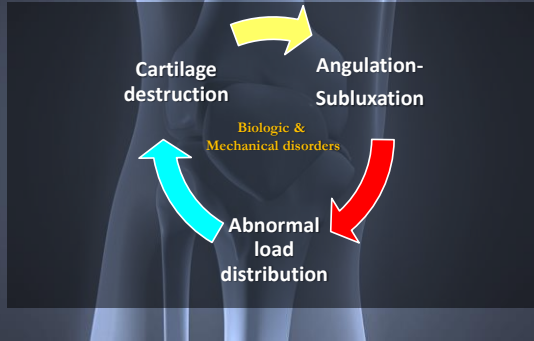


OA Knee: Pathophysiology



OA Knee: Symptoms & Signs

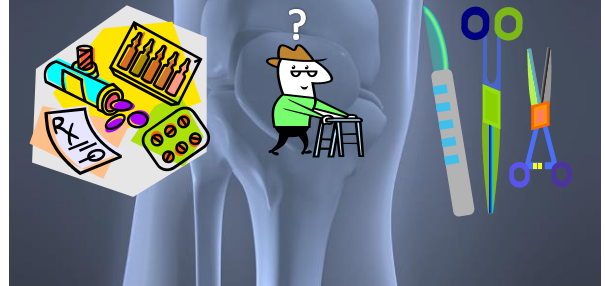
- **Knee pain with activities**
 - Walking, stairs
- **Knee deformity**
 - Swelling, effusion
 - Angulation
- **Limited walking ability**
 - Pain
 - Instability from ligament laxity
 - **Afraid of falling**

Types of OA Knee

- **Deformity**
 - Varus deformity
 - **More common**
 - Valgus deformity



OA Knee: Treatments



Treatments for OA Knee

• Life-style & Activities Modification

- Weight control
- Low-impact exercise
 - Quadriceps exercise
- Avoid pain-aggravating activity
 - Kneeling, crouching
- Use gait-aid
 - Cane, walker



Treatments for OA Knee

• Medications

- Analgesics
- Anti-inflammatory
- SySADOA (Symptomatic Slow Acting Drug for Osteoarthritis)

OA Knee Medications

• Analgesics

- Non-opioid
 - Paracetamol
- Opioids
 - Tramadol, codeine, oxycodone

OA Knee Medications

• Anti-inflammatory

- Steroids
 - Intra-articular injection
 - Oral form not recommended
- NSAIDs



OA Knee Medications

• NSAIDs

- Conventional NSAIDs
 - Ibuprofen, Diclofenac, Naproxen
- Cox-2 inhibitors
 - 1st gen: Meloxicam, Nimesulide
 - 2nd gen: Celecoxib, Etoricoxib



Rationale of NSAIDs in OA

• Factors to consider

- G-I side-effect risk
- CVS risk
- Compliance

	Normal CVS risk	Increase CVS risk
Normal GI risk	<ul style="list-style-type: none"> Conventional NSAIDs (+PPI if prolonged use) 	<ul style="list-style-type: none"> Naproxen (+PPI if on anti-platelet, anticoagulant)
Increase GI risk	<ul style="list-style-type: none"> COX-2 inhibitor NSAIDs + PPI 	<ul style="list-style-type: none"> Naproxen + PPI Opioids

OA Knee Medications

• Topical NSAIDs

- Mild, mild to moderate
- Low side effect



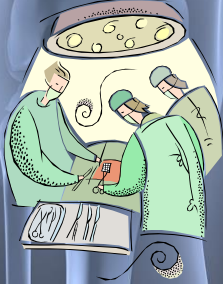
OA Knee Medications

• DMOADs

- IL-1 inhibitor
 - Diacerein
- Glucosamine & related compounds
 - Glucosamine sulfate
 - Precursor of GAGs
 - Chondroitin sulfate



OA Knee: Surgical Treatments



OA knee Surgical Treatments

- Arthroscopy
- Osteotomy
- Arthroplasty

OA knee Surgical Treatments

- **When is surgery indicated?**
 - Severe disability & failure of other methods
 - **Uncontrolled pain**
 - **Limited daily activity**
 - **Side effect from medications**

Arthroscopy Debridement



Arthroscopic debridement

- **Pros**
 - Minimally invasive
- **Cons**
 - Limited indication
 - Degenerative meniscal tear
 - Loose body removal

Realignment Osteotomy

- **Distal femur or proximal tibia**
 - Load-shifting to intact articular surface



Realignment Osteotomy

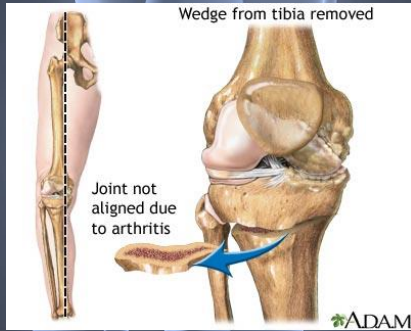


OA Knee Medications

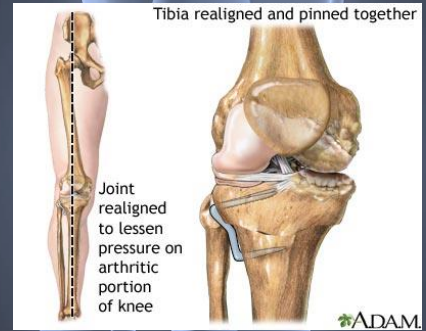
- **Viscosupplement**
- **Hyaluronic acid**
 - **Intra-articular injection**
 - Weekly 3-5 doses
 - Effective 6-12 months
 - **Mild-moderate case**
 - **Expensive**



Realignment Osteotomy



Realignment Osteotomy



Realignment Osteotomy



Realignment Osteotomy



Realignment Osteotomy

- **Pros**
 - Native knee preserved
 - **Less prone to infection**
 - Prolong duration before joint replacement
 - **For younger patient (>60 Yr)**

Realignment Osteotomy

- **Cons**
 - Slow-recovery & weight bearing
 - **bone-healing**
 - Limited indication
 - **unicompartment arthritis only**
 - May complicate subsequent joint replacement

Knee Replacement

- **Partial Knee Replacement**
 - Unicompartement Knee Arthroplasty (UKA)
 - Patello-femoral arthroplasty
- **Total Knee Replacement (TKR)**
 - Total knee arthroplasty

Unicompartement Knee Arthroplasty (UKA)



Unicompartmental Knee Arthroplasty (UKA)



Unicompartmental Knee Arthroplasty (UKA)



Unicompartmental Knee Arthroplasty (UKA)

● Pros

- Less invasive surgery
- Preserve knee kinematic

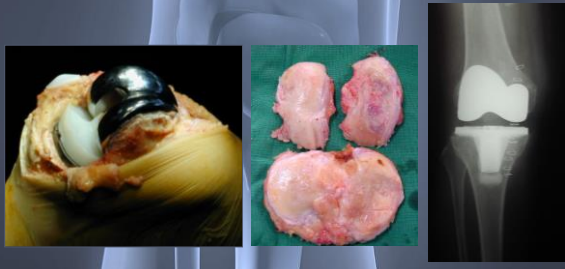
● Cons

- Limited indication
- Lower longevity than TKA?

Total Knee Arthroplasty



Total Knee Arthroplasty



Total Knee Arthroplasty

● Pros

- Wider indications
 - Tri-compartment disease
 - Severe deformity

● Cons

- Altered knee kinematic
- Bone-sacrifice surgery
 - Not recommended for young patients

Total Knee Arthroplasty



OA Knee: Conclusions

- Biologic & mechanical disorders
- Conservative treatment for mild & moderate symptoms
 - Activity modification
 - medications
- Surgical treatment for severe symptoms
 - Base on patient age & activities

