

Osteoarthrititis

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Osteoarthritis (OA)

- Most common joint disease in the world
- Prevalence increases with age
 - Majority of people over the age of 65 have radiographic features of OA

Consequence of OA

- Disability:
 - Second to heart disease as the leading cause of disability in working men over 50 years old
 - OA of the knees is the leading cause of disability among the elderly in developed countries

Pathogenesis and pathology of OA

- Disease of synovial joints
- Progressive loss of cartilage
- Reaction by joint structures

Susceptibility to OA

Susceptibility:

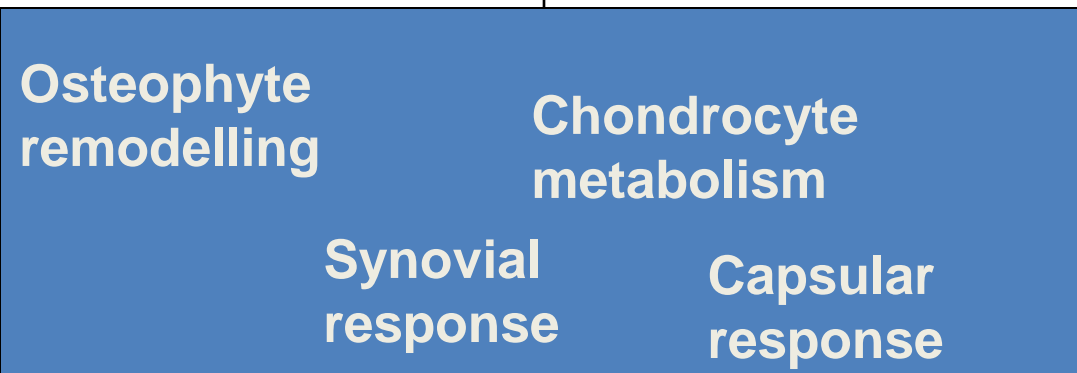
- Obesity
- Heredity
- Hormonal
- Bone density
- Hypermobility
- Neuromuscular dysfunction
- Metabolic disorders

Mechanical factors

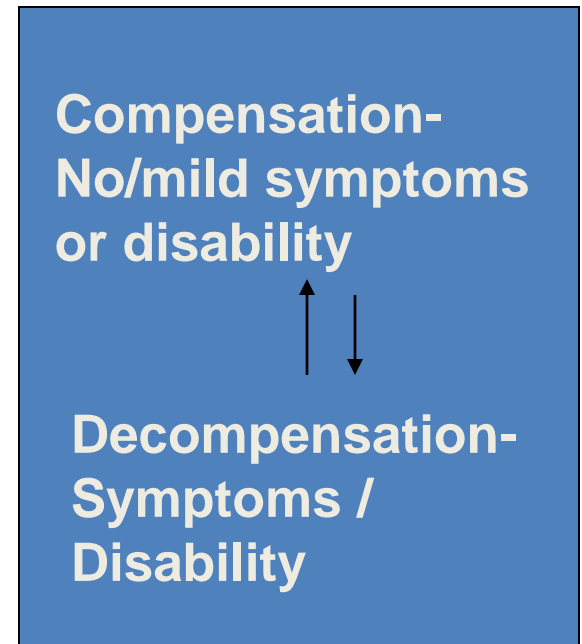
- Trauma
- Joint shape
- Repetitive usage

The OA process

Insults

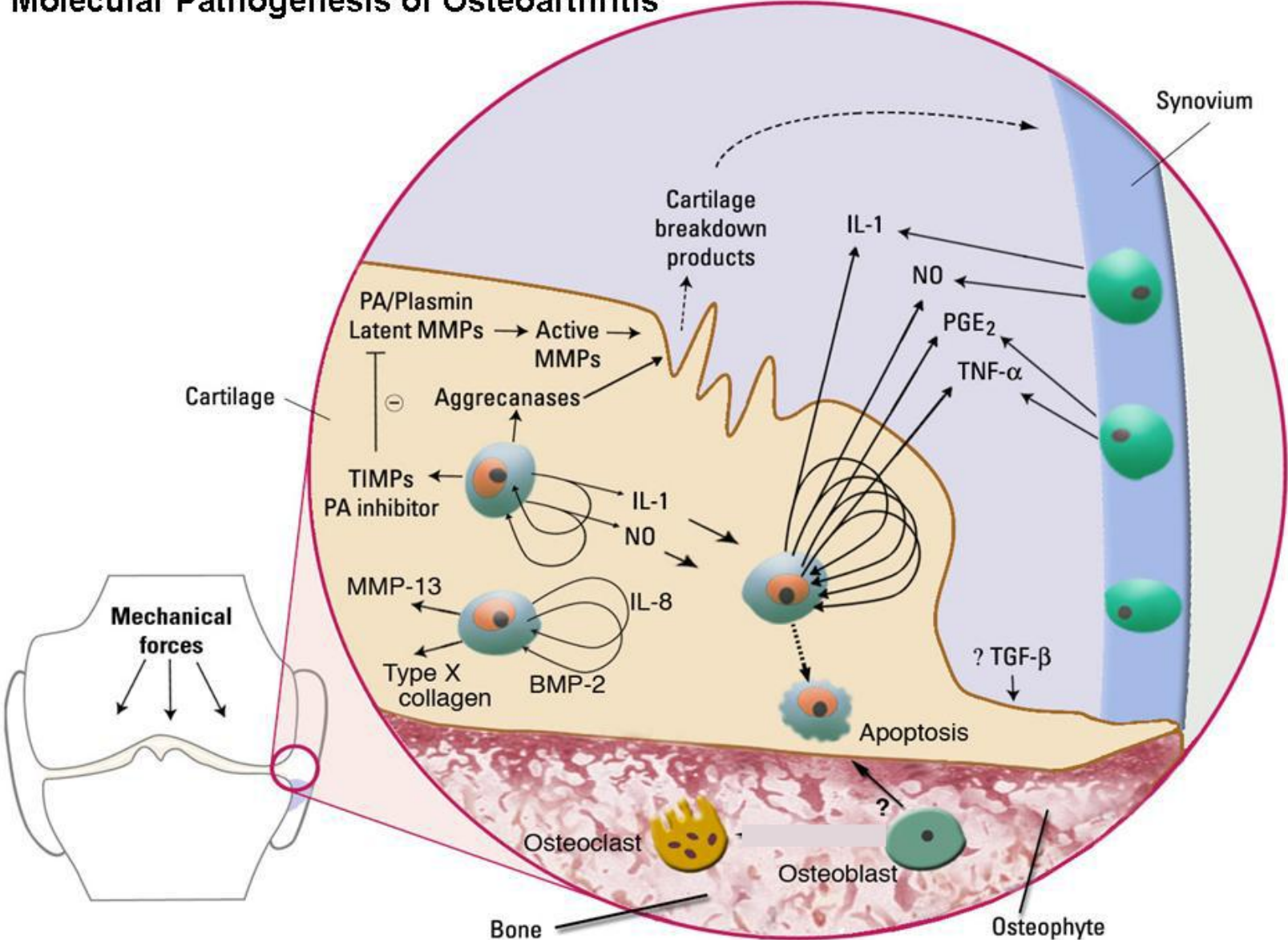


Outcome



Repair

Molecular Pathogenesis of Osteoarthritis



Changes in the OA joint

NORMAL

OSTEOARTHRITIS

capsule

cartilage

synovium

bone

thickened capsule

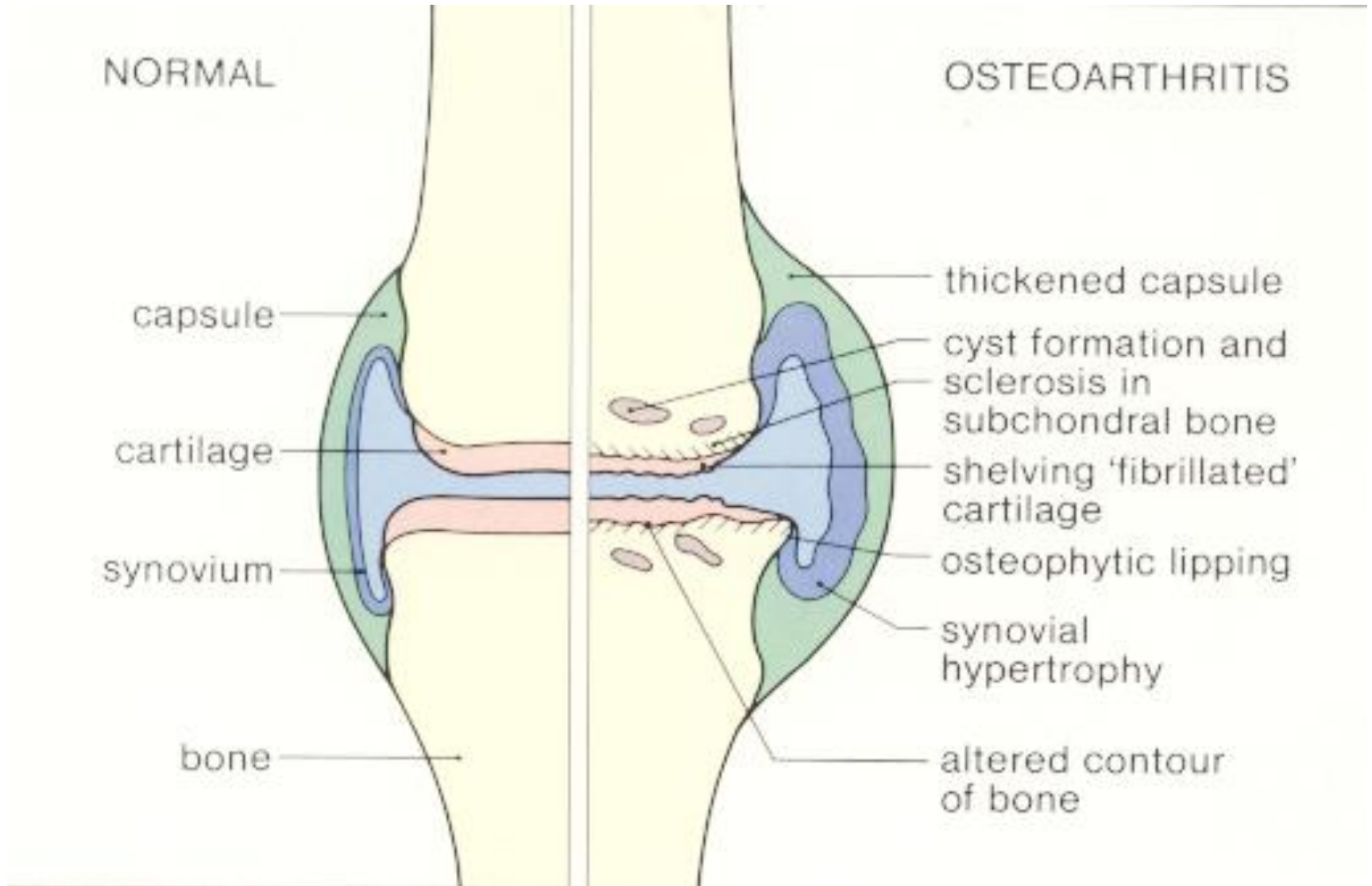
cyst formation and
sclerosis in
subchondral bone

shelving 'fibrillated'
cartilage

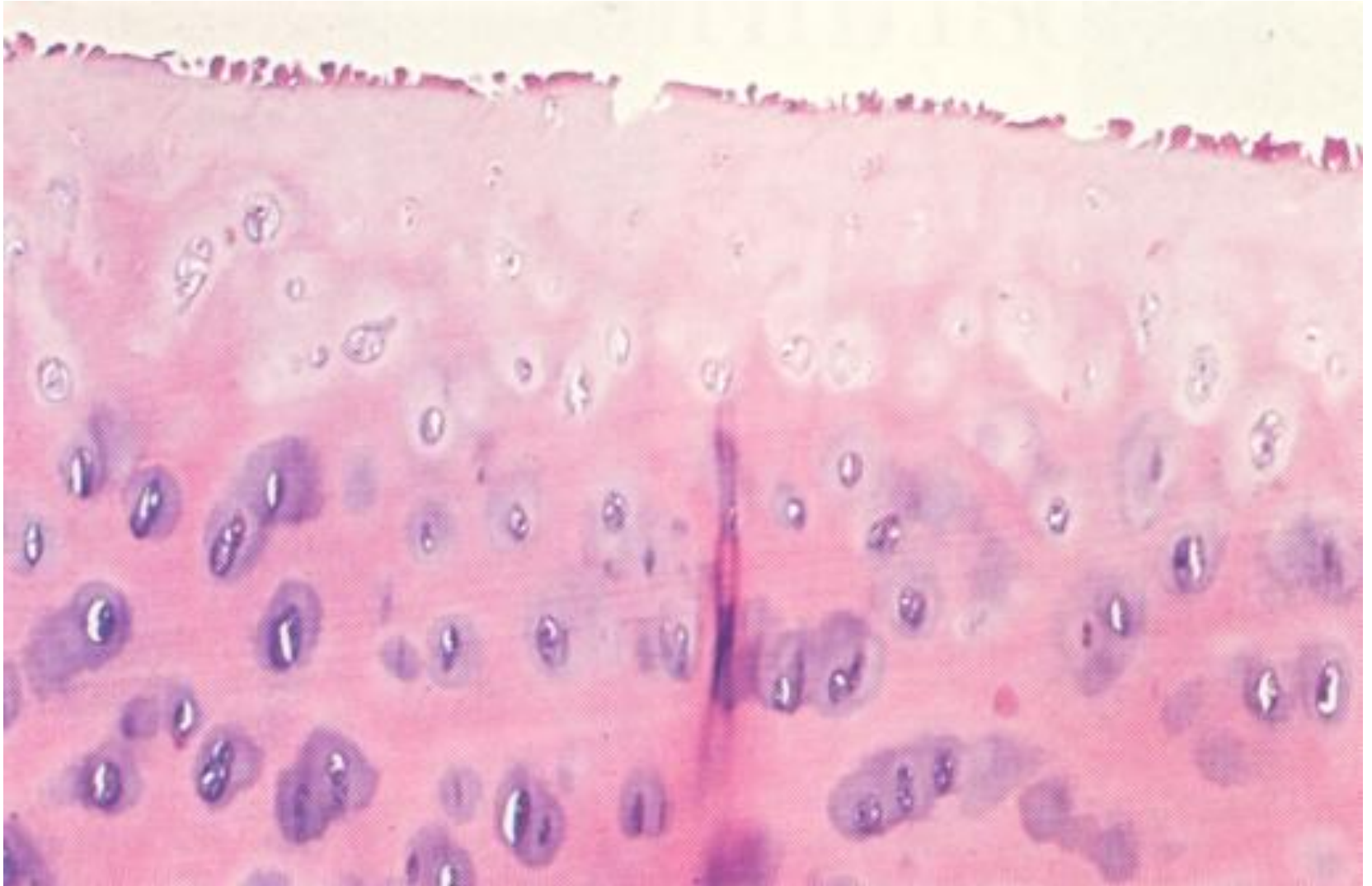
osteophytic lipping

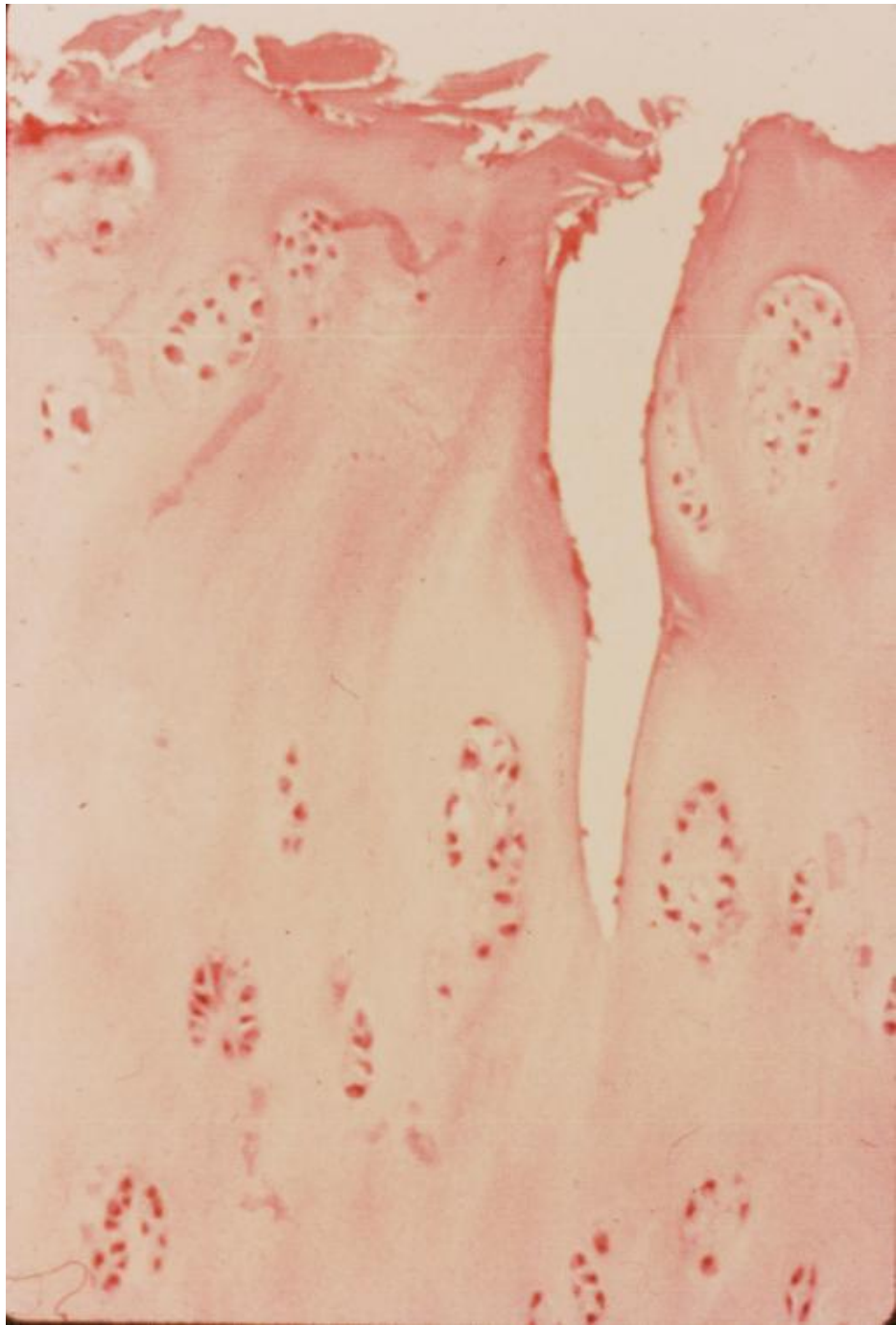
synovial
hypertrophy

altered contour
of bone

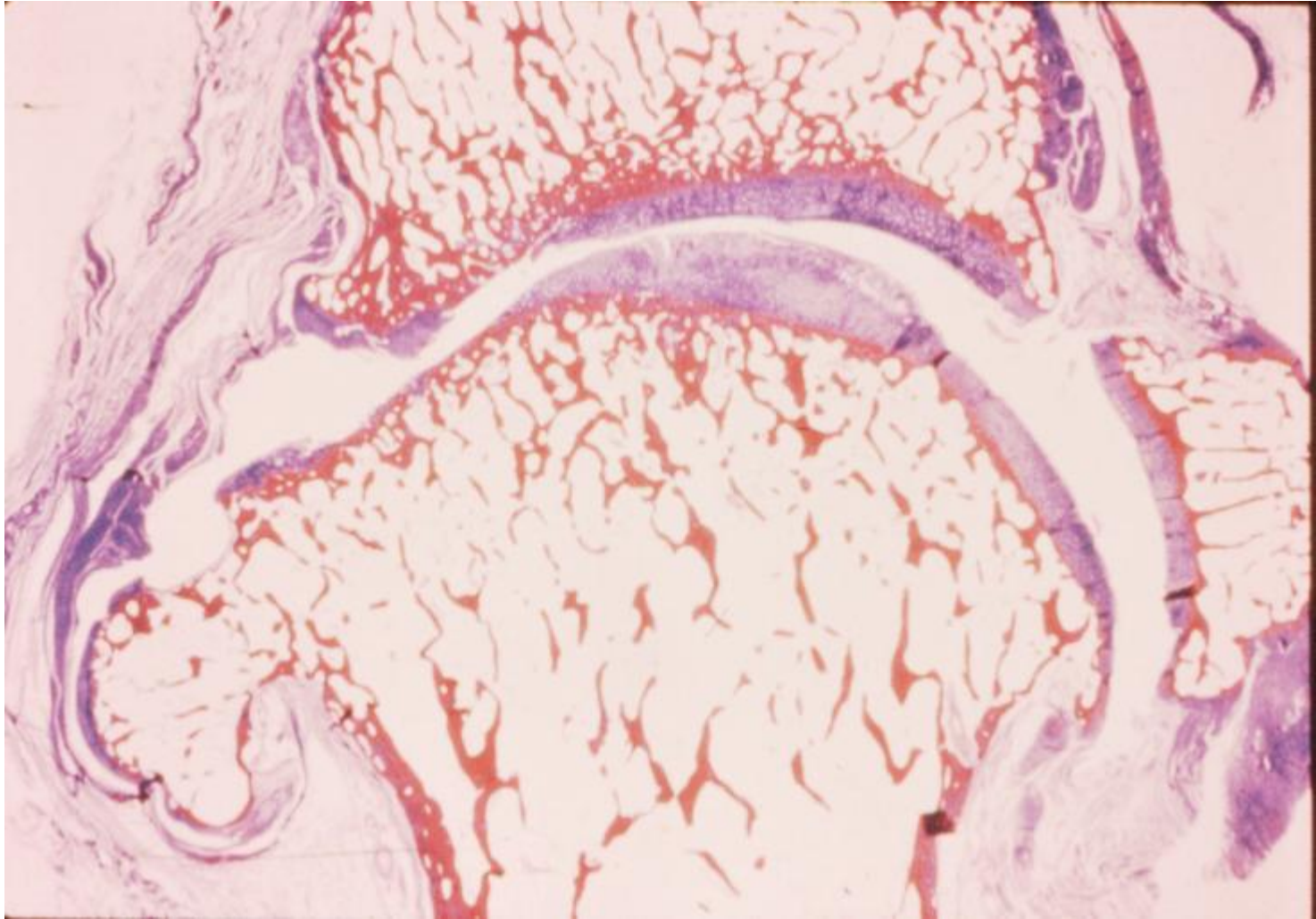


Early cartilage change





Bone changes



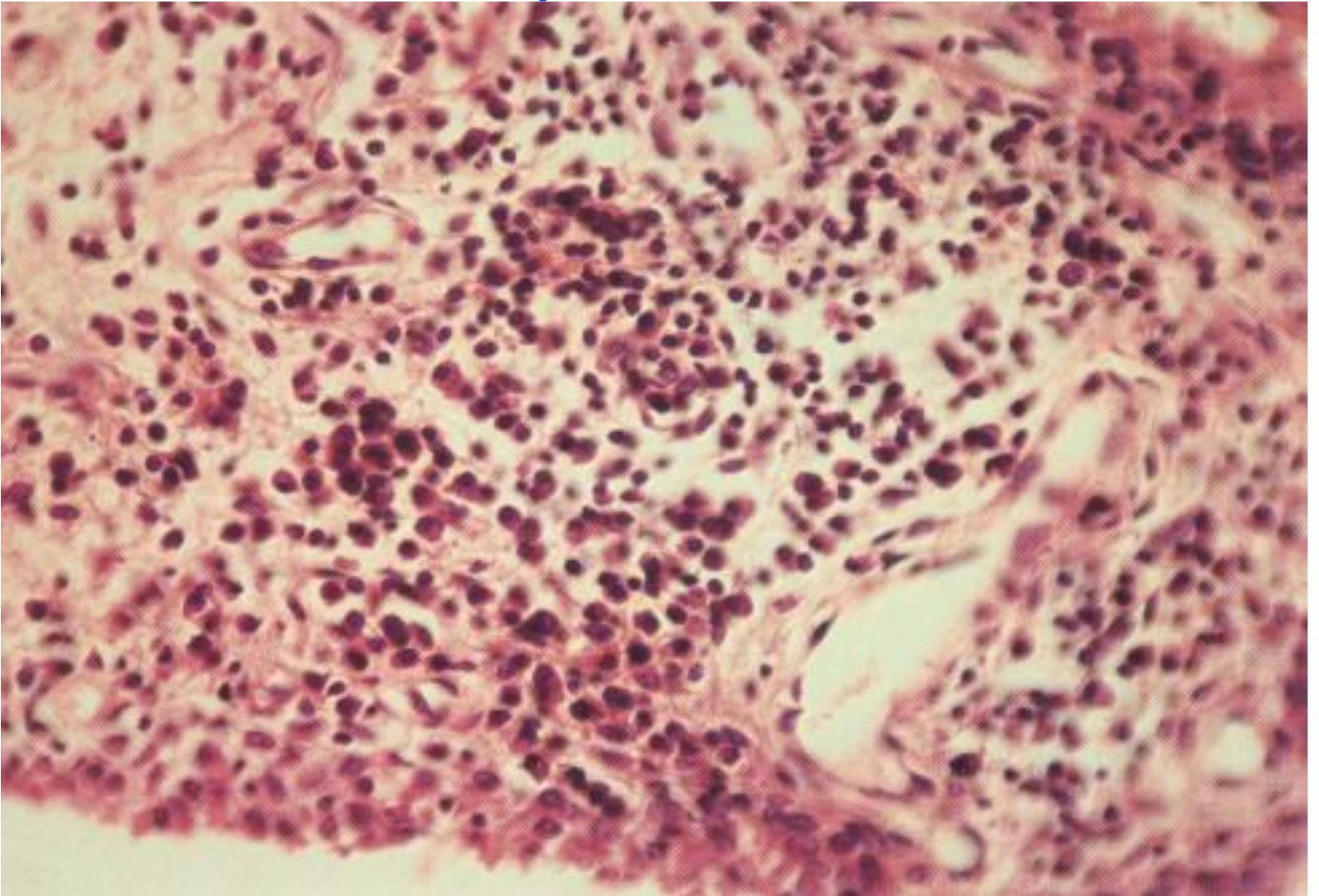
Synovitis



Cartilage debris in the synovial fluid



Synovitis



Medial compartment OA knee



Lateral compartment OA knee

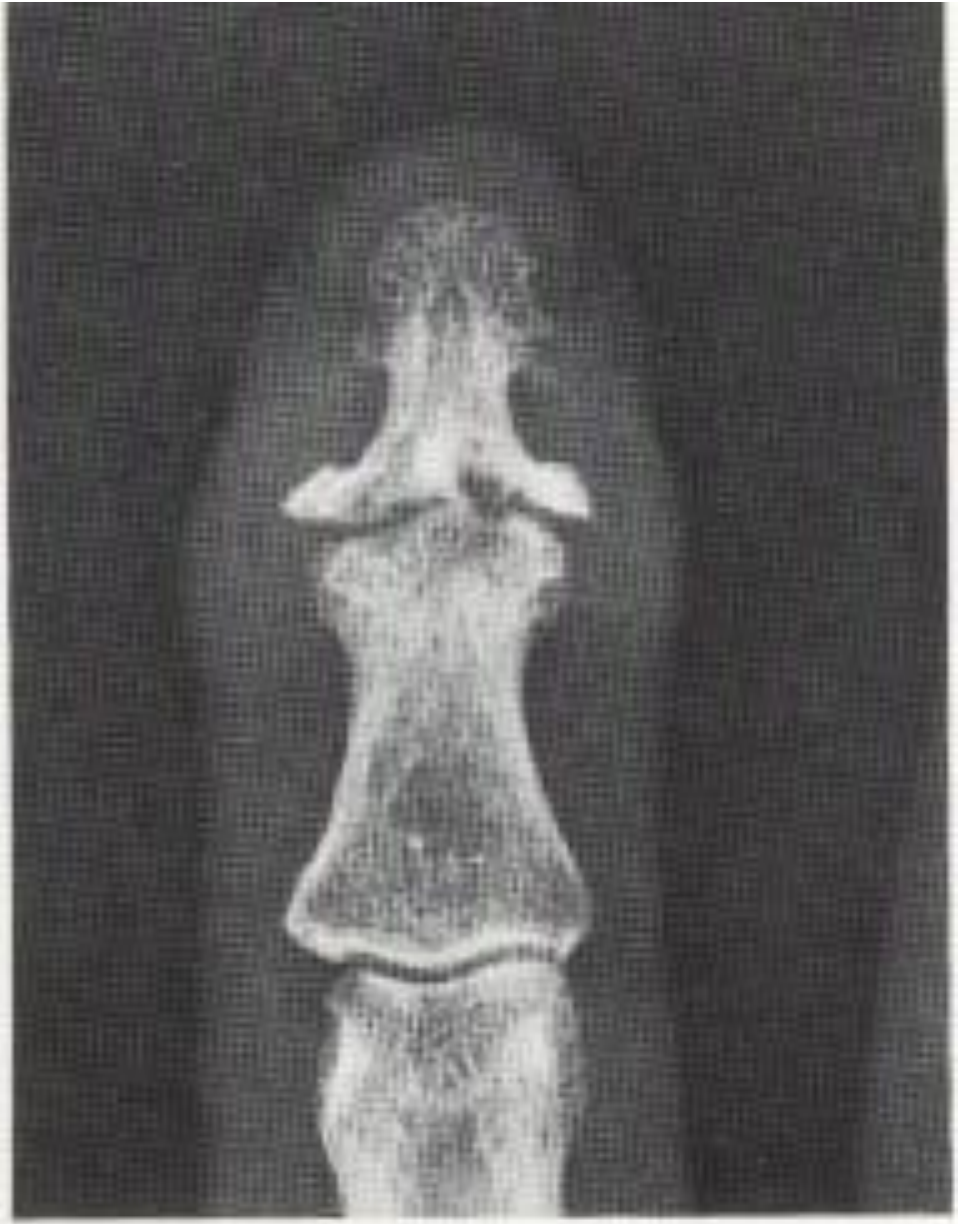


Hip OA



Hand OA





DIP cyst



Cyst on DIP



OA MTP 1





Evaluation of OA

- Diagnosis on clinical picture
 - Joint pain with activity
 - Transient stiffness in the morning or after rest
 - Reduced range of motion
 - Joint crepitus or periarticular tenderness, or both
 - Bony swelling
- X rays

Examination of the OA patient

- Body weight
- Range of motion in the joint
- Location of tenderness
- Muscle strength
- Ligament stability

Blood tests in OA

- No diagnostic blood tests
- Experimental tests to look at disease activity
- FBC, creatinine, LFTs before starting NSAIDs,
 - Especially for elderly people
 - Other chronic illnesses

MRI in OA

- Magnetic resonance imaging may be used to diagnose other causes of knee pain
 - Eg osteochondritis dissecans and avascular necrosis

The meniscus in knee OA

- High incidence of pts with knee osteoarthritis have meniscal tears
 - Not necessarily a cause of increased symptoms
 - Meniscectomy not indicated unless symptoms of locking or extension blockade

Management of OA

- Guidelines well established:
 - OARSI
 - American academy of orthopaedic surgeons
 - EULAR
 - NICE

Aim of treatment:

- Alter the disease process and its consequences
- Educate patients about the disease and its management
- Relief of symptoms
- Optimise function

Non-pharmacologic management

- Important part of treatment, but neglected
- Emerging biomechanical approaches
 - Long term load reduction will palliate pain
 - Delays progression of structural joint degeneration

Reduce load on joints

- Protect compromised joints from excessive loading
 - Weight loss
 - Modify inappropriate daily/occupational activities
 - Use walking stick/ bracing
 - Shock absorbing shoes and insoles
 - Correct leg length discrepancy
 - Patellar taping

Exercise in OA

- Maintain joint motion and stability
 - Regular movement- little and often
- Muscle strengthening exercises
 - Decreases pain (quads for knee OA)
 - Improve function
 - Reduce fall risk
- Physical training rather than passive therapy

Analgesic Therapy

- Paracetamol
- Tramadol
- Opioid analgesics

NSAIDs

- NSAIDs and COXIBs
 - No difference between drugs
 - If no response to one, may respond to another
 - Lower doses may be effective
 - Gastroprotection for long term use
 - Side effects: GI, renal, worsening CHF, BP, edema
 - Antiplatelet effects may be hazardous
- Coxib risk: political and medico-legal, not medical

Polysulfated glycosaminoglycans

- Glucosamine sulphate/ chondroitin:
 - Symptomatic benefit in some studies
 - no known side effects

Topical Agents

- Local cold or heat: Hot packs, hydrotherapy
- Topical analgesic agents: no evidence
 - Capsaicin-containing topicals
 - Liniments = methyl salicylates
- Topical NSAIDs
 - Evidence of benefit for superficial joints:
 - Hand OA
 - Knees

Intra-articular steroids

- Intra-articular steroids indication:
 - Acute exacerbations of pain and signs of local inflammation with joint effusion
- Short term benefit for pain and function

Hyaluronate injections

- Symptomatic relief in some patients
- Improved function
- Expensive
- Require series of injections
- No evidence of long- term benefit
- Limited to knees
- Not recommended

Surgical Therapy for OA

- Arthroscopy
 - American Academy of Orthopaedic Surgeons:
 - Recommend against performing arthroscopy with debridement or lavage in patients with primary OA of knees

Osteotomy:

- Only recommended in specific cases
 - Symptomatic unicompartement OA with malalignment
- May delay need for TKR for 5 - 10 years

Total joint replacement:

- Proper selection of patients
- Good to excellent results can be expected in 95%
- Survival rate of the implant is expected to be 95% at 15 year

OA Summary

- Osteoarthritis is a disease of the whole joint, not just cartilage
- The diagnosis of osteoarthritis is based on clinical presentation and supported by radiography
- Effective drugs and non-pharmacological treatments are available for the management of osteoarthritis; non-drug treatments should be tried first
- Surgical intervention should be considered when medical treatment has failed