

A 3D anatomical model of a human knee joint. The femur (thigh bone) is at the top, the tibia (shin bone) is in the middle, and the patella (kneecap) is at the bottom. The model is rendered in a light blue color with a semi-transparent effect, showing the internal structures of the joint. The text is overlaid on the model.

# MANAGEMENT OF OSTEOARTHRITIS OF THE KNEE

By

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- A 3D anatomical model of a tooth, likely a mandibular premolar, shown in a semi-transparent cyan color. The model highlights the root canal system, which is filled with a light blue material. The crown is shown in a semi-transparent purple color. The root is also shown in a semi-transparent purple color. The model is set against a black background.
- DEFINITION
  - INCIDENCE/PREVALENCE
  - CLASSIFICATION
  - CLINICAL FEATURES
  - MANAGEMENT



## *Definition*

- Degenerative/hypertrophy changes in bone and cartilage
- Progressive wearing down of opposing joint surfaces
- Distortion of joint position

# *Prevalence/Incidence*



- a tenth of the UK population above 55yrs are affected
- In Africa

## RISK FACTORS

obesity

knee injury

aging

\* Oestrogen replacement therapy is protective

# CLASSIFICATION



- KELLGREN & LAWRENCE

Grade 1- doubtful- minimal osteophytes

Grade 2- minimal- definite osteophytes

Grade 3 –moderate- moderate diminution of joint space

Grade 4- severe- joint space greatly impaired with sclerosis of subchondral bone



- AHLBACK

- 1 Joint space narrowing ( $< 3\text{mm}$ )

- 2 Joint space obliteration

- 3 Minor bone attrition ( $0\text{-}5\text{mm}$ )

- 4 Moderate bone attrition ( $5\text{-}10\text{mm}$ )

- 5 Severe bone attrition ( $>10\text{mm}$ )

# CLINICAL FEATURES



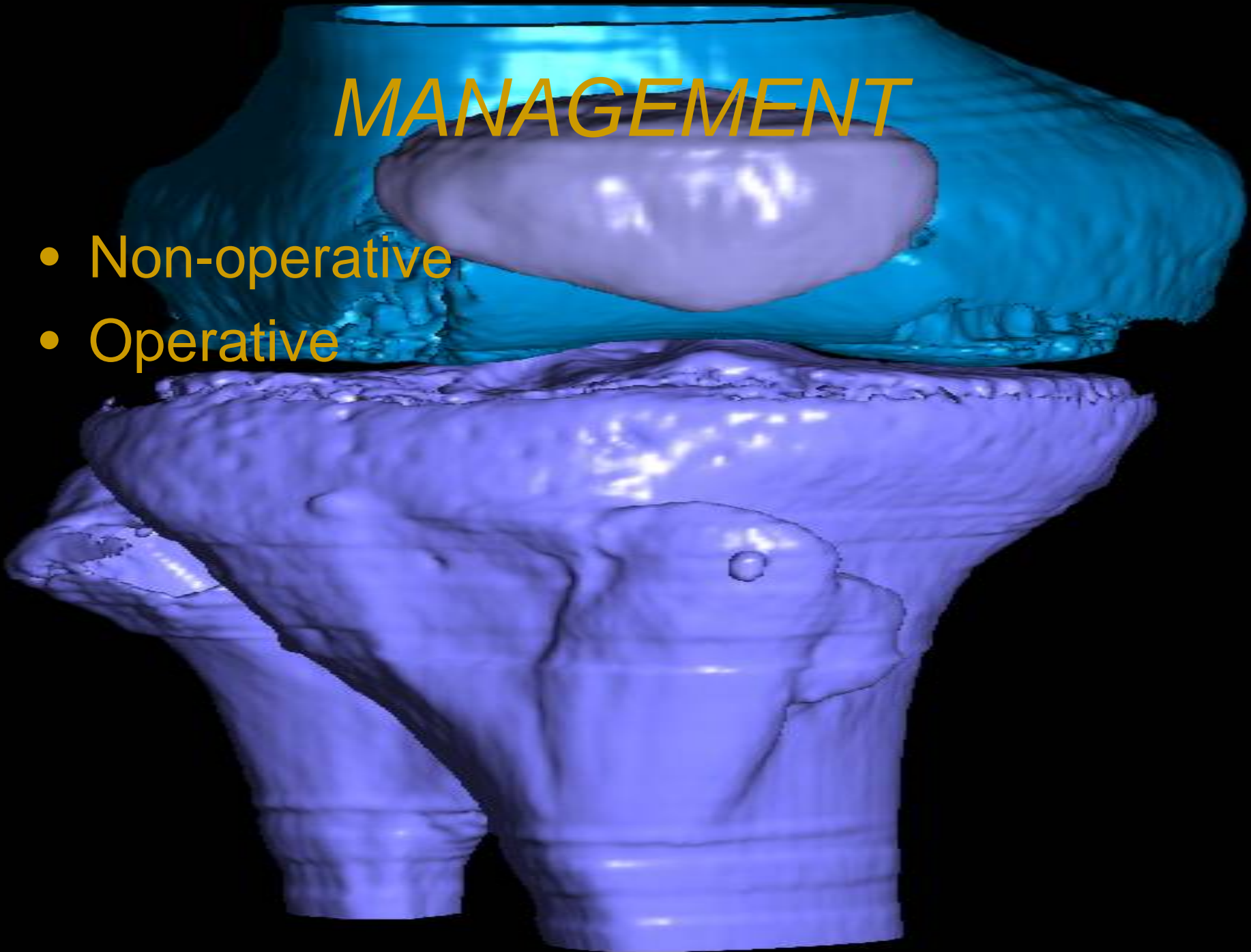
- PAIN
- STIFFNESS
- CREPITUS ON EXAMINATION
- RADIOLOGICALLY

Osteophytes

Patellofemoral impairment

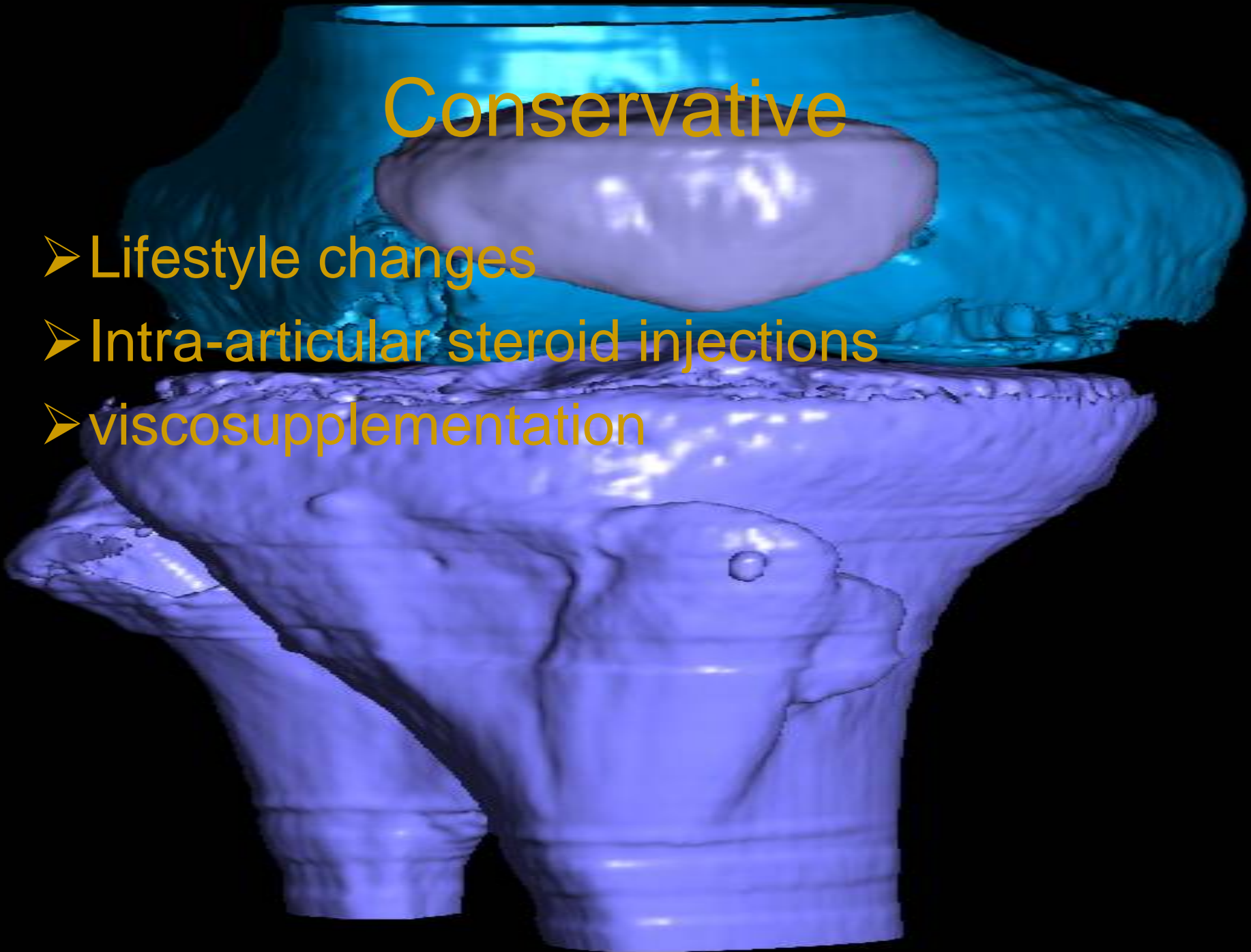
# MANAGEMENT

- Non-operative
- Operative



# Conservative

- Lifestyle changes
- Intra-articular steroid injections
- viscosupplementation




# SURGICAL

An anatomical model of a lumbar vertebra, shown in a light blue color. The model is cut horizontally to reveal the internal structures, including the intervertebral discs and the spinal canal. A section of the intervertebral disc has been removed, illustrating a surgical discectomy procedure. The text 'SURGICAL' is overlaid in large, bold, yellow letters at the top of the image.

- INDICATIONS

Debilitating pain with impaired ability to sleep

Pain limiting daily activities

A 3D anatomical model of a knee joint, showing the femur (thigh bone) and tibia (shin bone) in a light blue color. The model is semi-transparent, revealing the internal structures of the joint, including the patella (kneecap) and the articular surfaces. The femur is positioned above the tibia, and the patella is visible in the center. The model is set against a black background.

- Arthroscopic washout and debridement effective in mild to moderate OA can control symptoms for up to 5 yrs younger age at time of surgery

- Osteotomy of proximal tibia/distal femur can delay need for TKR for up to 5-10yrs

# UNICOMPARTMENT KNEE REPLACEMENT



25% of patients have medial comp. OA

## Prerequisites

- Stability of the joint
- Correctable varus deformity
- Fixed flexion deformity of  $<10$  degrees
- Minimal lateral compartment disease







A 3D anatomical model of a hip joint. The femoral head is shown in a light blue color, and the acetabulum is shown in a darker blue color. The femoral neck and shaft are shown in a light blue color. The model is set against a black background.

## ADVANTAGES.

- less operative blood loss
- quicker rehab.
- better range of movement.
- easier to revise

# TOTAL KNEE REPLACEMENT

A 3D anatomical model of a human knee joint. The femur (thigh bone) is at the top, and the tibia (shin bone) is at the bottom. A total knee replacement (TKR) implant is shown in red, covering the distal femur and proximal tibia. The implant consists of a femoral component with a concave surface and a tibial component with a convex surface. The joint space between them is filled with a white polyethylene bearing. The surrounding ligaments and soft tissue are shown in a light blue color.

indicated in moderate to severe OA

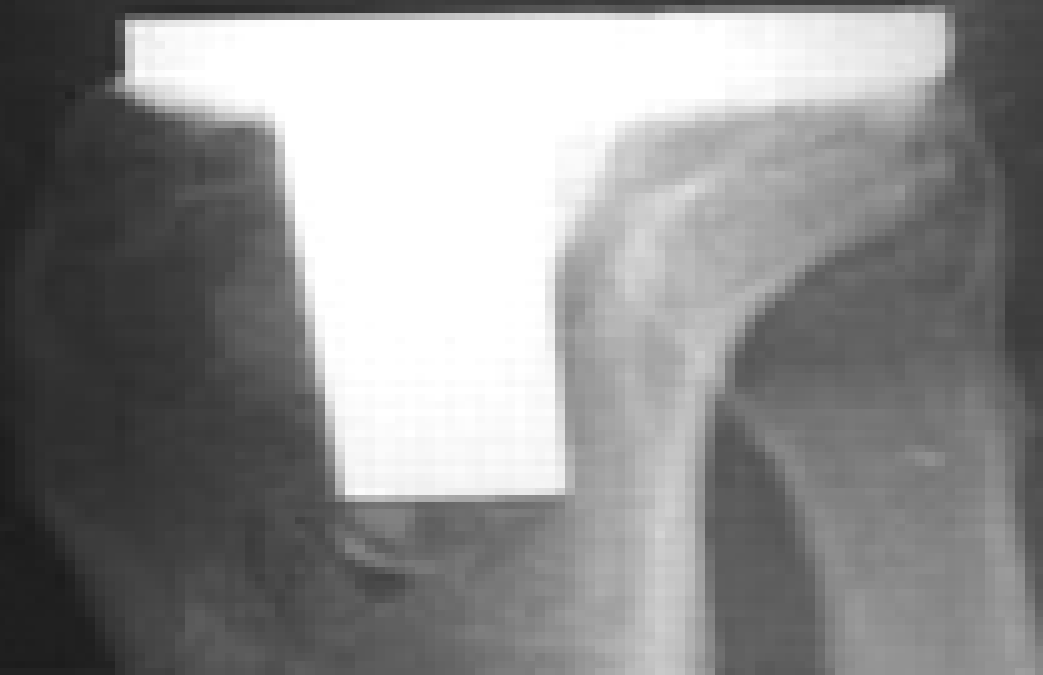
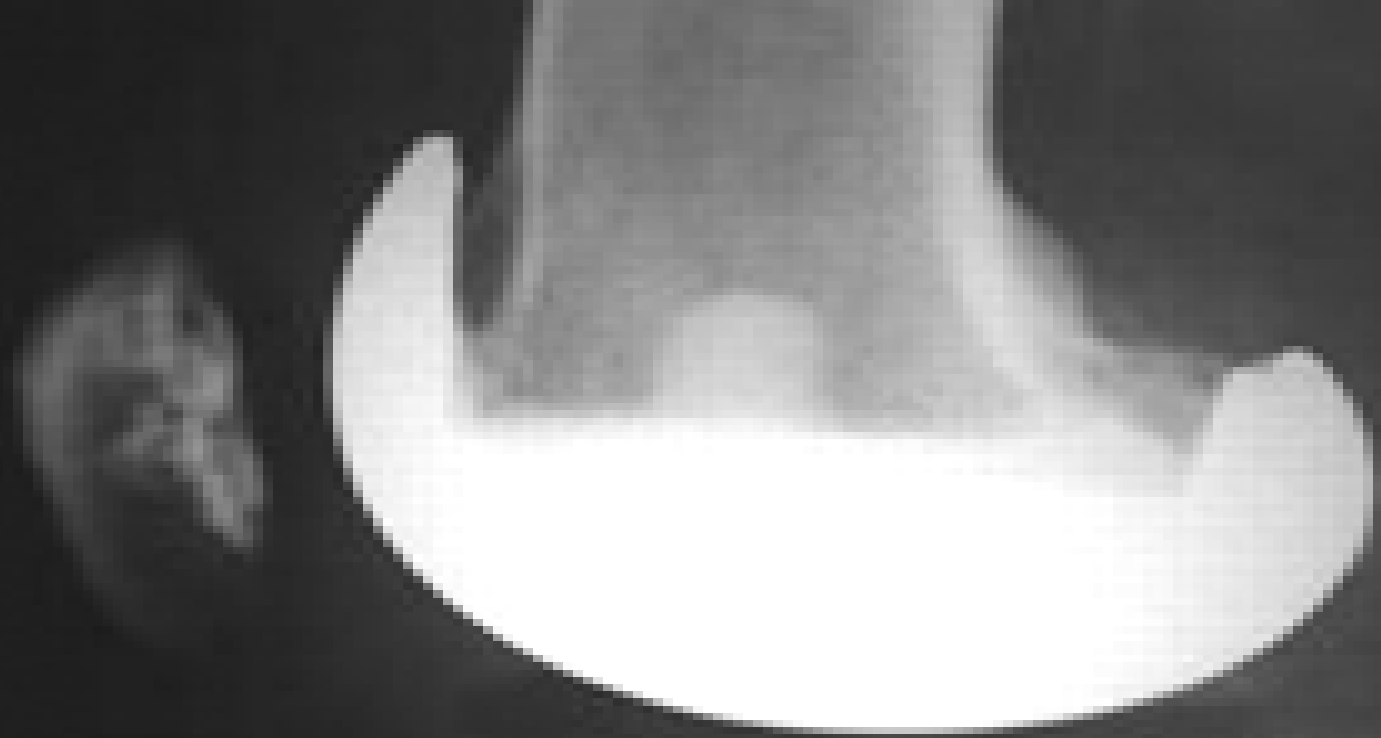
Prostheses used-

bicondylar implant with polyethylene bearing

Classified as

- cruciate retaining
- posterior stabilizing





A 3D anatomical model of a knee joint, showing the femur (thigh bone) at the top and the tibia (shin bone) at the bottom. A prosthetic knee joint is visible, with a white femoral head and a white tibial tray. The surrounding soft tissue is rendered in a semi-transparent, light blue color. The word "complications" is written in large, bold, yellow letters across the top of the image.

# complications

- Occurs in 5% of patients and in 8% of knees
- Deep infections – 0.5% - 1.5% of patients
- Deep vein thrombosis- 50%
- Pulmonary embolism- 1-3%
  
- Risk of death knee replacement-0.5%

# LONG TERM SIDE EFFECTS OF TKR



Difficulty in squatting/knee

- Numbness lateral to scar
- Mechanical noises or 'clunking' from implant.

# REVISION TKR



- 50% of revision TKR occur in first 2-4yrs after primary operation

## RISK FACTOR

- Young age at time of primary op

# EVOLVING TECHNIQUES IN TKR



- COMPUTER NAVIGATED TKR
- MINIMAL INCISION APPROACH  
(in unicompartmental knee replacement)