



Musculoskeletal Imaging

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Objectives

- Discuss the most appropriate imaging test for:
 - Knee pain
 - Hip pain
 - Shoulder injury
 - Infection
 - Soft tissue lumps and bumps

60 yo with knee pain...

- What is the best imaging test?

Step 1: Radiographs

- Fracture, OA, effusion

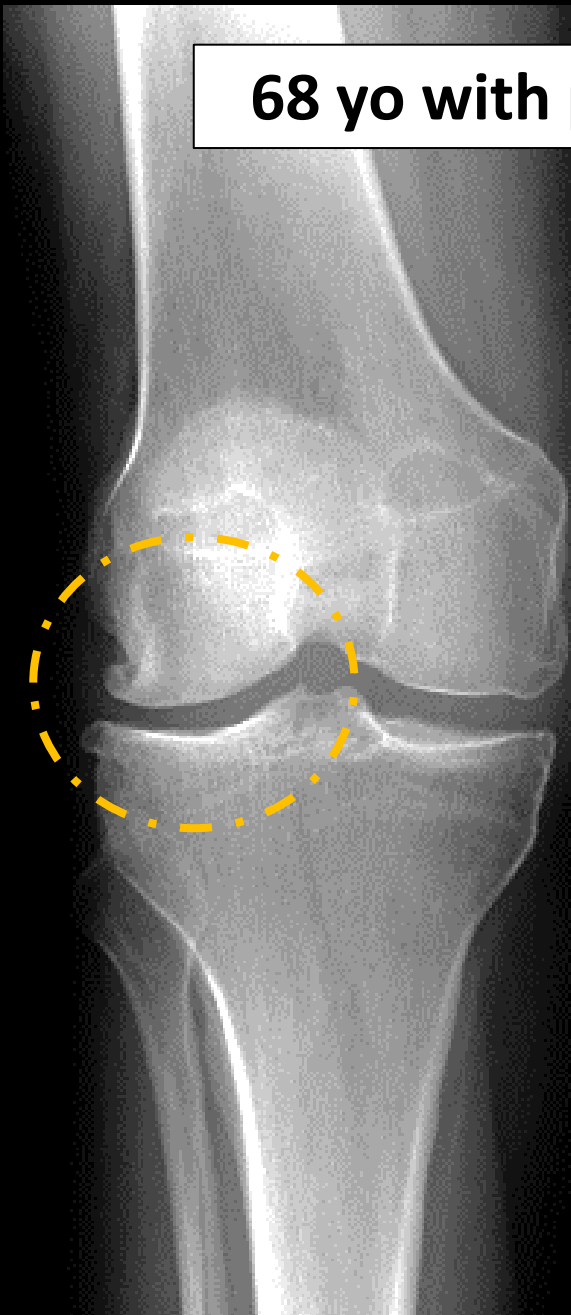
Current wait time for MRI:

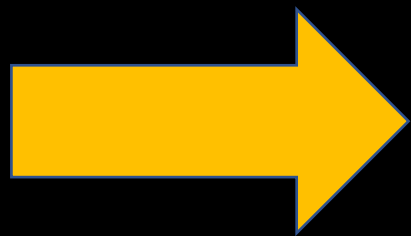


Type	Community	Facility	Wait Time
			90%
			50%

But wait.... Isn't MRI better for soft tissues?

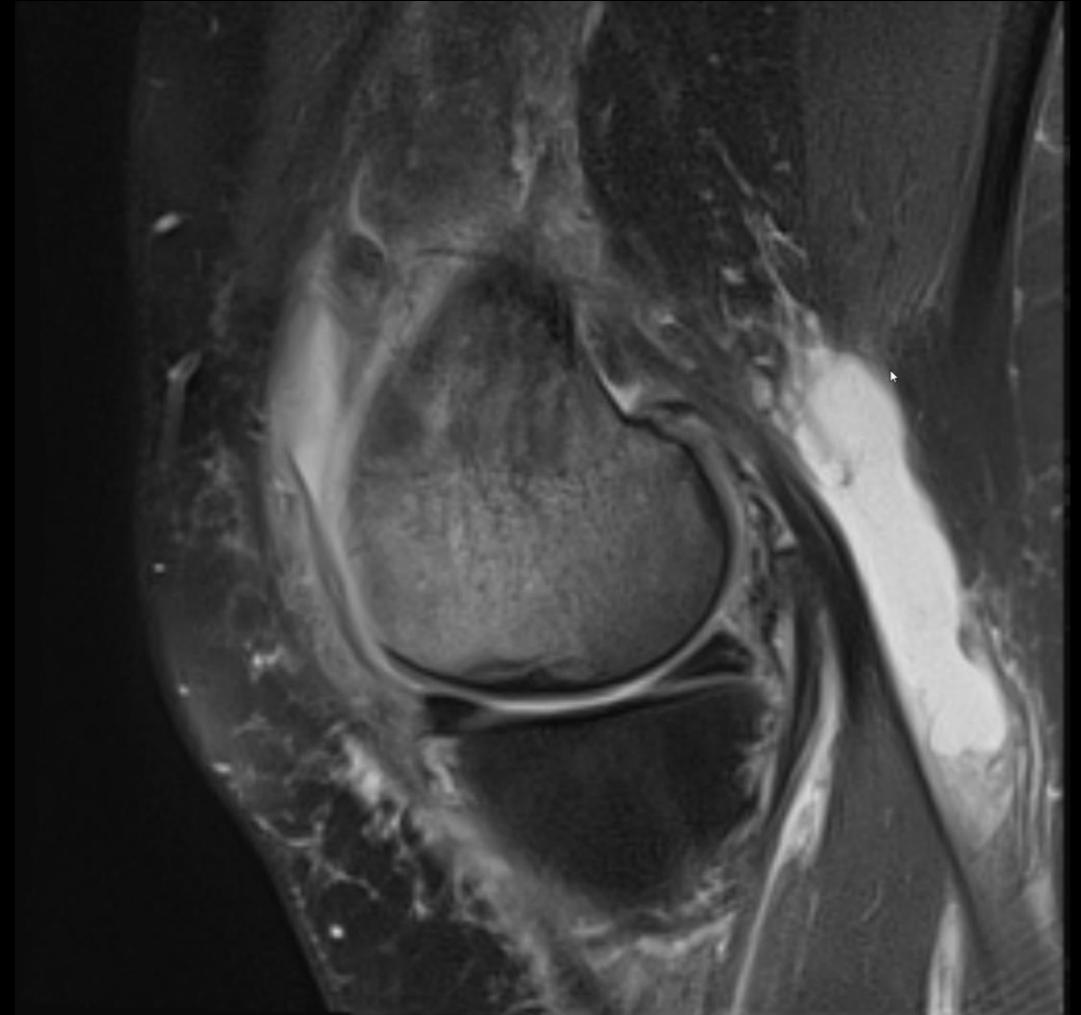
68 yo with posterior knee pain, no trauma





Summary: MR knee indications

- Trauma – to rule out ligamentous injury or acute meniscal tear
- Radiographs with no/minimal OA
- Pain out of proportion (i.e. difficulty weightbearing)



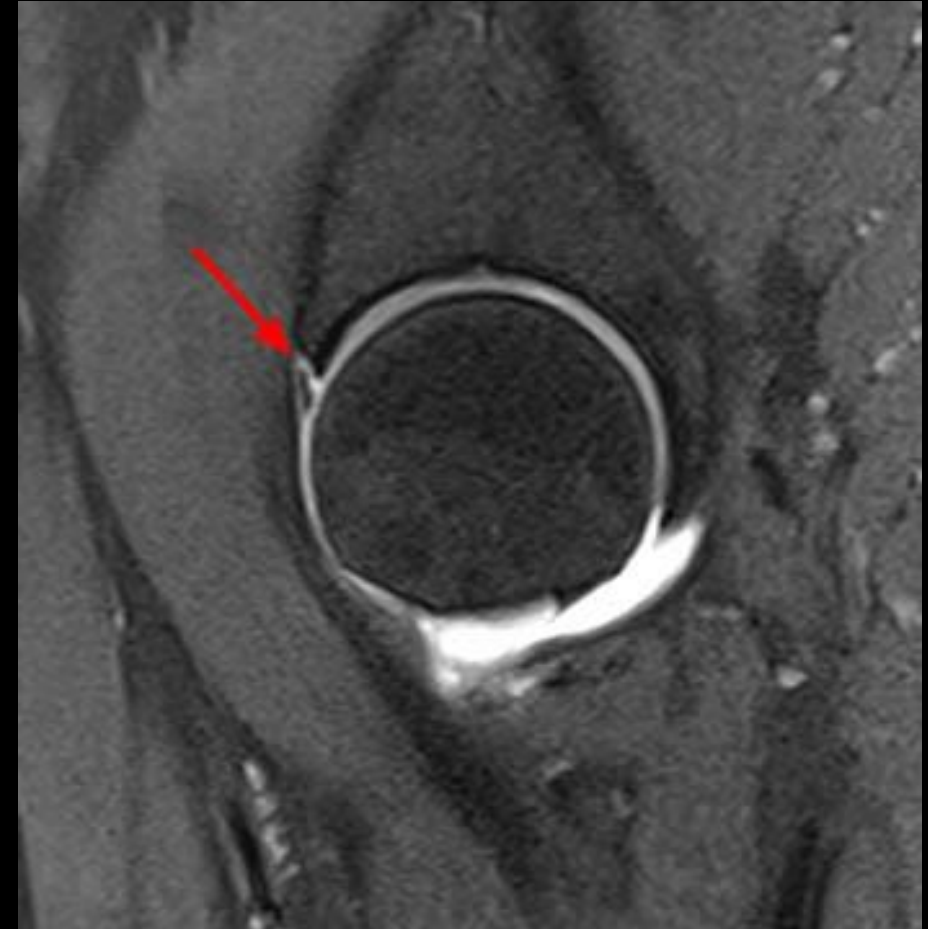
Subchondral insufficiency fracture

36 yo old soccer player, right groin pain

Step 1: Radiographs

- Fracture, OA, avascular necrosis, congenital/hip dysplasia, femoroacetabular impingement (FAI)

Step 2: MR arthrogram



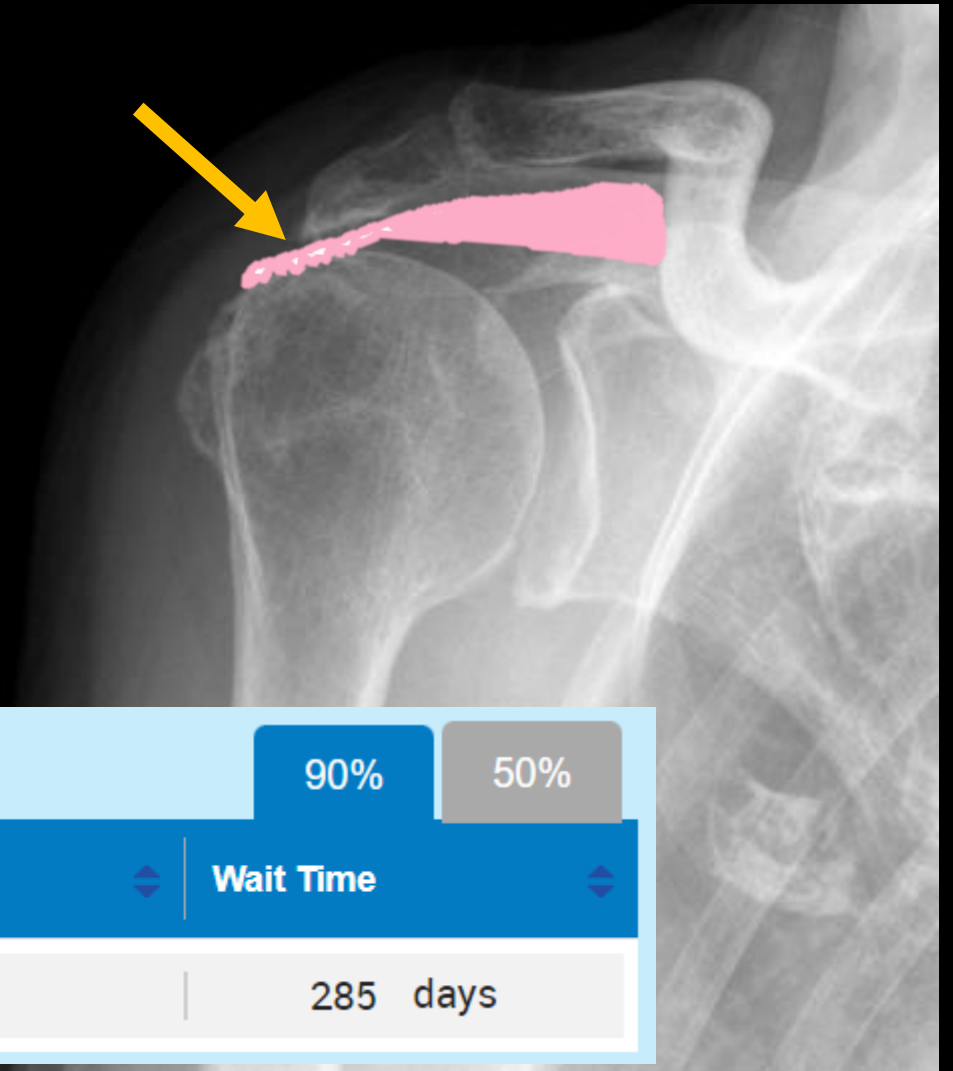
Labral tear

Other hip clinical scenarios...

- Trauma in elderly pt → XR, if negative then CT
- Chronic hip pain → XR, if negative, routine MRI
- Tendonitis or bursitis → Ultrasound, 2ND line MRI
- Post-op labral repair → MR arthrogram hip
- Post-op hip replacement → XR +/- CT or MR

61 yo with ? Rotator cuff tear

- Step 1: Radiographs
- Step 2: Ultrasound, CT arthrogram or MRI



Current wait time for Ultrasound (general):

Community	Facility	Wait Time
Halifax	QEII Health Sciences Centre (All Sites)	285 days

90% 50%

Shoulder: Instability, dislocation

- Step 1: Radiographs
- Step 2: MR arthrogram +/- CT
 - MR to assess for labral tear, cartilage loss, rotator cuff tear
 - CT to assess size of Hill Sachs and bony Bankart

Shoulder: Adhesive capsulitis

- Best imaging test?

Clinical exam



25 yo female with wrist swelling, no trauma

- Step 1: Radiographs

Normal

Abnormal

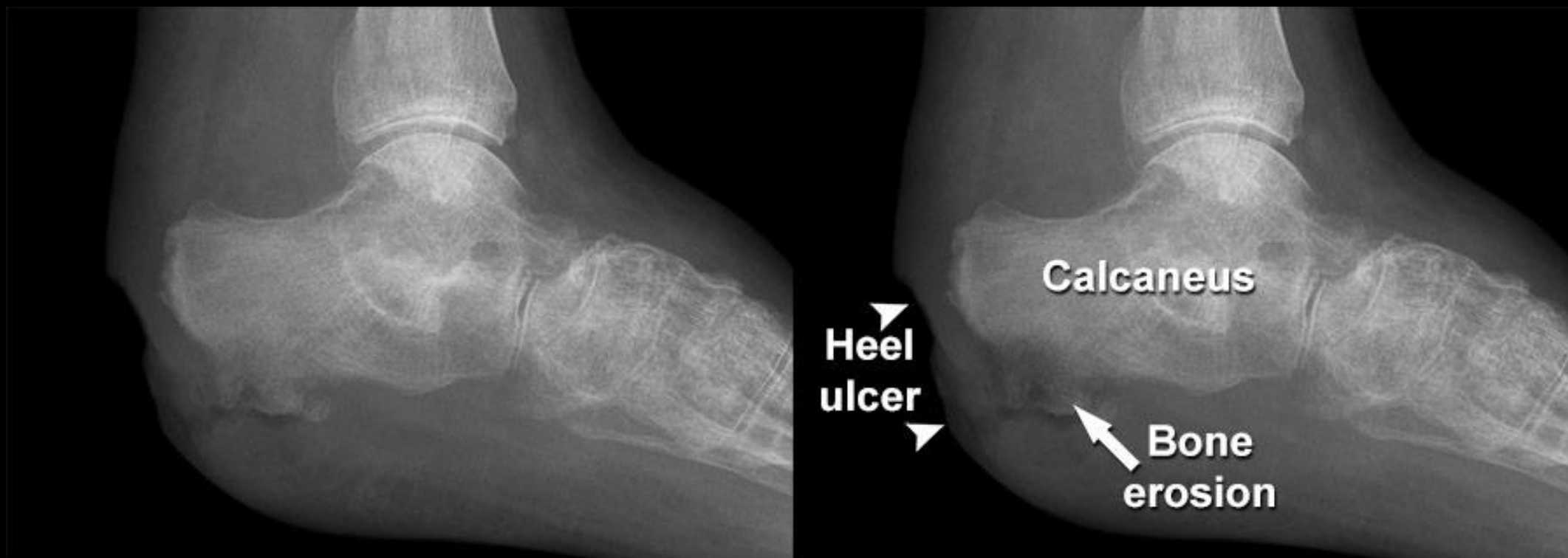
High suspicion for septic arthritis/osteomyelitis
– ortho consult + aspiration

RFs for septic joint (IVDU, endocarditis,
prosthetic joint, etc.)



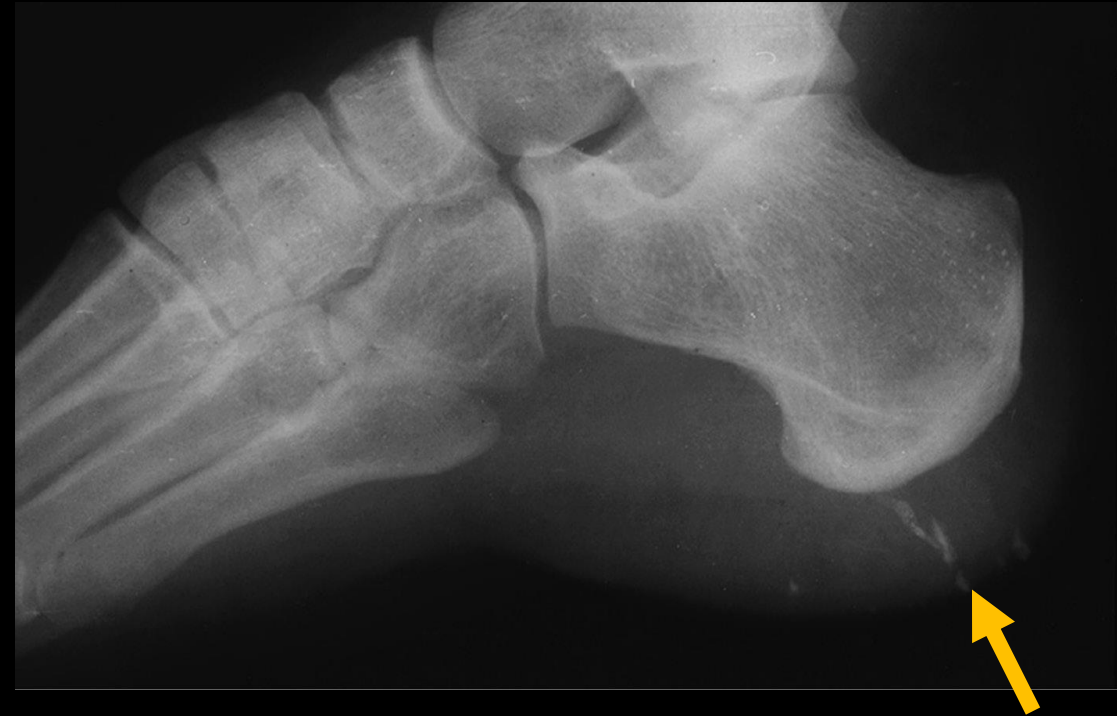
Diabetic patient, r/o osteomyelitis

- Step 1: Radiographs
- Step 2: MRI (most sensitive test)



What about foreign bodies?

- Step 1: **Radiographs**
 - Depict up to 80% of all foreign bodies
 - Low sensitivity for wood, plastics and acrylics (**ultrasound**)
- Step 2: Consider CT or MRI to assess for complications (i.e. abscess)



58 yo male with soft lump right upper back

Typical history:

- Feels like a lipoma, need confirmation
- Growing mass, ? Lipoma or other soft tissue pathology
- Lump, patient concerned it is tumour

58 yo male with soft lump right upper back

- Step 1: **Ultrasound**

If clinical and imaging findings suggestive of lipoma → follow clinically

Worrisome clinical/imaging features of fatty tumours:

- Deep location
- Large size (>10 cm)
- Rapid increase in size
- New pain

If doesn't have typical features of lipoma - Consider MRI for further evaluation

58 yo male with soft lump right upper back



What about solid,
non-fatty masses?
→ **MRI + contrast**

Cystic/fluctuant foci around joint?
Start with ultrasound

Often **ganglion cyst** arising
from joint or tendon sheath

Final note

- Procedures offered by MSK Division at QEII:
 - Arthrograms
 - Steroid injections (hips, shoulders, knees, SI joints, hopefully other peripheral joints soon)
 - Bone biopsy
 - Soft tissue mass biopsy
 - Aspirations
 - +/- other ultrasound guided procedures