

A 3D anatomical model of a knee joint, showing the femur (thigh bone) at the top, the tibia (shin bone) at the bottom, and the patella (kneecap) in the middle. The model is rendered in a light blue color with a semi-transparent effect, allowing the internal structures to be visible. 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 maxillary premolar, shown in a semi-transparent cyan color. The model displays the internal 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

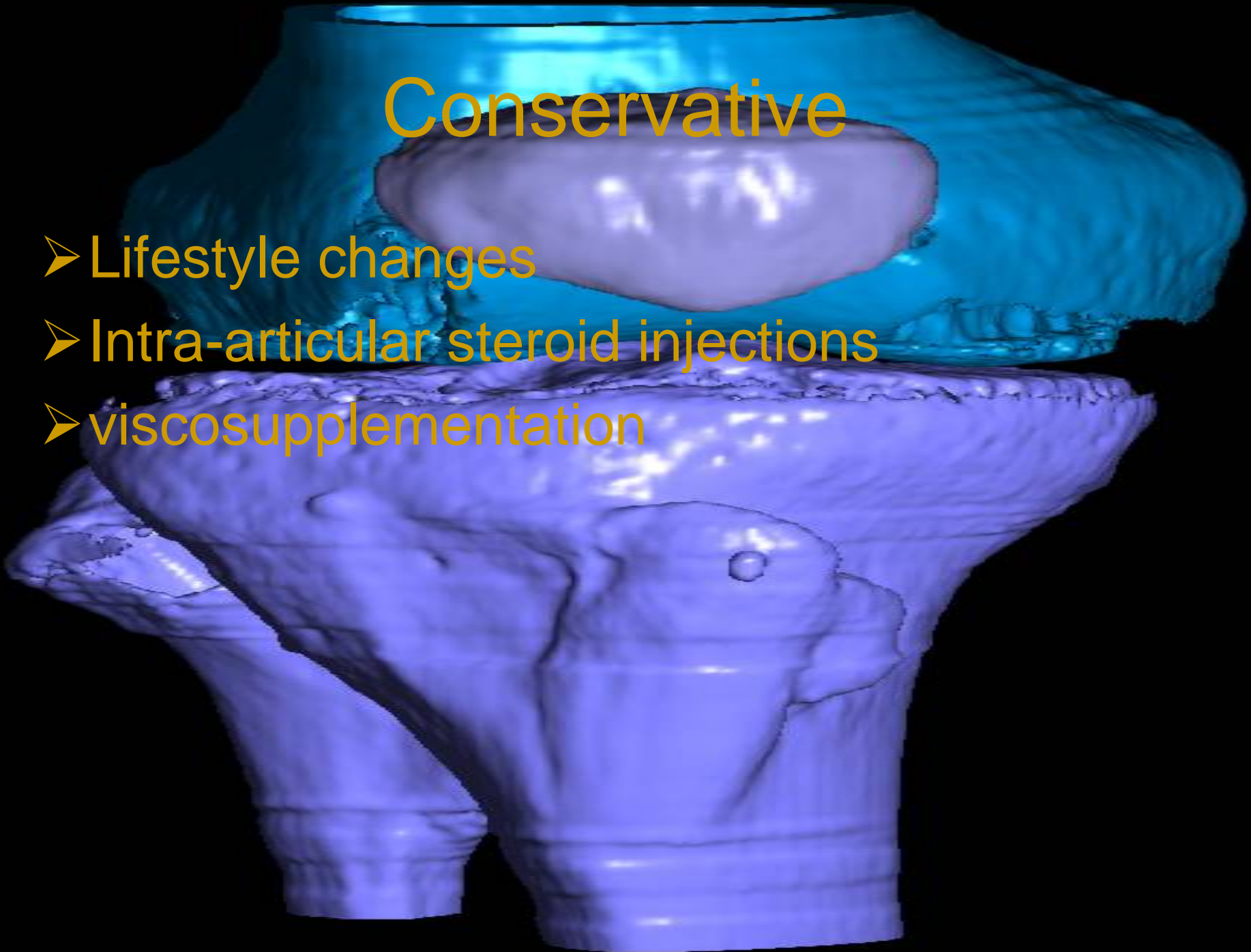
MANAGEMENT



- Non-operative
- Operative

Conservative

- Lifestyle changes
- Intra-articular steroid injections
- viscosupplementation




SURGICAL

An anatomical model of a lumbar vertebra, colored in a light blue/cyan hue. A large, semi-circular section of the vertebral body and intervertebral disc has been removed, revealing the internal spinal canal and nerve roots. The model is shown from a slightly elevated, anterior-lateral perspective.

- 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 dark 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 articular surfaces of both bones. The implant consists of a femoral component on top and a tibial component on the bottom, with a polyethylene bearing in between. The surrounding soft tissue and ligaments are shown in a semi-transparent, light blue color.

indicated in moderate to severe OA

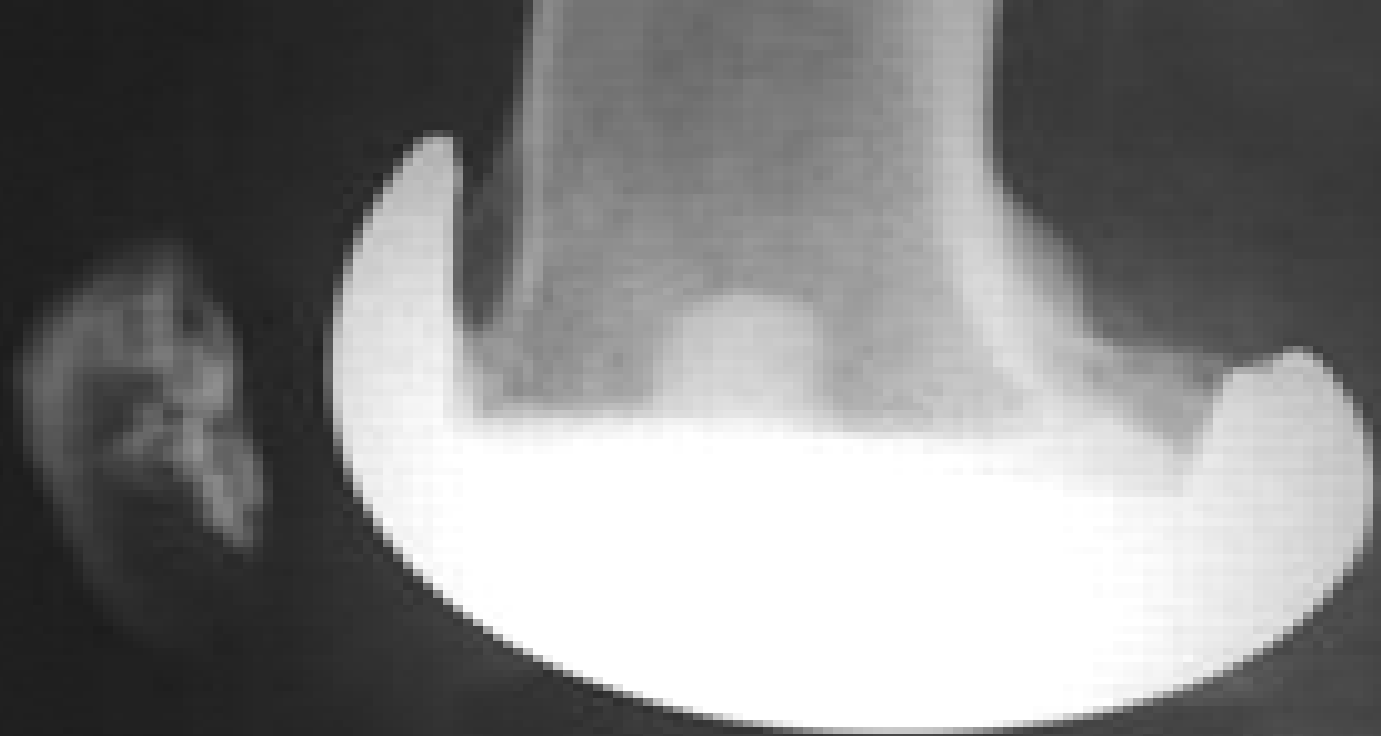
Prostheses used-

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 white, semi-transparent prosthesis is visible, covering the distal end of the femur and the proximal end of the tibia. The model is rendered in a light blue/cyan color. The word "complications" is written in large, bold, yellow text across the top of the model.

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)

