

Painful TKA notes with Dr. John Cody

History

- Pain, swelling, instability, stiffness
- Pain time length before TKA, preop ROM. Wound healing difficulties, prolonged antibiotic intake, repeat surgery.
- Early infection w/i 2 years- MC : infection, malalignment/malrotation, knee instability
- Late infection- aseptic loosening, infection, poly wear
- Pain onset, nature and location
 - Pain w/ WB, better w/ rest- implant loosening, bursitis, tendinopathy
 - Start up pain- instability or loosening
 - Acutely worsening + constant pain- PJI
 - unchanged sx's after surgery- extrinsic- radiculopathy, hip pathology
 - Feeling on instability or stiffness- implant malalignment or flexion/extension gap imbalance
 - Recent hx of infection or dental procedure w/ acute knee pain- acute hemogenous PJI
 - Pain months/years after well functioning TKA- poly wear, osteolysis, implant loosening, PJI

Physical Exam

- Inspection- surgical scarp + peri-incisional erythema
 - Effusion- may indicate infection, seroma, recurrent hemarthrosis, or periprosthetic fx
 - Palpation- Pes TTP, biceps femoris, patella tendons, distal IT band.
 - Pain w/ palpation can be VTE
 - PROM + AROM, test cruciates at 30 + 90
 - patellar clunk
 - Gait analysis

Imaging

- Xrays, weight bearing AP, lateral, merchant - osteolysis, fractures, over/under-sized implants, patellar maltracking

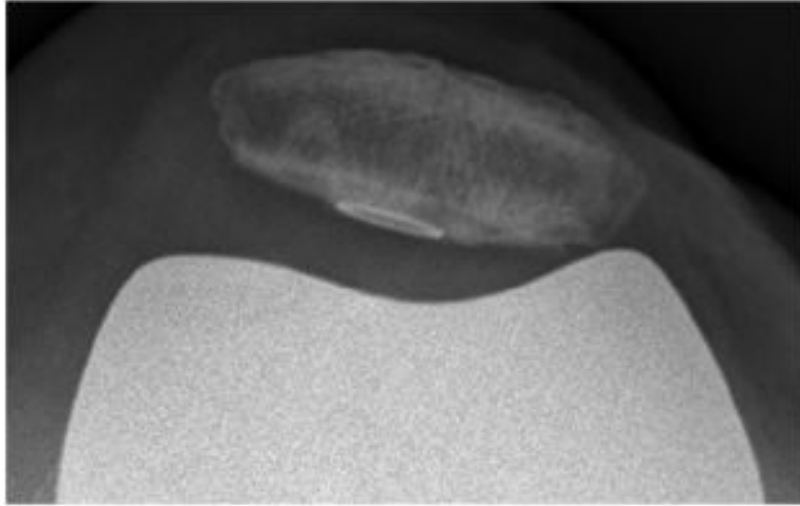
- WB radiographs- asymmetric wear, implant positioning, sizing, implant dislocation, radiolucent lines or larger radiolucent defects
- AP knee
 - Femoral component in 4° to 7° of valgus
 - Tibial component perpendicular to the long axis of the tibia
 - Medial and lateral joint spaces equivalent
- Lateral knee
 - Femoral component parallel to long axis of femur and posterior aspect of anterior flange flush with underlying anterior cortex
 - Tibial component with a posterior slope of 0° to 10° and positioned centrally or posteriorly on tibia
 - Patellar height of 10 to 30 mm

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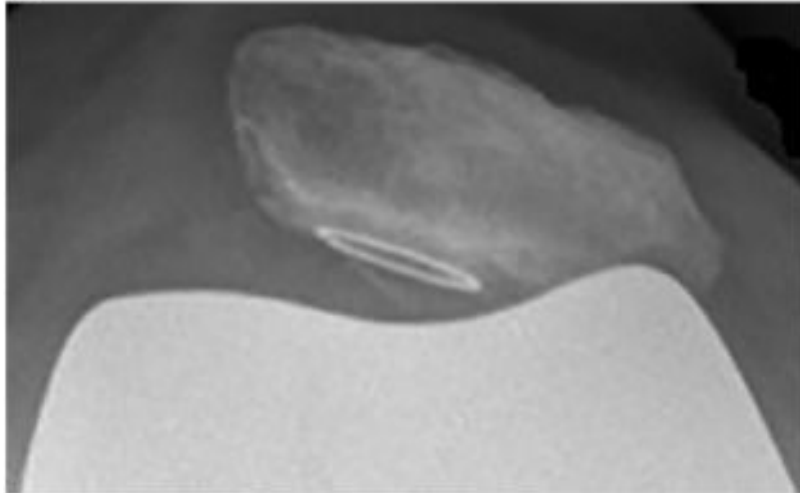
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- Merchant
 - Patella within femoral groove
 - No patellar maltracking or subluxation

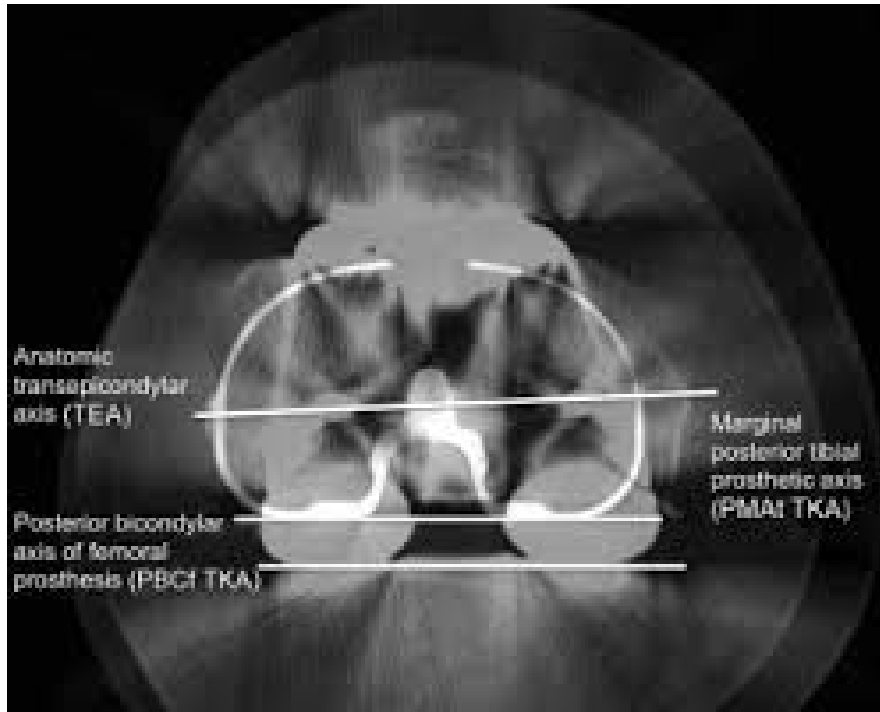
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- - Stress radiographs
 - AP and varus/valgus stability, WB lateral flex/extension films
 - no change in femortibial contact point
- CT- implant malrotation.



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- Nuclear studies- sensitive but not specific. Technetium-99m

Laboratory

- ESR + CRP
 - If increased> Aspirate w/ synovial fluid analysis
 - IF high clinical suspicion> aspirate knee anyways
 - Send fluid- aerobic, anaerobic, fungal, acid-fast bacillar cx, synovial WBC count w/ diff.
 - discontinue abx for 2 weeks prior to analysis
 - WBC >1,100 and 64% neutrophil - combined NPV 99.6%
 - w/i 3 weeks 11,200 cells (38)
 - alpha defensin
- CBC not routinely used

Etiology

- Intrinsic v Extrinsic

Intrinsic causes

- PF maltracking
- Excessive poly wear w/ osteolysis
- aseptic loosening



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- implant failure
- Flexion/Extension gap instability



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- arthrofibrosis
- Implant impingement
- Extensor mechanism disorders



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Extrinsic causes

- Hip arthritis, osteonecrosis, fracture, spinal stenosis w/ DJD & nerve root impingement symptoms, it band friction, bursitis

Other

- fibromyalgia, metal sensitivity, tourniquet use

Algorithmic Eval of painful TKA

- Is it the knee?
- Is it infected?
- Is extensor mechanism intact?
- Assess implant
- Is knee stable? (consider soft tissue imbalance as well)

- Is the knee stiff?

Sources

: Flierl, M. A., Sobh, A. H., Culp, B. M., Baker, E. A., & Sporer, S. M. (2019). Evaluation of the painful total knee arthroplasty. *JAAOS-Journal of the American Academy of Orthopaedic Surgeons*, 27(20), 743-751.

Sharkey PF, Lichstein PM, Shen C, Tokarski AT, Parvizi J: Why are total knee arthroplasties failing today: Has anything changed after 10 years? *J Arthroplasty* 2014;29(9):1774-1778