Osteoarthritis/Osteoarthrosis

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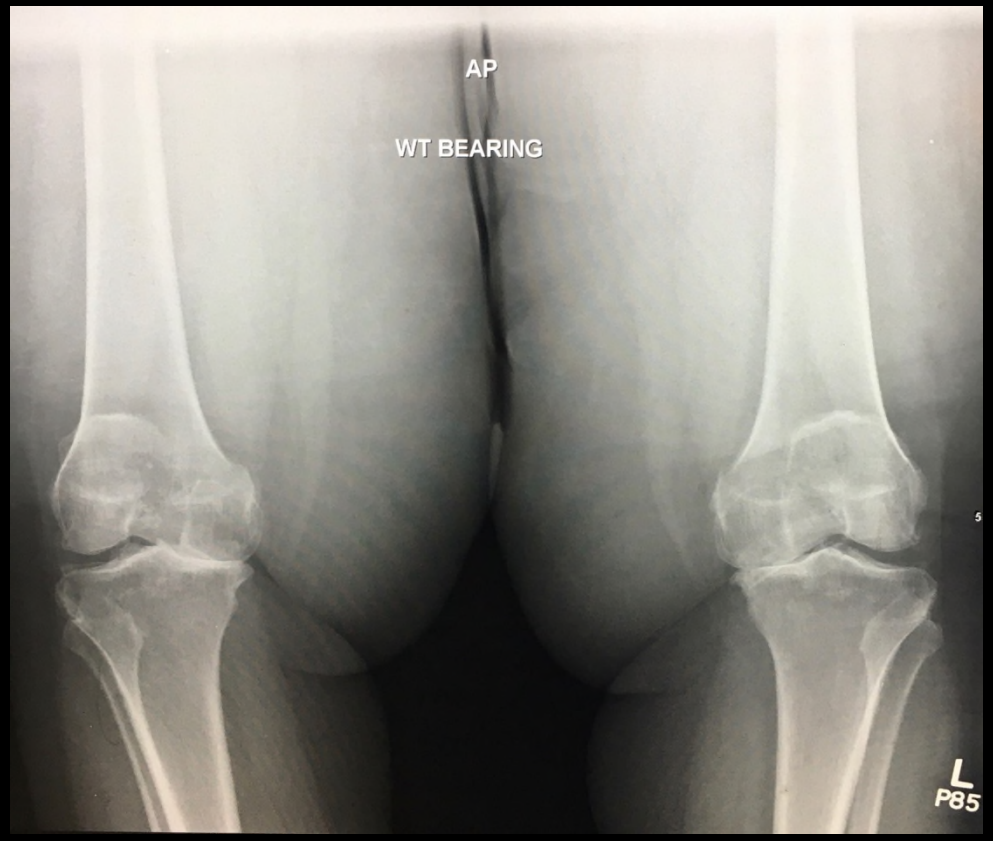
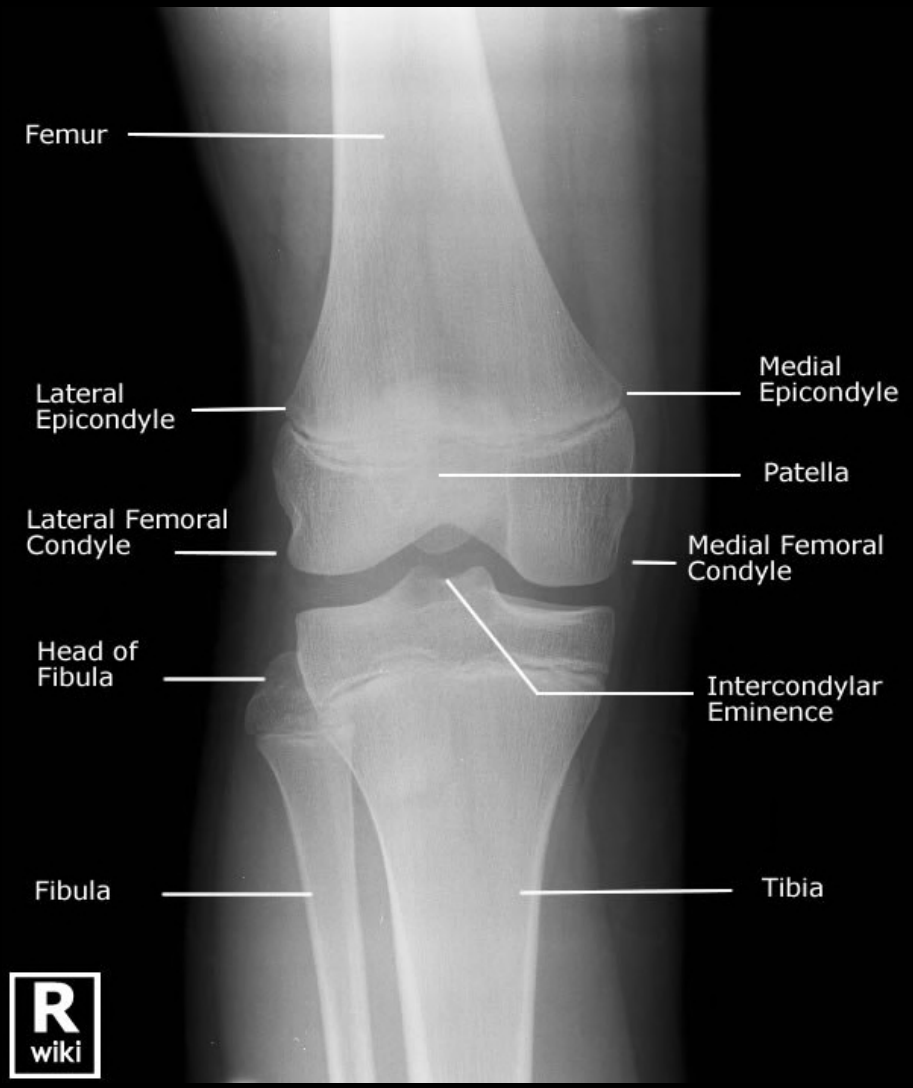
Clinical History

- Quick summary of the history and physical exam with notable findings
  - 58yo woman with chronic left knee pain
  - Initial workup includes clinical symptoms and initial knee XR
  - Symptoms: knee pain and decreased knee ROM but no knee swelling, no knee redness, no knee warmth, no knee bruising, no locking, clicking, instability, limping, or refusal to bear weight. Symptom Cluster Details: she reports the symptoms are worsening. Associated symptoms: no pain in other joints, no fever, no chills and no rash.
  - PMH: gout, DM, HTN, HLD, obesity (BMI 53), has been taking ibuprofen for the knee pain for 2 weeks

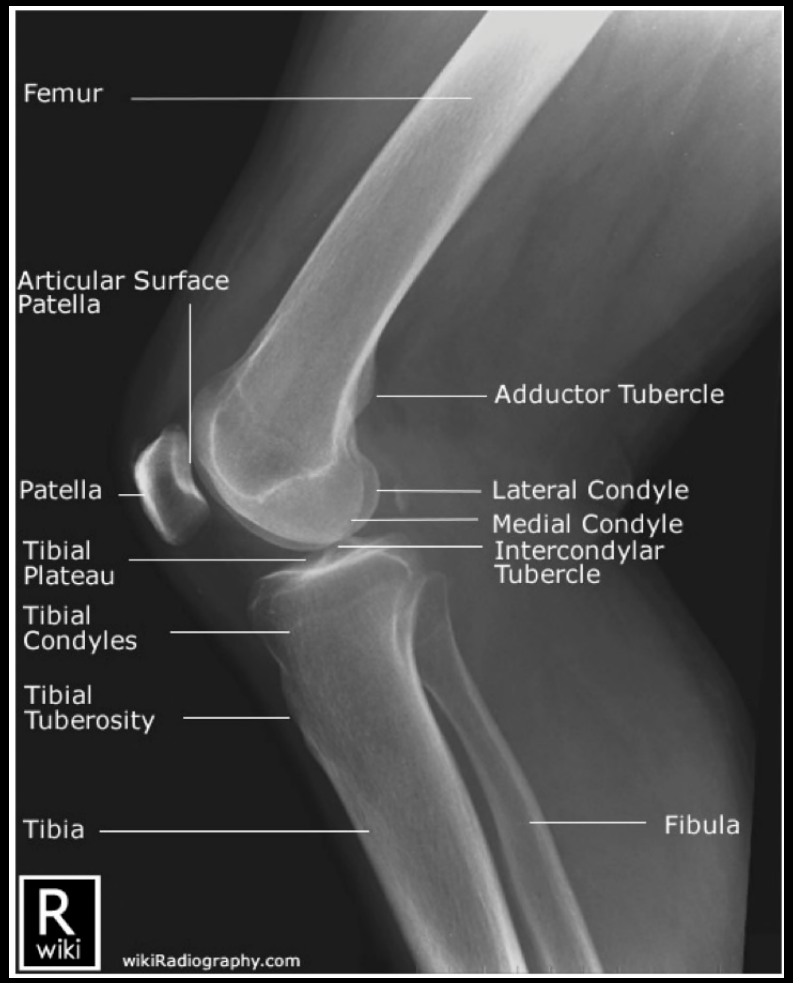
Relevant Imaging





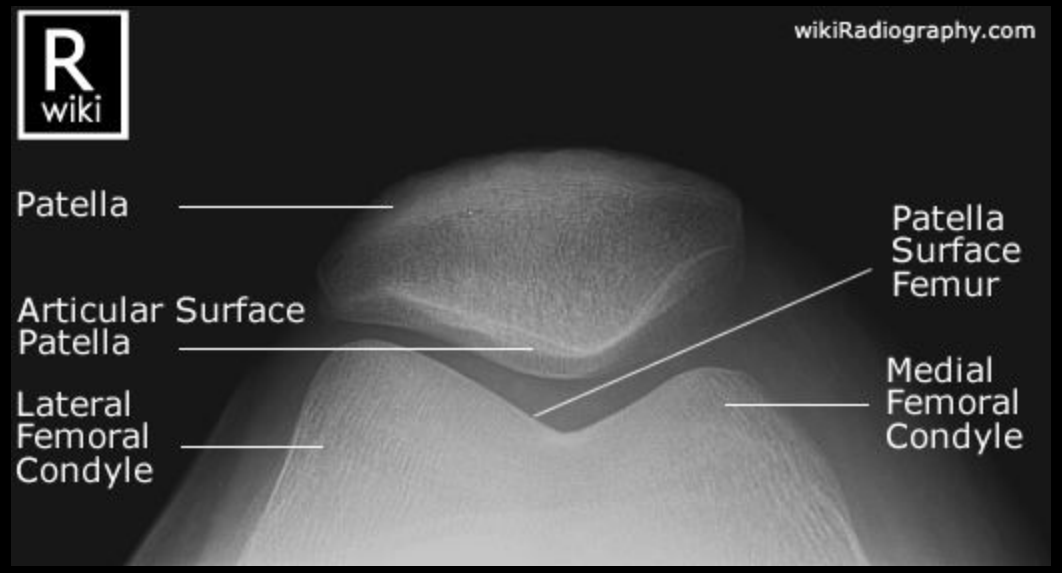
https://boneandspine.com/wp-content/uploads/2017/11/knee-x-ray-ap.jpeg

Relevant Imaging



https://upload.orthobullets.com/topic/322085/images/lateral.jpg

More relevant imaging



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Highlight and summarize key imaging findings

- Tricompartmental osteoarthrosis, with bilateral medial joint space narrowing (L>R), subchondral sclerosis, cystic changes. Mild genu varus bilaterally (R>L)

- Osteoarthritis: inflammation of joint
- Osteoarthrosis: degeneration of joint

- 4 main radiographic signs: joint space narrowing, osteophyte formation, subchondral sclerosis, subchondral cysts

Differential Diagnosis

- Osteoarthrosis
- Osteoarthritis
- Rheumatoid arthritis
- Gouty Arthritis

Discussion

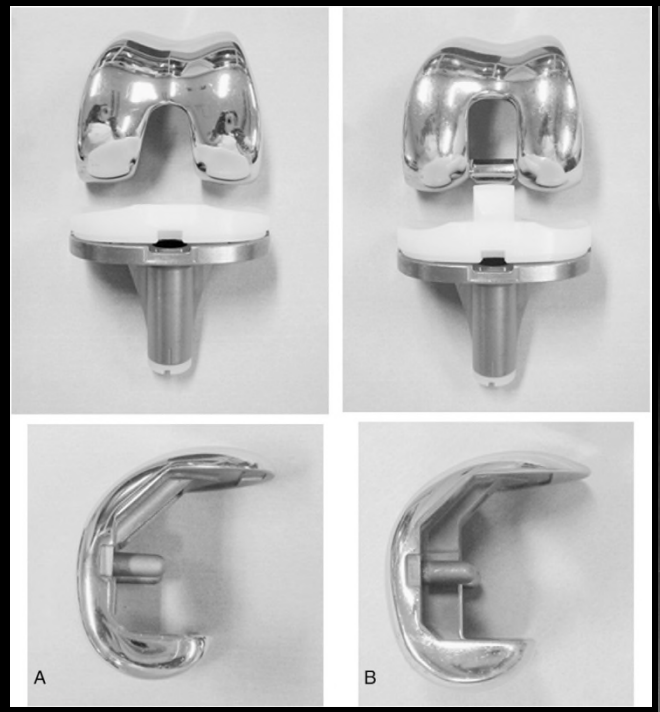
- Given her mild genu varus along with her morbid obesity (BMI 53), over time she has developed wear, inflammation, and finally degeneration of her knee joint, particularly in the medial compartment
- This fits with her pain and decreased ROM of her knee as the joint itself has broken down
- The steps for management are NSAIDs as tolerated first, corticosteroid injections +/- physical therapy, and finally a total knee arthroplasty (though must have BMI and glucose better controlled prior to surgery)

Treatment

- She may undergo symptomatic treatment for now until she is optimized for surgery. Unfortunately this is a progressive condition and she will likely eventually need a knee replacement.
- Other newer treatments: PRP injections, hyaluronic acid injections, stem cell injections
- Optimization for surgery includes: BMI <35, A1C<7.7

Treatment

- Two main types of total knee arthroplasties: Cruciate retaining vs posterior stabilizing



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http://52.62.202.235/sites/default/files/LowerLimb/TKR%20Posterior%20Stabilised%20Lateral.jpg

https://d3i71xaburhd42.cloudfront.net/a33abf996d8dea67bf2eed2a5fb4eb48f605b574/2-Figure1-1.png

Take Home Points

- Osteoarthritis vs osteoarthrosis: inflammation vs degeneration
- 4 main radiographic findings: joint space narrowing, osteophyte formation, subchondral sclerosis, subchondral cysts
- Definitive treatment: TKA, with radiographic differences between CR and PS implants

ACR Appropriateness Criteria

Variant 1: **Adult or child greater than or equal to 5 years of age. Chronic knee pain. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
Radiography knee	Usually Appropriate	☢
Aspiration knee	Usually Not Appropriate	Varies
CT arthrography knee	Usually Not Appropriate	☢
CT knee with IV contrast	Usually Not Appropriate	☢
CT knee without and with IV contrast	Usually Not Appropriate	☢
CT knee without IV contrast	Usually Not Appropriate	☢
MR arthrography knee	Usually Not Appropriate	O
MRI knee without and with IV contrast	Usually Not Appropriate	O
MRI knee without IV contrast	Usually Not Appropriate	O
Tc-99m bone scan knee	Usually Not Appropriate	☢ ☢ ☢
US knee	Usually Not Appropriate	O
Radiography hip ipsilateral	Usually Not Appropriate	☢ ☢ ☢

Kellgren and Lawrence Classification

- grade 0: no radiographic features of OA are present
- grade 1: doubtful joint space narrowing (JSN) and possible osteophytic lipping
- grade 2: definite osteophytes and possible JSN on anteroposterior weight-bearing radiograph
- grade 3: multiple osteophytes, definite JSN, sclerosis, possible bony deformity
- grade 4: large osteophytes, marked JSN, severe sclerosis and definite bony deformity

References

- Tarabichi, Majd, et al. "Determining the threshold for HbA1c as a predictor for adverse outcomes after total joint arthroplasty: a multicenter, retrospective study." *The Journal of arthroplasty* 32.9 (2017): S263-S267.
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Questions?