as a fracture, or chronic such as overuse or repetitive stress
- Pathology; such as Diabetes Mellitus, or RA
- Contributing factors: Include genetic predisposition with Heberden's nodes and obesity with knee OA.

MEDICAL

- Diagnosis, x-rays do not always indicate the degree of cartilage degeneration in the early stages of OA.
- Fewer that one half of those whose x-rays show degeneration have symptoms of OA.
- OA is treated with medication, physical therapy and surgery.
- Treatment is aimed at controlling P and maintaining ROM.
- In some cases, synthetic synovial fluid (Synvisc) injected into the jt, may bring temporarily relief.

SYMPTOM PICTURE

- OA can occur in people 25-34 years of age, it is more common in later decades of life. More than 85 % of those over 70 years of age have some degree of OA.
- Jts can be affected unilaterally or BL.
- Early stage, cartilage degeneration in initially painless.
- Later P follows extensive jt use and is relieved by rest. P is local to the affected jt; it is achy and difficult to pinpoint initially. ROM and jts stiffness are noticed in the morning or with periods of immobility and last until the person “works it out”, less than 30 minutes.
- Later stage, as cartilage erodes, P sensitive subchondral bone is exposed.
- P follows moderate jt use; this progresses to P with minimal active motion, passive motion, and rest. P may occur at night. Jt is locally tender. Crepitus is present with movement. Stiffness and reduced ROM. Contractures form in the jt capsule and in the mm’s surrounding the jt.

COMMON OA LOCATIONS

- Hand: Heberden's nodes are osteophyte formations at the distal interphalangeal jts, accompanied by lateral jt deviation. Bouchard's nodes found at the proximal interphalangeal jts.
- Spine: The intervertebral discs and facet jts L4-L5, C4-C7 and the upper thoracic vertebrae are commonly affected.
- Hip: Pain has an insidious onset. Internal rotation and extension are reduced. The person walks with a limp. P occurs over the groin and adductors, although gluteal and knee P may occur.
- Knee: Pain is local to the jt, and worse on climbing or standing, Synovitis may occur in the early stage. Crepitus is present on active or passive motion. Cartilage degeneration leads to valgus or varus knee orientation.

CONTRAINDICATIONS

- Avoid heat with acute inflammation.
- Exercise caution when applying overpressure with osteophyte formation.

TESTING

- AF ROM of the affected joint is reduced in most directions due to P.
- PR ROM reveals a painful, leathery end feel in the capsular pattern for the affected joint.
- AR Isometric testing: Reveals weakness and possibly P in the mm's crossing the affected jt.
- **DIFFERENTIATING SOURCES OF JOINT PAIN:**
- Other conditions can mimic the jt pain of OA, such as TP's, tendinitis, Bursitis, space-occupying lesions, facet joint irritation.

TREATMENT

- The treatment is in the context of a relaxation treatment.
- **Positioning**: Prone, supine, and side lying
- **Hydro**: Deep moist heat, such as a wax bath or hydrocollator, provided no inflammation is present. Ice is used with acute inflammation
- Treat compensatory structures, DDB, pain free rhythmic, rocking, and shaking.
- Soothing Swedish techniques, mm stripping, gentle ischemic compressions.
- Gentle long axis traction
- Fascial techniques are introduced if soft tissue contractures are present.
- Gentle passive stretching, PR ROM in between Swedish techniques are indicated.
- Joint play are used to mobilize the affected joint capsule.

SELF-CARE

- Deep moist heat for chronic presentations.
- Cold for acute episodes.
- Self massage to the muscles surrounding the affected jt.
- Relaxation techniques such as DDB.
- Rest from activities which aggravate the joint and relaxation exercises.
- Gentle pain free stretching and P free ROM.
- Gravity reduced activities such as swimming.
- Refer to a physician, physiotherapist, naturopath, nutritionist or the Arthritis Society for assessment and treatment, and more self-help information.
- Acupuncture, dietary supplements and modifications are also popular.