Arthritis of the Hip and Knee

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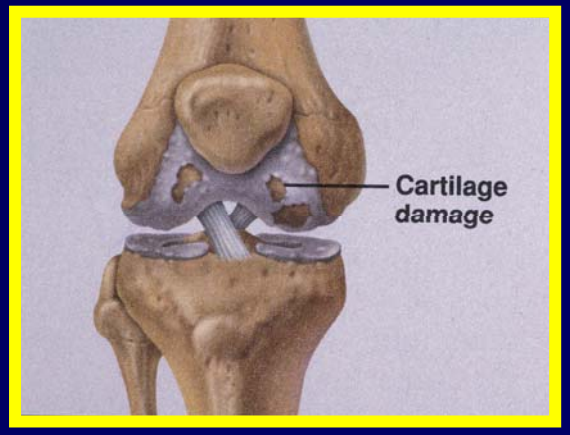
Hip Pain, X-Rays Normal

- Uncommon, but not rare
- A problem of diagnosis for the primary care physician
- Several potentially serious conditions

Knee Pain, DJD on X-Rays

- Commonly seen by primary care
- Diagnosis generally straightforward
- What treatments do the literature support?
- When to refer?



Arthritis and Joint Pain

- CDC: 70 million Americans (1 in 3 adults)
  - Increasing each year
- 1.5 million in WA
- 100+ types of arthritis
- Most common: Osteoarthritis

OA: Demographics

- Mostly age >60
  - Rare before age 40
- Younger if particular risk factors
  - Trauma
  - Congenital joint deformity
  - Obesity
- Women > Men (3:1 if severe)
- Not caused by running

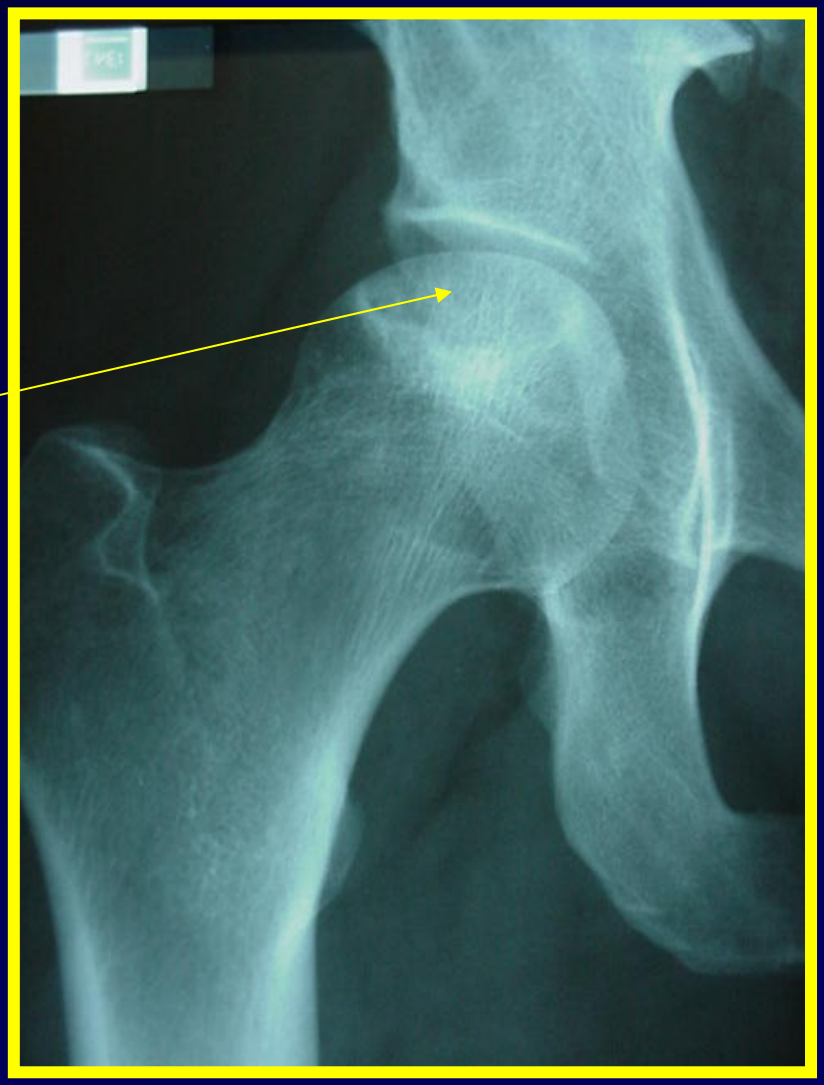
Knee Pain, DJD on X-Rays

- Make sure nothing else is causing the pain
- Some possibilities:
  - Referred pain from hip disease
  - Radicular symptoms
  - Instability (uncommon)
  - Infection (uncommon)

Referred Pain

This (and other hip problems) may cause knee pain!

What is it?



1/3 of hip sx refer pain to knee

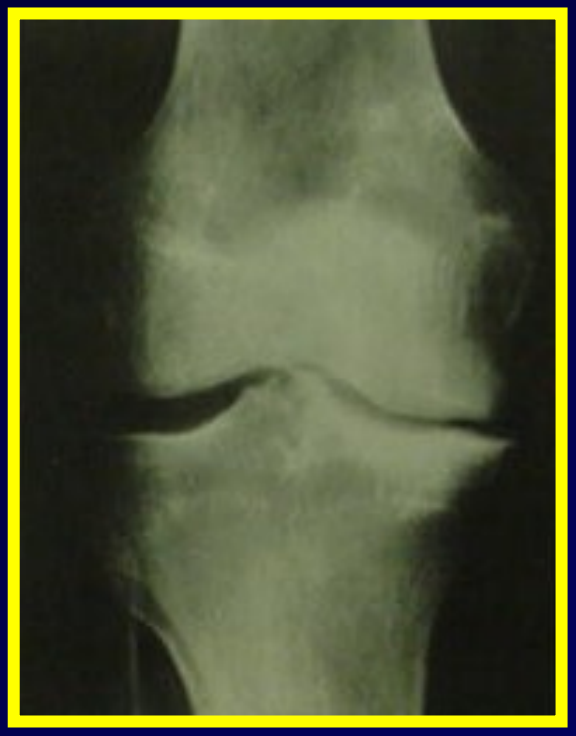
About 5% present with sx ONLY in the knee

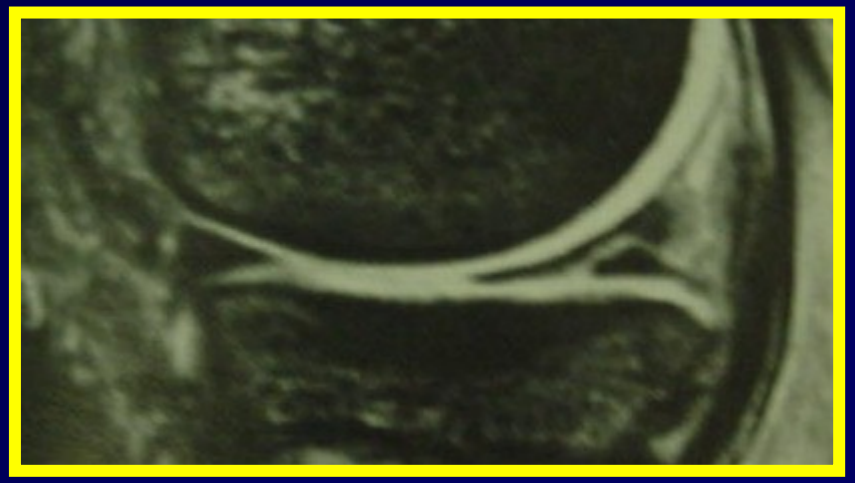
Degenerative Meniscus

- History
  - Pain: Medial more common than lateral
  - Trauma? Often incidental
  - Locking? Rarely
- Physical Exam
  - Joint-line tenderness
  - Pain with full flexion
  - McMurray? Rarely

Degenerative Meniscus

91% of patients with this…





…have one of these!

So which do you treat?

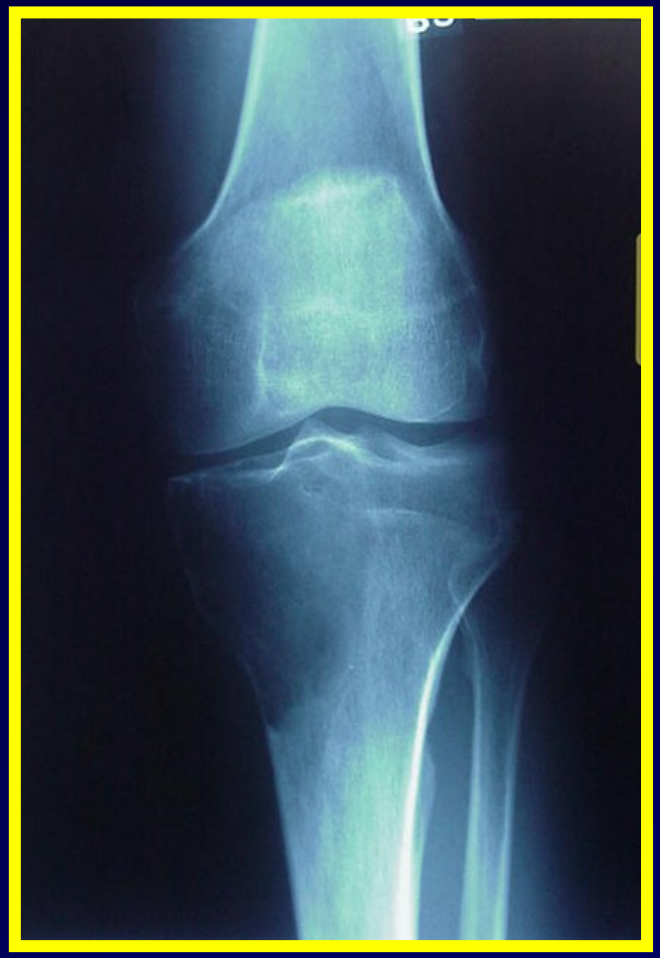
Arthroscopy and DJD

- **Arthroscopy reliable for meniscus tear *only* in absence of DJD**
- **Radiographically-evident DJD: Arthroscopy equivalent to placebo**
  - **Level I evidence: Wray *et al.*, NEJM 2002**

Instability

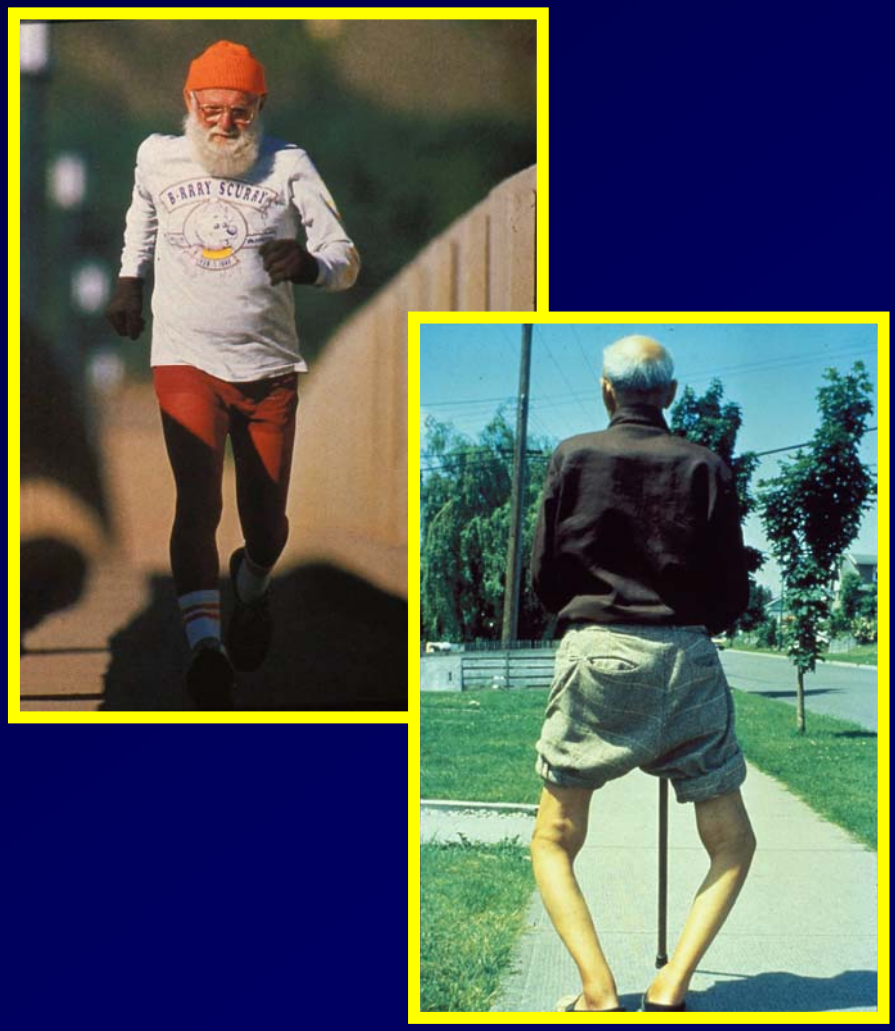
- "Giving way"
  - True giving way
  - Reflex quadriceps inhibition
- Not usually ACL/PCL in this age group
- Medial collateral ligament
  - Valgus knees

A Different, Unusual Cause of Knee Pain

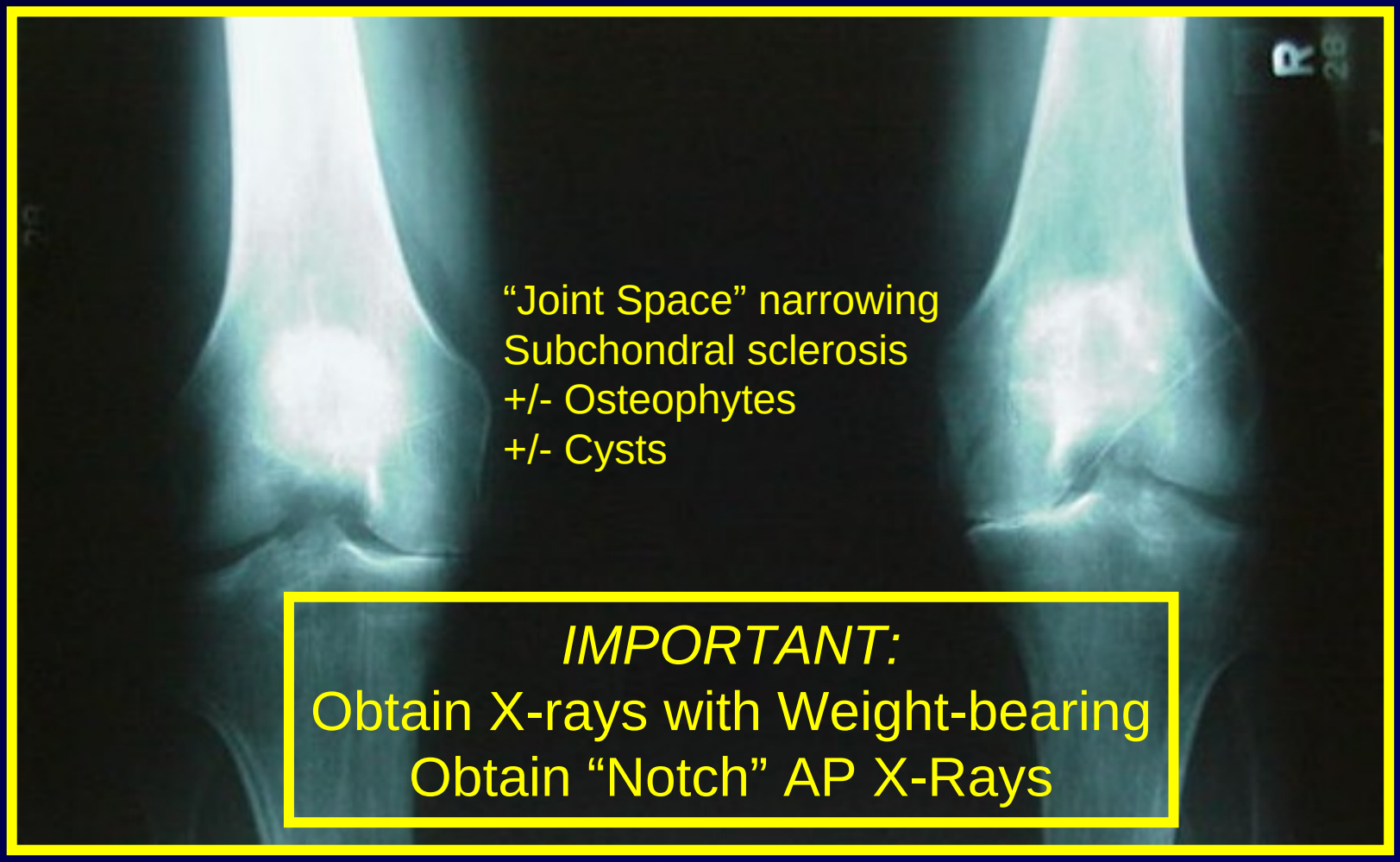


DJD: Diagnosis Straightforward

- **>95% of the time**
  - **History**
  - **Physical exam**
  - **Plain X-rays**
- **Very occasionally:**
  - **Blood tests (inflam)**
  - **MRI**



Knee DJD

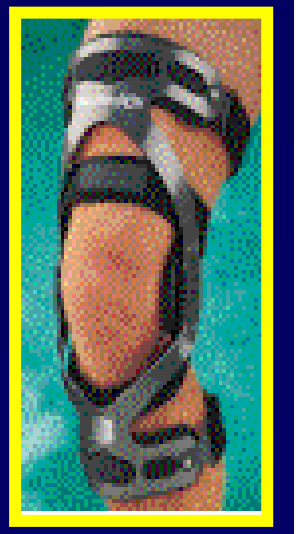


"Joint Space" narrowing
Subchondral sclerosis
+/- Osteophytes
+/- Cysts

IMPORTANT:
Obtain X-rays with Weight-bearing
Obtain "Notch" AP X-Rays

Options for DJD

- Activity modification
  - Including weight loss when possible
- Cane
- Physical therapy
  - Quadriceps strengthening
  - Wedge insole orthotics (unicompart.)
  - Unloader brace (unicompart)
  - Ice



Options for DJD

- Analgesics
- Oral anti-inflammatories
- “Neutraceuticals”
- Corticosteroid injections
- “Viscosupplementation”

? ?

Analgesics

- Little evidence showing NSAID's better than acetaminophen

- Newer non-narcotic analgesics
  - Tramadol: Side-effect profile?
- Narcotics
  - Should seldom, if ever, be used for management of DJD

NSAID's: Advantages

- DJD sometimes has a clinically important inflammatory component
- Compliance (BID or QD dosing available)
- COX-2 selective drugs may be safer

NSAID's: Disadvantages

- Cost
- Safety profile: May be evolving
  - GI
  - Renal: Periodic lab testing indicated
  - Cardiac: Potential risks, not well defined
- Drug interactions and ADR's

“Neutraceuticals”

- “Eating flour, sugar, and eggs is not the same as eating a cake.”
- “If you think eating the components of cartilage will help, have a hot dog.”

“Neutraceuticals”

- Allopathic medicine has taken a very dismissive view of neutraceuticals
- 36% of patients in one study tried them
- Literally dozens of studies, many with reasonable endpoints

“Neutraceuticals”: Pro

- Well tolerated, few apparent risks
- Most studies found them superior to placebo, some superior to NSAID’s
- May provide relief for up to a month after d/c’d

“Neutraceuticals”: Con

- Not regulated by FDA
  - Issues of dosing, amt of ingredient per pill
- Somewhat expensive ($30-50/month)
- Slow onset of action (2 months)
- Mechanism of action not clear

Dosing

- Not clearly established
- Different brands may differ
- Small patient
  - GS: 1000 mg CS: 800 mg
- Large Patient
  - GS: 1500 mg CS 1200 mg

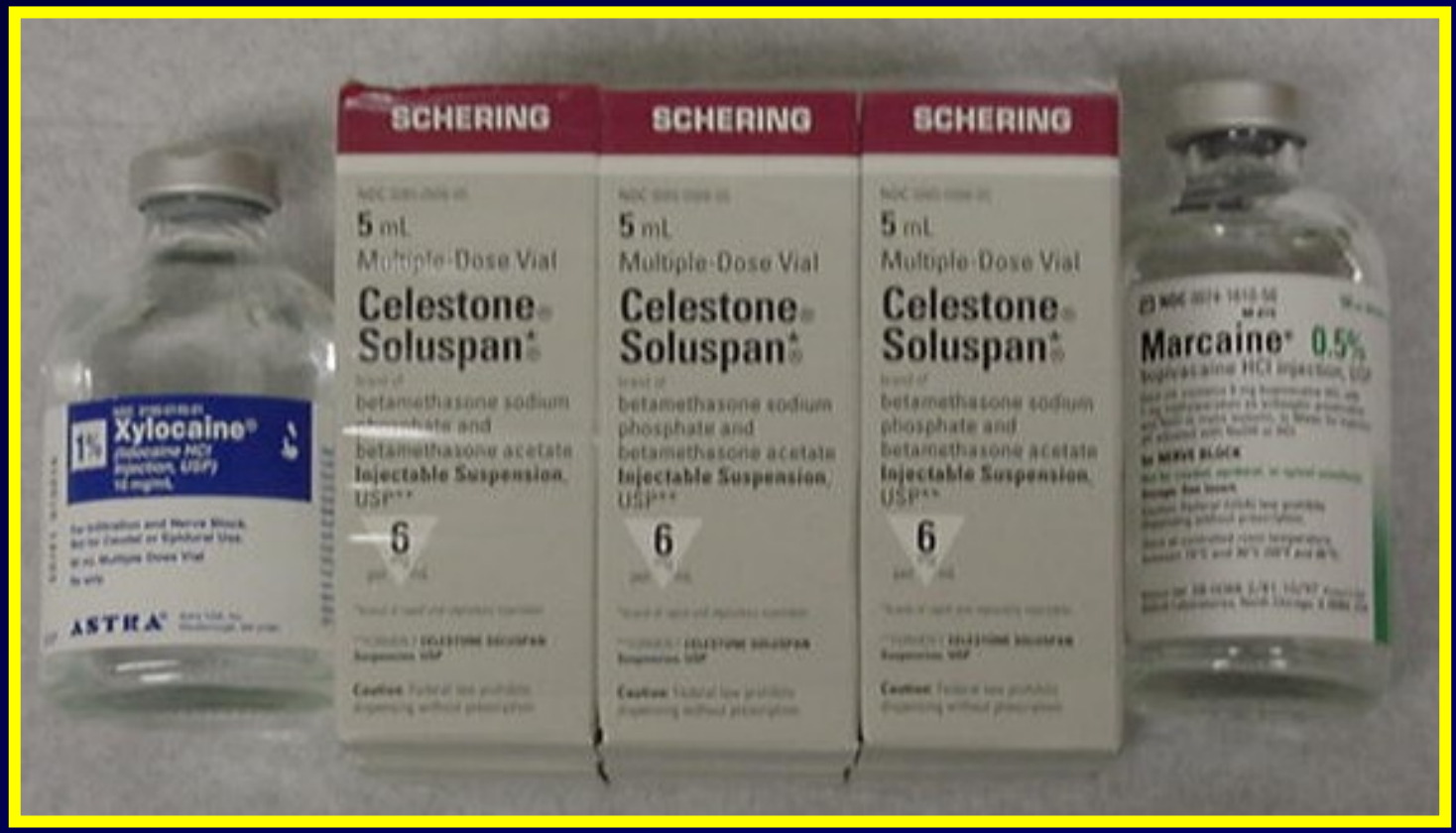
Potential Risks

If we appear to be disinterested or dismissive, we will lose the opportunity to help provide and guide our patients' care

Corticosteroid Injections

- Theoretical injurious effects on cartilage
  - May not apply to this patient population
- A few studies substantiate their use
  - Pain relief, even if minimal clinical "inflammation"
- Duration of relief not well described

Corticosteroid Injections



Corticosteroids: Pro

- Immediate relief of pain
- Reliably decreases effusion
- Easy to do
- Inexpensive ($5 per shot)

Corticosteroids: Con

- **Duration/Magnitude of relief variable**
  - **Days to months?**
  - **40-50% in our RCT still better @ 6 mos**
  - **Only modest relief: 1 clinical grade**
- **Risk of infection**
  - **Low, but non-zero (0.006% to 0.1%)**
- **Effect on cartilage?**
  - **Data extracted from animal studies**

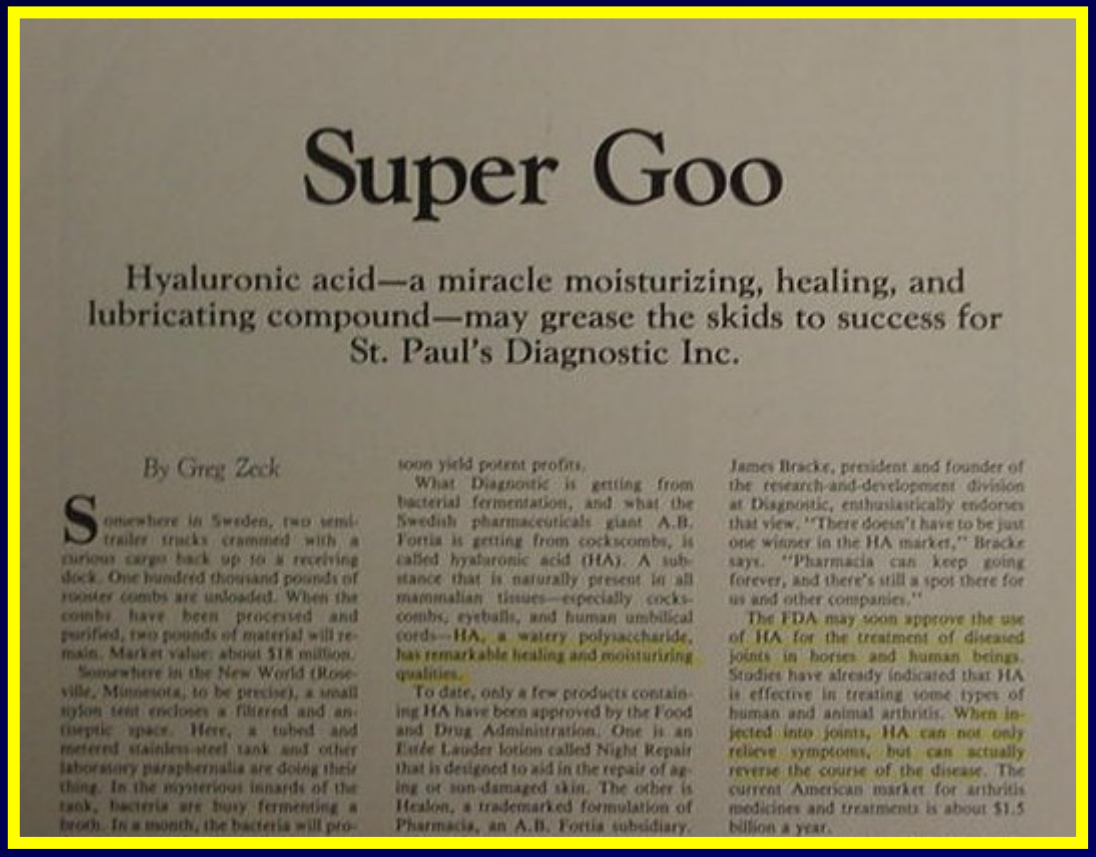
Viscosupplementation

- **Synvisc, Hyalgan, etc.**
- **Joint fluid in arthritis becomes abnormal**
- **Loss of lubrication and viscosity**

Viscosupplementation

- Hyaluronic Acid (HA) injections used since 1987 in humans
- "Chondroprotective"?
  - No clear evidence

Viscosupplementation



Super Goo

Hyaluronic acid—a miracle moisturizing, healing, and lubricating compound—may grease the skids to success for St. Paul's Diagnostic Inc.

By Greg Zeck

Somewhere in Sweden, two semi-trailer trucks crammed with a curious cargo back up to a receiving dock. One hundred thousand pounds of rooster combs are unloaded. When the combs have been processed and purified, two pounds of material will remain. Market value: about $18 million.

Somewhere in the New World (Roseville, Minnesota, to be precise), a small nylon tent encloses a filtered and antiseptic space. Here, a tubed and metered stainless-steel tank and other laboratory paraphernalia are doing their thing. In the mysterious innards of the tank, bacteria are busy fermenting a broth. In a month, the bacteria will produce a substance that will soon yield potent profits.

What Diagnostic is getting from bacterial fermentation, and what the Swedish pharmaceuticals giant A.B. Fortia is getting from cockscombs, is called hyaluronic acid (HA). A substance that is naturally present in all mammalian tissues—especially cockscombs, eyeballs, and human umbilical cords—HA, a watery polysaccharide, has remarkable healing and moisturizing qualities.

To date, only a few products containing HA have been approved by the Food and Drug Administration. One is an Estée Lauder lotion called Night Repair that is designed to aid in the repair of aging or sun-damaged skin. The other is Healon, a trademarked formulation of Pharmacia, an A.B. Fortia subsidiary. James Bracke, president and founder of the research-and-development division at Diagnostic, enthusiastically endorses that view. "There doesn't have to be just one winner in the HA market," Bracke says. "Pharmacia can keep going forever, and there's still a spot there for us and other companies."

The FDA may soon approve the use of HA for the treatment of diseased joints in horses and human beings. Studies have already indicated that HA is effective in treating some types of human and animal arthritis. When injected into joints, HA can not only relieve symptoms, but can actually reverse the course of the disease. The current American market for arthritis medicines and treatments is about $1.5 billion a year.

HA: Pro

- Over a dozen well-designed studies
- When it works, it may last 6-12 mos
- A couple of animal models have shown chondroprotective effects
  - Not proved clinically

Hyaluronic Acid Injections

HA: Con

- Requires multiple injections
  - 3 or 5, for US FDA-approved products
- Local adverse effects?
  - Typically 2-5% get acute local reaction
  - May be more common on subsequent courses
  - Granulomatous synovitis
- Expensive: $500+ for a course of 3 shots
- Most studies industry-funded

RCT: Cortisone vs. Synvisc

- First independently-funded trial
- Both: Modest improvements from baseline
  - 1 clinical grade; 40-50% still better by 6 months
- NSD between treatments (80% power)
  - About 20% failed treatment
- Both treatments less effective in women
- Cost difference: $5 vs. $500+

When to Refer?

- Maximized non-op treatment
- Uncomfortable with certain interventions (injections)
- If she cant do this…?

Not Out of Options Yet…TKA

- **“Gold Standard”**
- **90-95% still in service, doing well, beyond 10 years**
- **Accelerated rehab**
- **Aggressive pain control**

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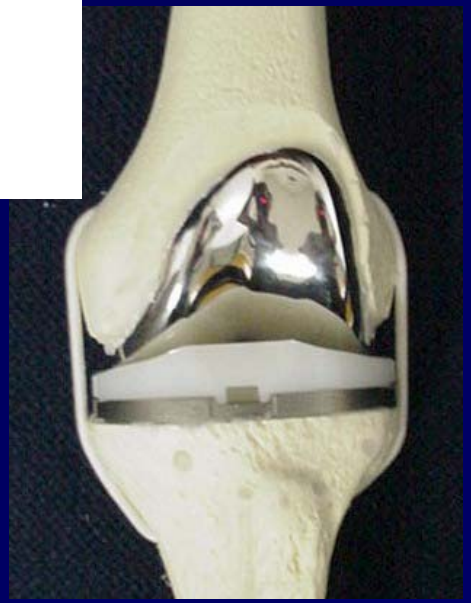

Not Out of Options Yet…UKA

- **Minimally-invasive**
  - **3” incision**
  - **48-hour stay**
- **Walk unassisted by 10 days**
- **Durable, high-performance**

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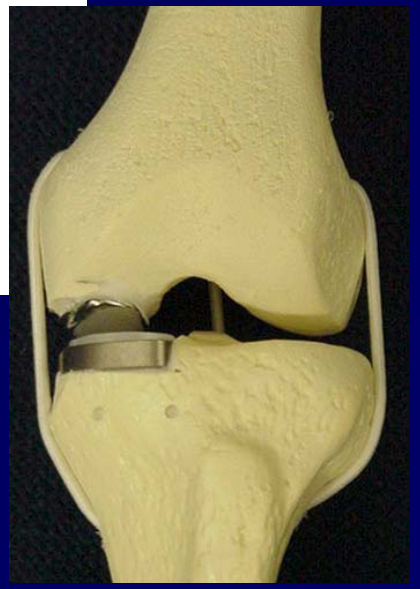

Who Does Joint Replacements?

- **Experience counts**
  - **Like CABG, complications/outcomes related to**
    - *Volume*
    - *Experience*
- **General orthopaedist?**
  - **Most joints done by providers doing <5/year**
  - **Convincing data this is suboptimal**
- **Joint replacement specialist**

DJD Knee: Summary

- Numerous non-operative modalities
- Promising avenues of research
- Good surgical options available
- High level of function usually regained

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Hip & Knee Arthritis
Musculoskeletal Oncology

Hip Pain, X-Rays Normal

- Uncommon, but not rare
- A problem of diagnosis for the primary care physician
- Several potentially serious conditions

Is It Really “Hip” Pain?

- **Extra-Articular Musculoskeletal Dx’s**
  - **More common than joint problems**
  - **Commonly treated non-operatively**
- **Non-Orthopaedic Dx’s**
  - **Radiating pain (pyelonephritis)**
  - **Referred pain (intra-abdominal)**
  - **Local pain (hernia)**

Is It Really “Hip” Pain

- **Tumors and Malignancies**
  - **Rare, but potentially devastating**
  - **Think age, risk factors**
  - **Metastatic disease most common**
- **Infections**
  - **Hip joint infections are rare in the adult with no predisposing factors**
  - **Pain with ROM or WB, typically in groin**

DDx of Hip Pain

Around the Hip:

- Infection
- AVN
- Trochanteric Bursitis
- Osteoporosis
- Neoplasm
- Iliopsoas Tendinitis
- Snapping Hip
- Stress fracture / avulsion
- Developmental Deformities
- DJD
- Loose Bodies
- Labral Tears

Outside the Hip

- Hernia
- Abdominal source
- Low Back Pain

History

- **Pain**
  - **Location, location, location**
  - **Duration**
  - **Relieving, aggravating factors**
  - **Associated symptoms**
    - *Nerve, fever/chills, night pain*
- **Locking, catching**
- **Weakness**

Physical Examination

- **General Examination of the Hip**
  - **Musculoskeletal vs. visceral/neural**
    - *Femoral hernia*
    - *Lumbar spine*
    - *Sciatic*
    - *Lat. Fem. Cutaneous*
  - **Extraarticular vs. intraarticular**

Physical Examination

- **Exclude extraarticular sources**
  - **Hamstring/Ischial**
  - **Abductors/TFL/Troch. Bursitis**
  - **Piriformis/Iliopsoas**

Physical Examination

- **Typical Pain Symptoms:**
  - **Anterior groin, medial thigh**
  - **With weightbearing**
  - **Prolonged sitting w hip flexed**
  - **Pain or catching on rising from sitting position**
  - **Catching or popping not characteristic**
- **PMT**
- **“C” sign**

Physical Examination

- **Inspection**
  - **Stance & Gait**
  - **Antalgia**
  - **Asymmetry, atrophy, spinal malalignment and or pelvic obliquity**
- **Measurement**
  - **Leg lengths**
  - **Thigh circ.**
  - **ROM**

Physical Examination

- **Special Tests**
  - **SLR**
  - **FABER**
  - **Log roll**
  - **Extreme Flex./IR**
  - **Extreme Abd./ER**
  - **“Clicks & Pops”**

Diagnostic Imaging

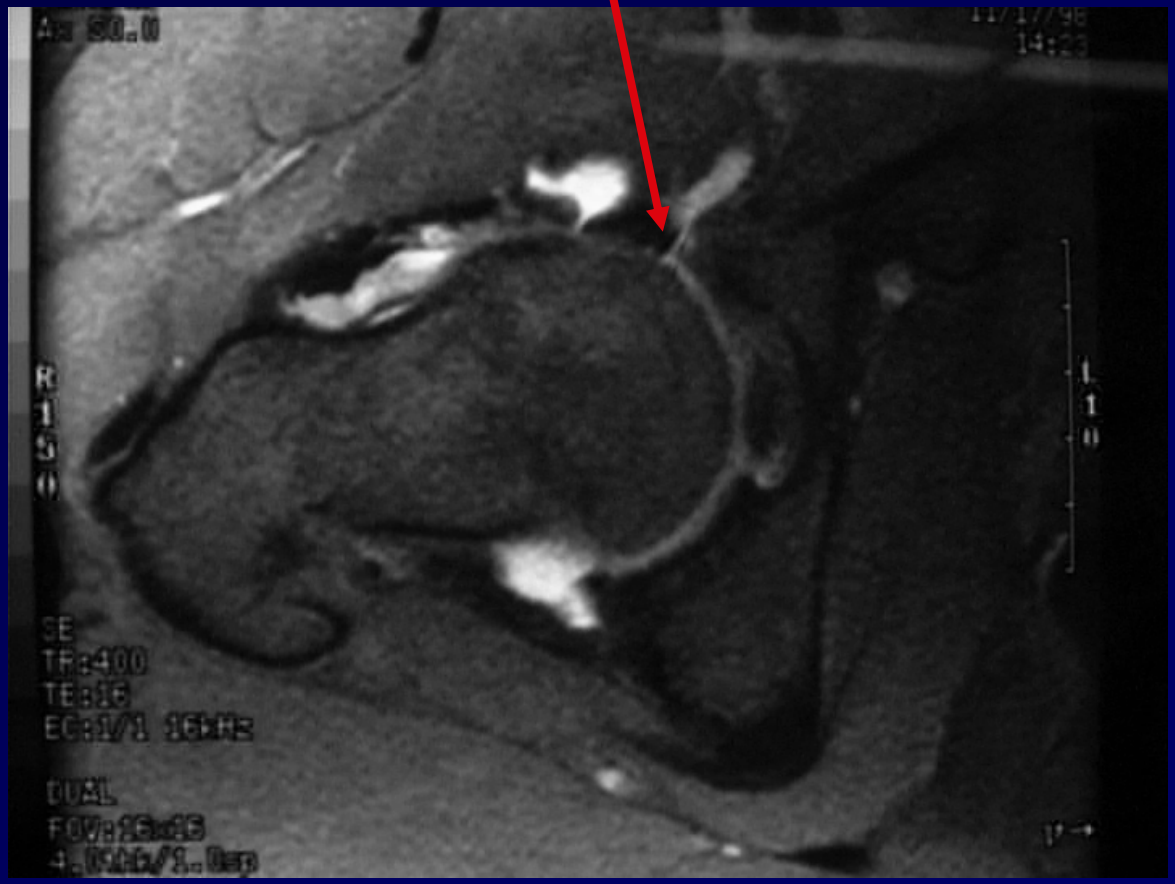
- Plain X-rays: Low AP pelvis, frog
- Bone Scan
  - Night pain, poorly localized pain
  - Tumor, stress fx., occult fx., transient osteoporosis
- CT Scan
  - High resolution helical--bony anat.

Diagnostic Imaging

- **MRI**
  - **Occult fx,, stress fx., transient osteoporosis**
  - **AVN**
  - **Muscle injury, bursitis**
  - **Loose bodies, effusion, synovitis**
  - **Tumor**

Diagnostic Imaging

- **MR Arthrography**
  - **Labral pathology**



When is “Hip Pain”...

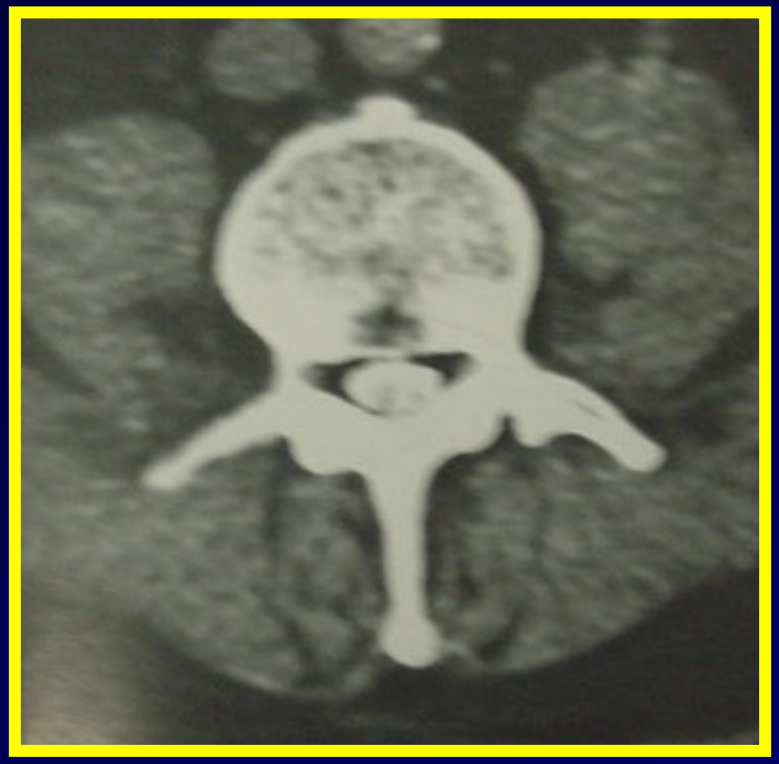
- Pain or cramping in buttocks
- Associated with activity
- Relieved by rest
- Relieved by forward flexion
  - “Shopping cart” sign

Not Hip Pain

Spinal Stenosis

- Older adults
- DJD of spine (spondylosis) on X-rays
  MRI is diagnostic
- Neurogenic claudication
- r/o Cauda Equina (rare),
  r/o Vascular Claudication (common)

Spinal Stenosis



Spinal Stenosis

- Treatment Options
  - Oral anti-infammatories, lumbar epidural steroid injections, limited role for physical therapy
- Refer to Spine Surgeon if fails

When is “Hip Pain”...

- Tenderness over “point” of hip
  - May or may not radiate laterally down thigh
- Associated with activity
- Can’t lay on side

Not Hip Pain

Trochanteric Bursitis

- Adults, usually older
- Occasional history of trauma
- X-rays negative, clinical diagnosis

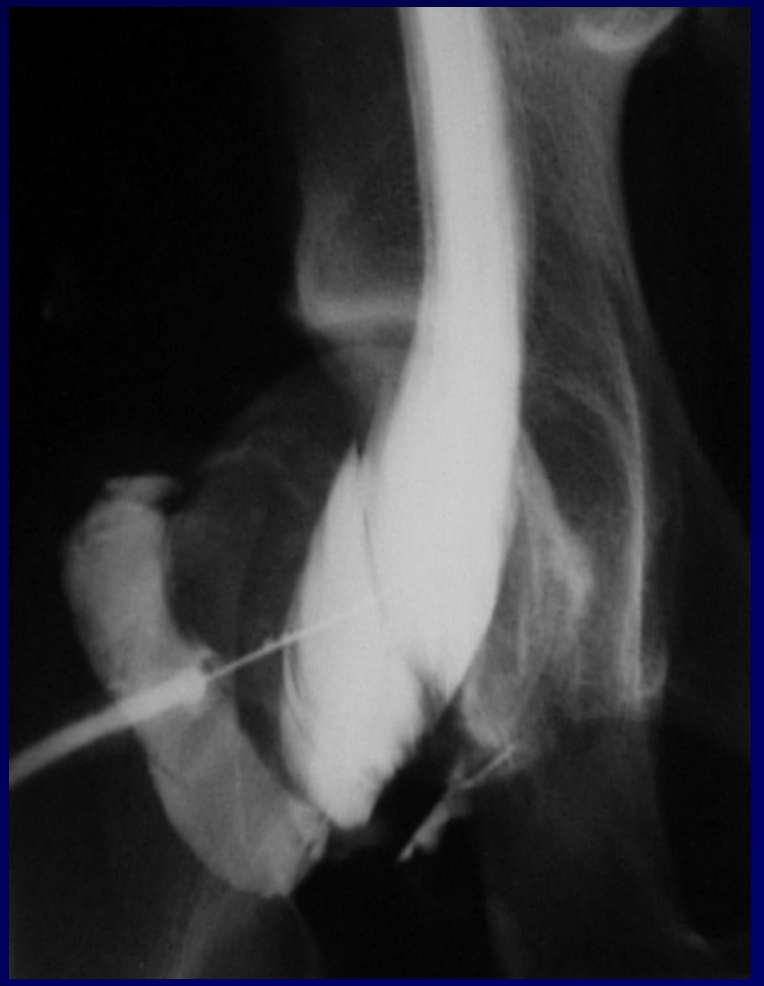
Trochanteric Bursitis

- **Treatment options**
  NSAIDs
  Physical therapy: Modalities, stretching
  Corticosteroid injection

- **Benign, self-limiting**

Snapping Hip Syndrome

- **Iliopsoas**
  - **interpreted by the patient as intraarticular**
  - **painful snapping when extending hip from flexed, abducted, externally rotated position**
  - **Bursography can confirm**
  - **Rx: Conservative, +/- endoscopic release**



Snapping Hip Syndrome

- **IT Band**
  - **usually easy to distinguish due to lateral position**
  - **Rx: conservative, endoscopic bursectomy/IT band recession**

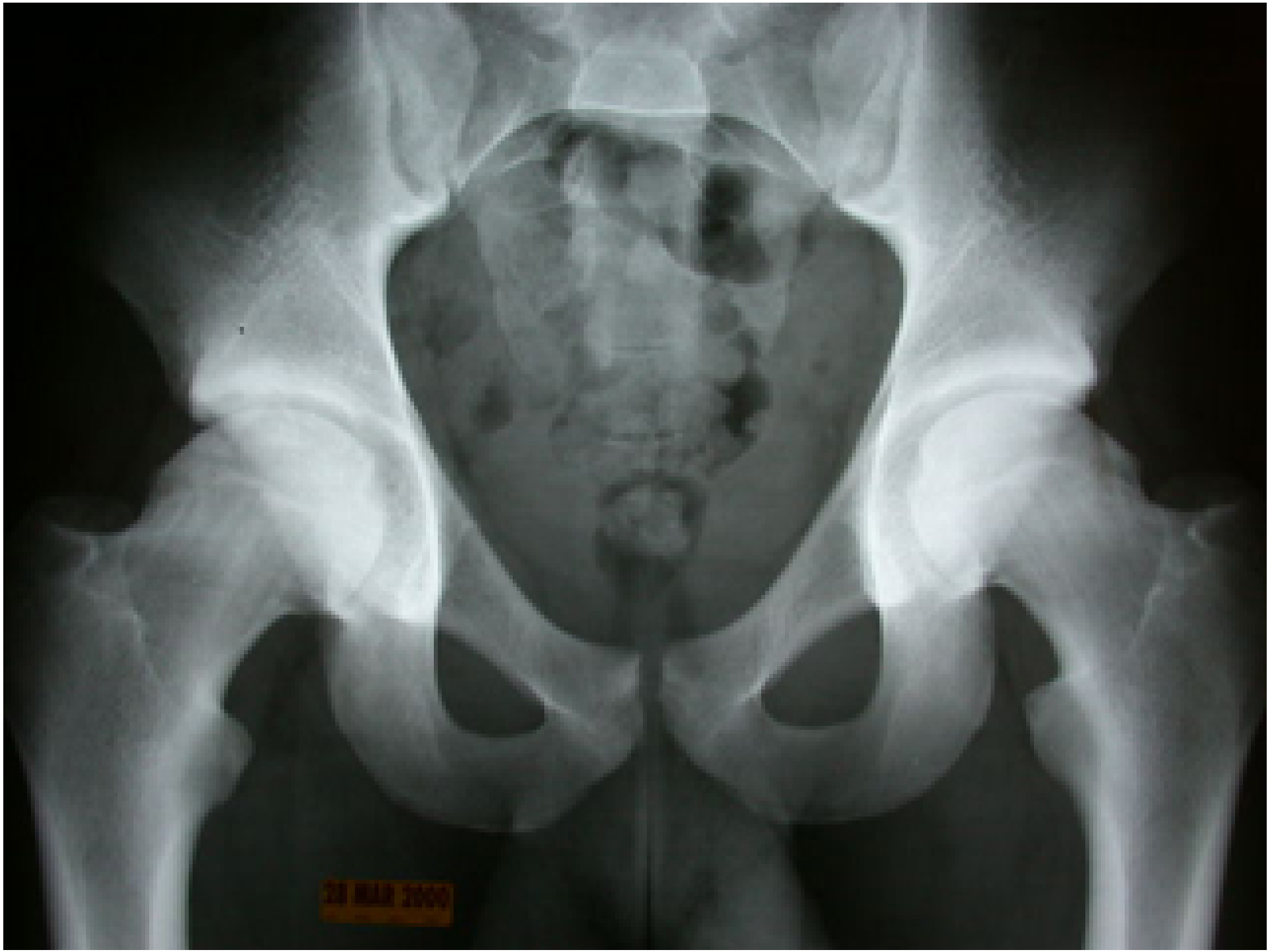
Cheap Test for *Real* Hip Pain

- **Physical Exam**
  - **Active straight-leg raise: 1.8 x BW**
  - **Passive internal rotation causes pain**
- **Surprisingly sensitive/specific**

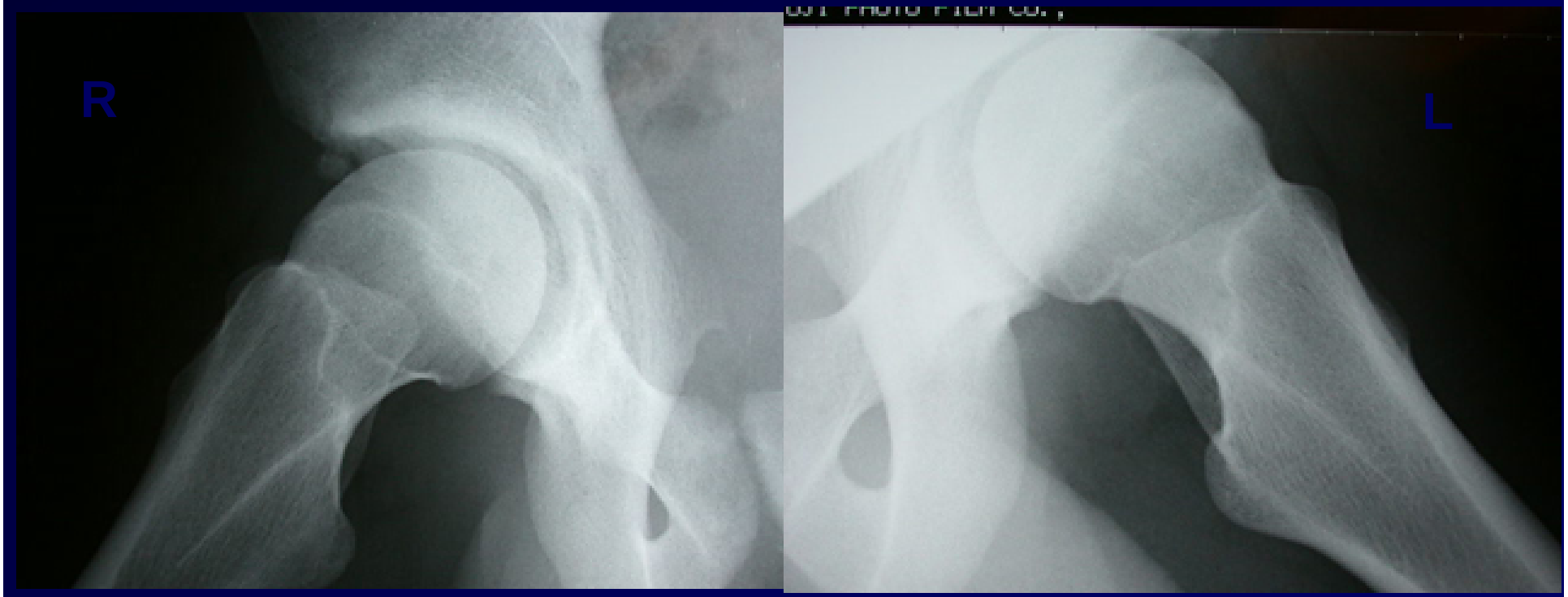
Femoral Acetabular Impingement

A case of real hip pain

- 19 yo male college basketball player - point guard
- Progressive bilateral groin pain x 3 year
- Difficulty with squatting, defensive drills
- ↓ ROM x 2 years
- Limited internal rotation
- PMHx: Noncontributory
- PSHx noncontributory
- Meds: Ibuprofen prn



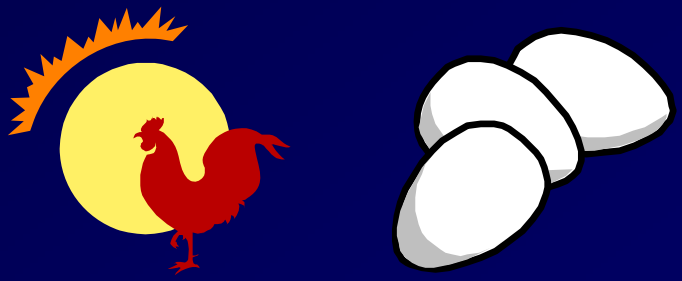
The lateral view



Proposed Significance of Impingement

Possible etiology for

- **Hip stiffness**
- **Groin pain**
- **Labral Tear**
- **Chondral injury**
- **DJD ?**



Age

Structural abnormality → **Impingement** → **Labral injury** → **Arthritis**

Patient History

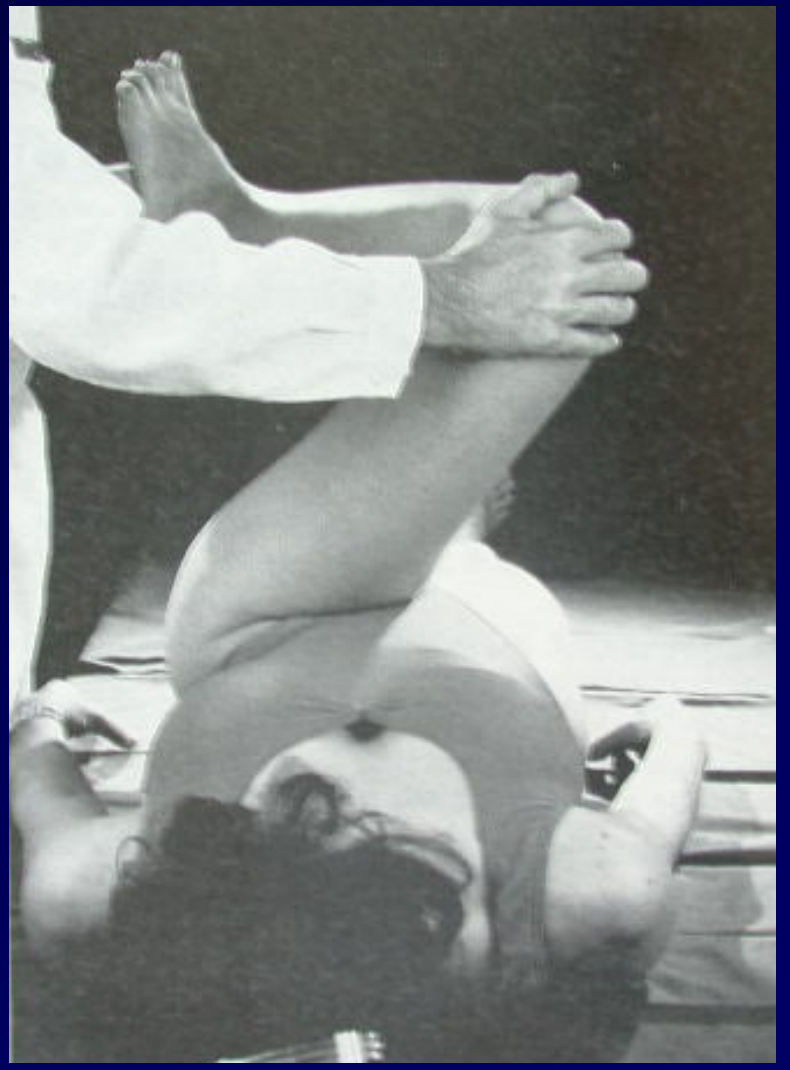
Key Elements

- Groin pain
- Intermittent
- ↑ pain with activity
- ↑ pain with squatting, sitting
- Difficulty in cars, airplanes

Impingement Test

The Rim Sign

- Impinging femoral neck against anterior labrum
- Patient supine
- Limited internal rotation with hip flexed 90°

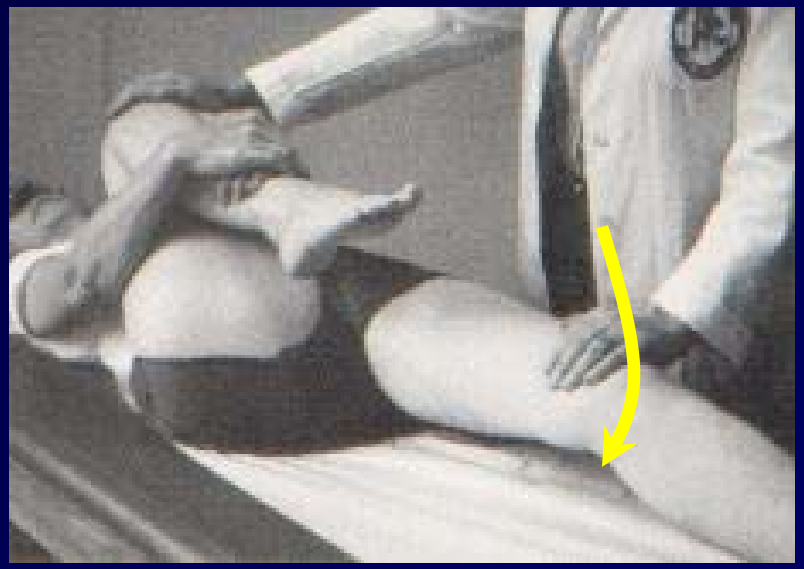


Klaue *et al.*: JBJS 73B: 423, 1991

Apprehension Test

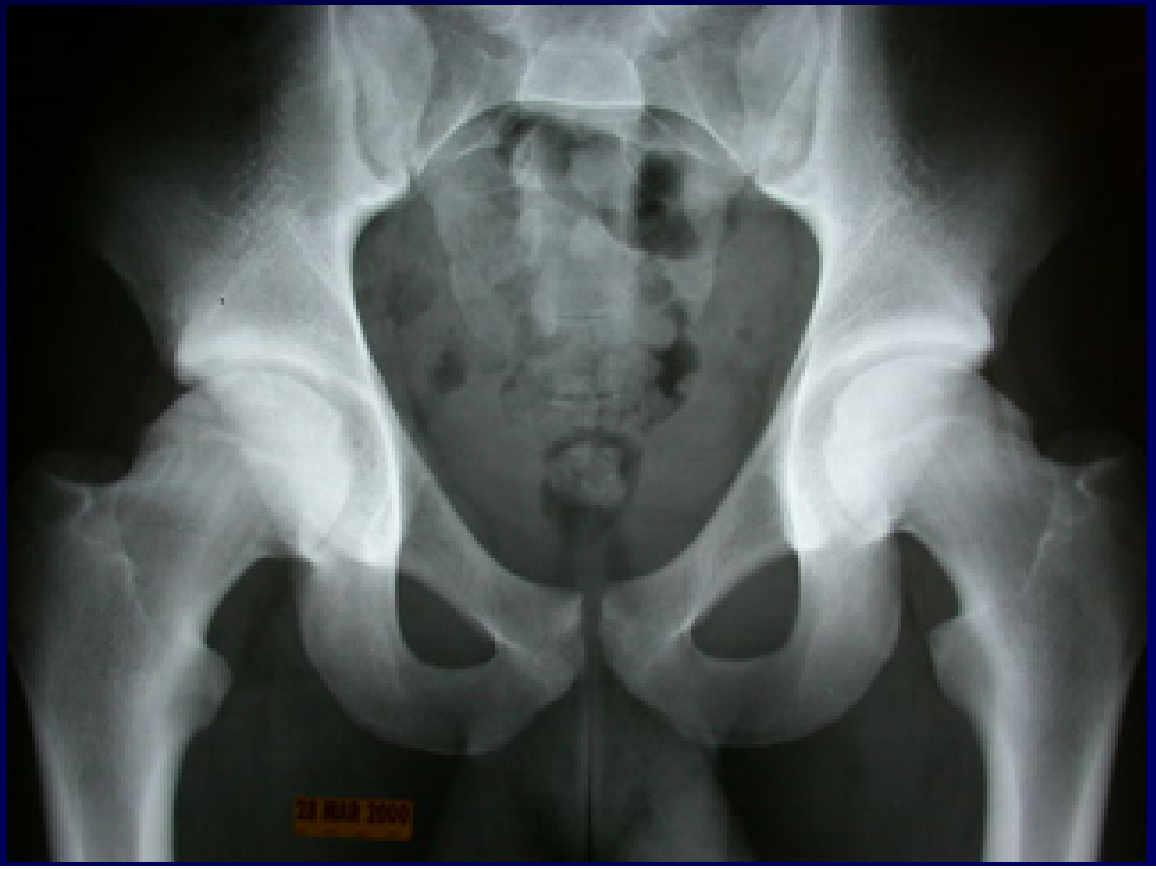
Thomas flexion to extension maneuver

- **Hold knees to chest (Flex pelvis)**
- **Hold one knee flexed, extend/externally rotate contralateral LE - stretch anterior capsule**
- **Apprehension with anterior pathology**
- **High correlation with labral tear (r=0.80 in 31 hips)**



Roentgenogram

- Possible no abnormality noted
- Irregularity of the anterior femoral neck
- Cyst formation in femoral head / lateral acetabulum

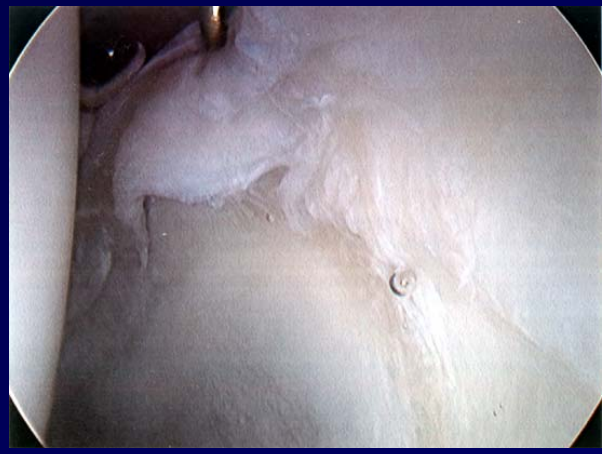


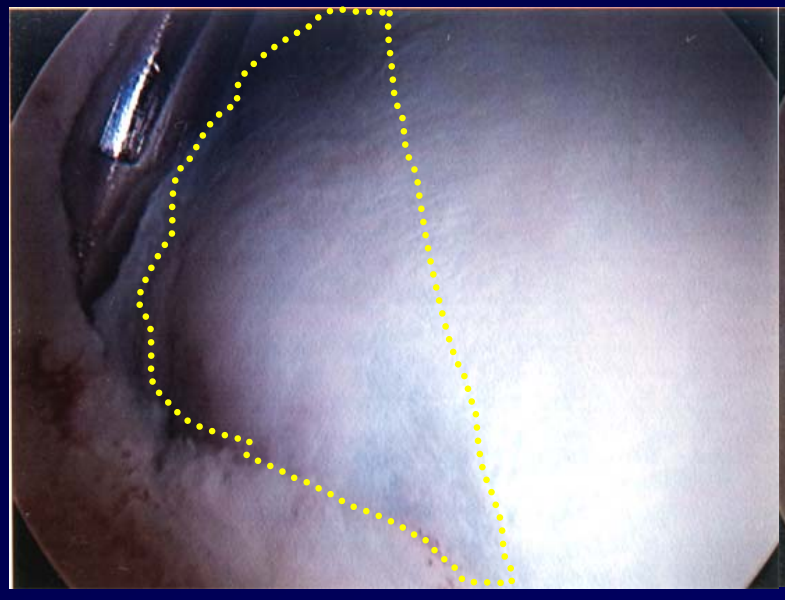
Treatment

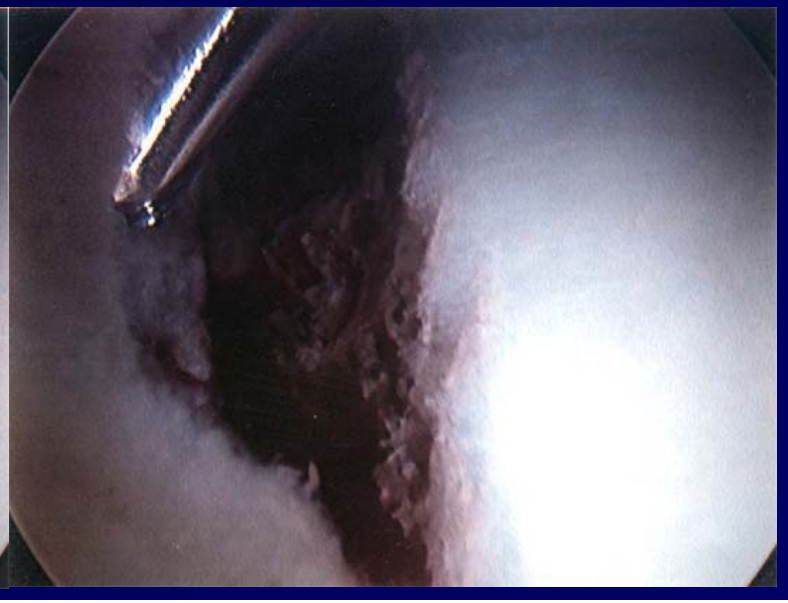
- Conservative
  - Physical Therapy
  - Observation
  - Avoidance of activity
- Operative
  - Refractory to conservative treatment

Arthroscopic Management

- **Labral Tear**
  - **Secondary to femoracetabular impingement**





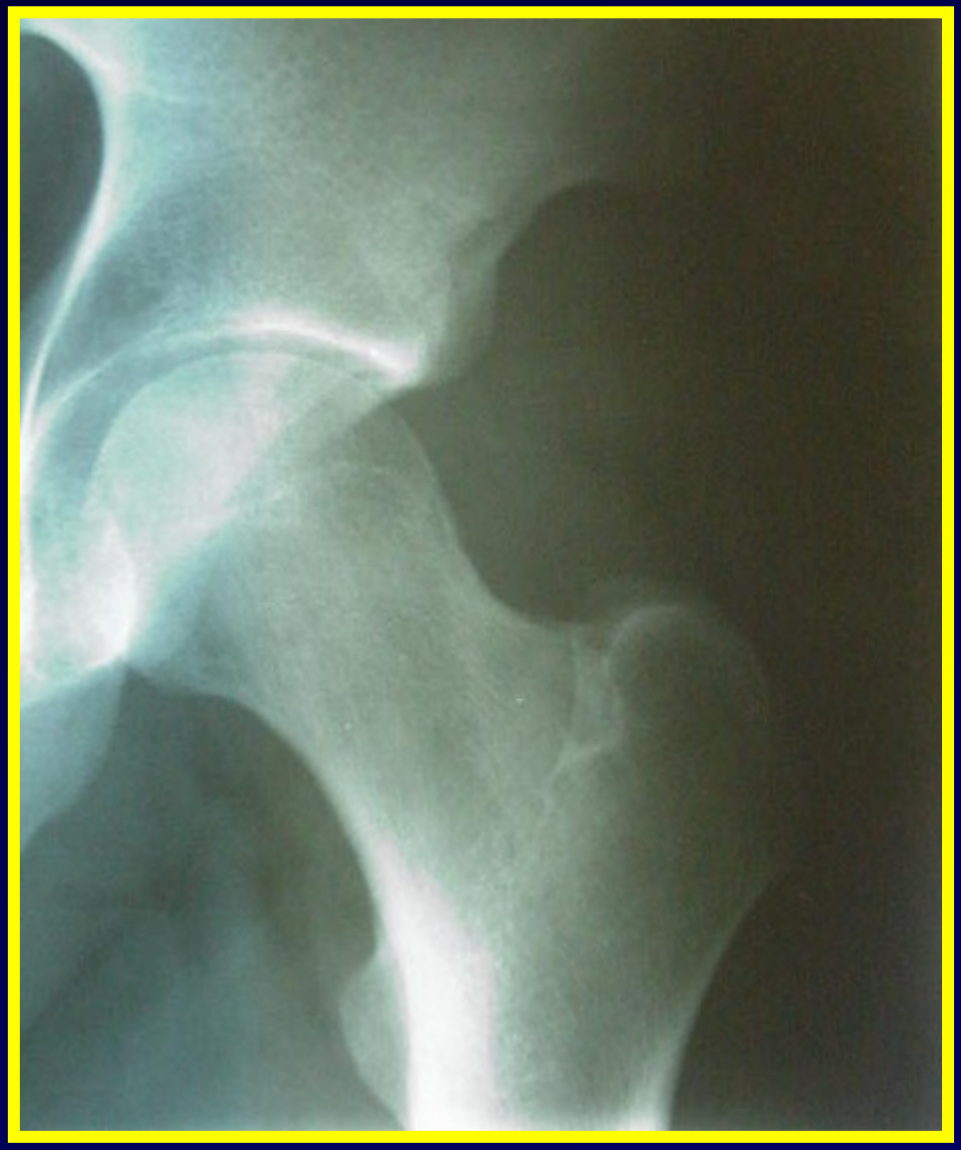


Real Hip Pain

- 23 year-old female
- Recent increase in activity (running)
- Pain in groin, unilateral, insidious
- Associated with weight-bearing

Real Hip Pain

- Pain reproduced with active SLR, passive hip rotation
- Exam otherwise normal
- Radiographs normal

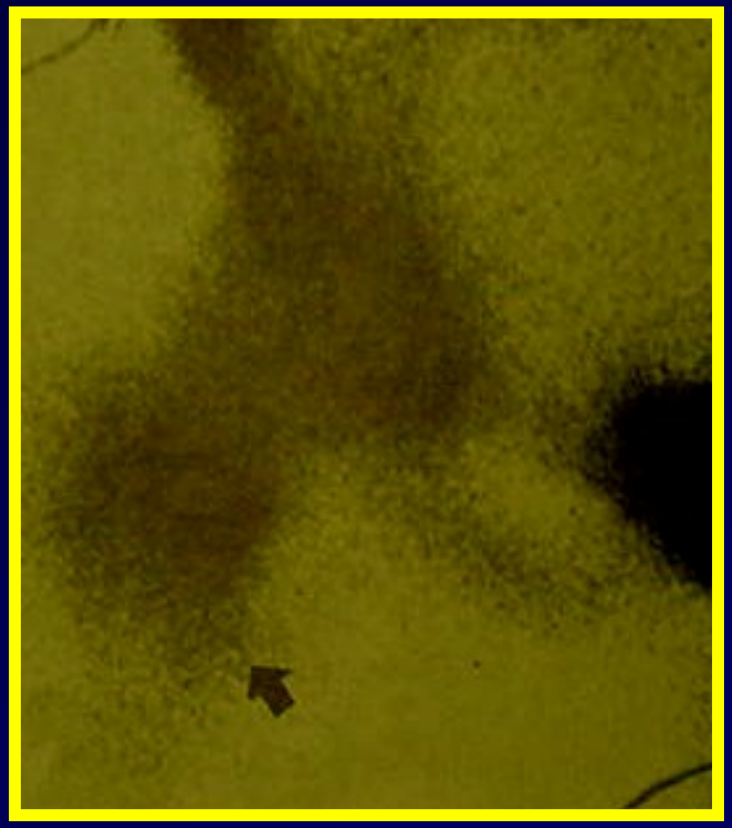


What’s your next move?

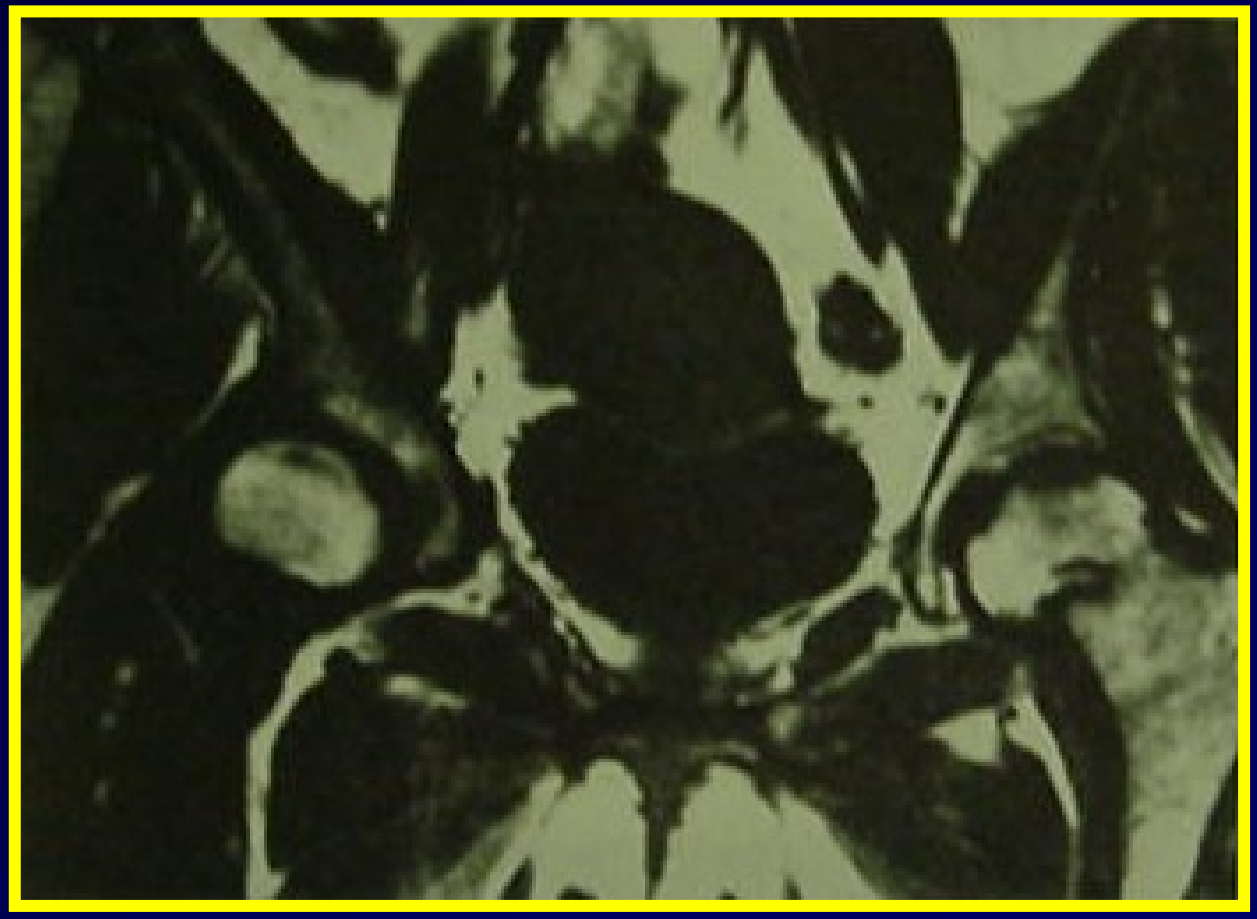
Very serious, fairly common…

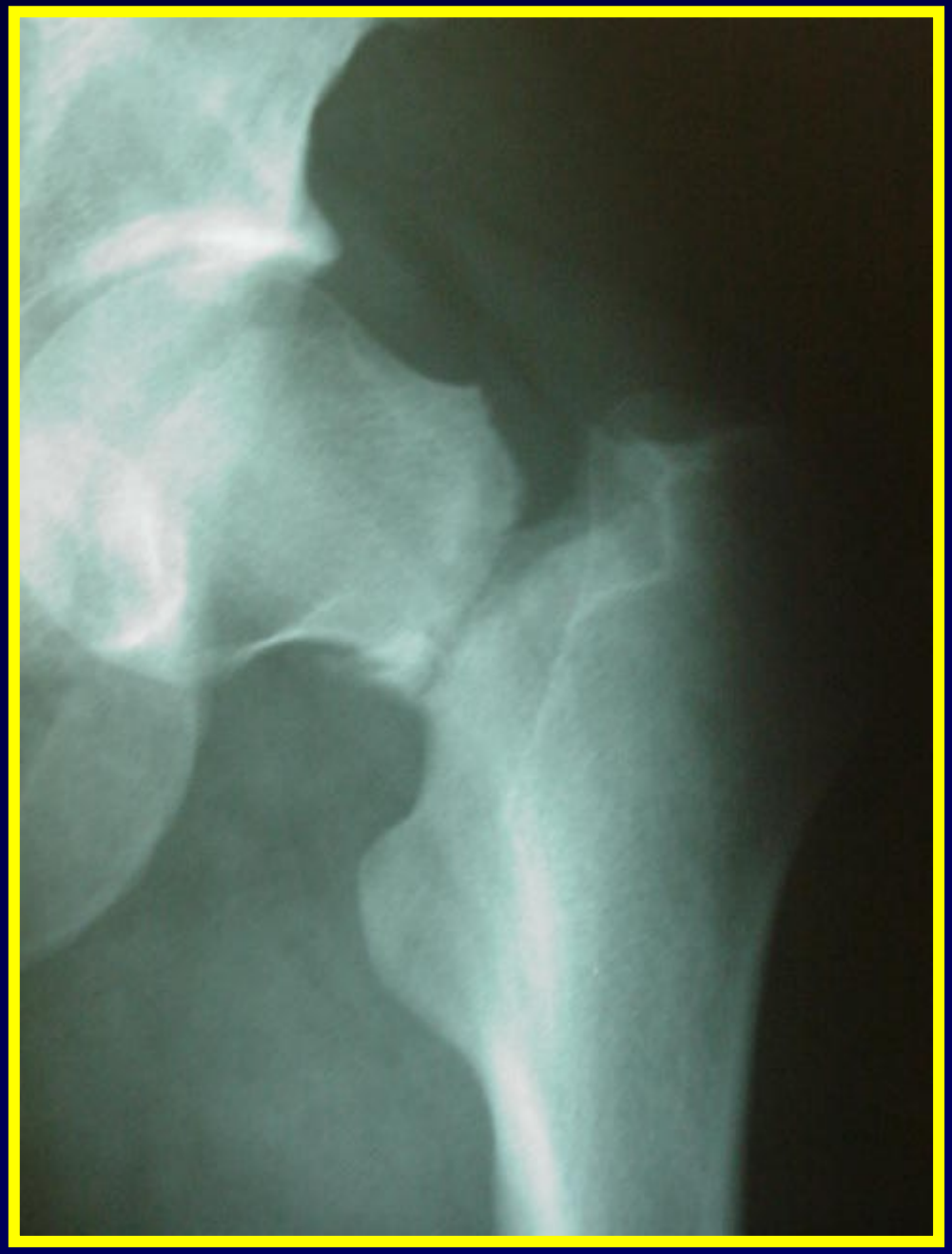
You *will* see this in your practice

Bone Scan



MRI





Femoral Neck Stress Fracture

- Young active adults
- Initial X-rays usually negative
- Catastrophic if missed (AVN)
- Often treated surgically

Remember

- ***NEVER*** **dismiss groin pain in a young adult without a workup, even if X-rays are negative!**

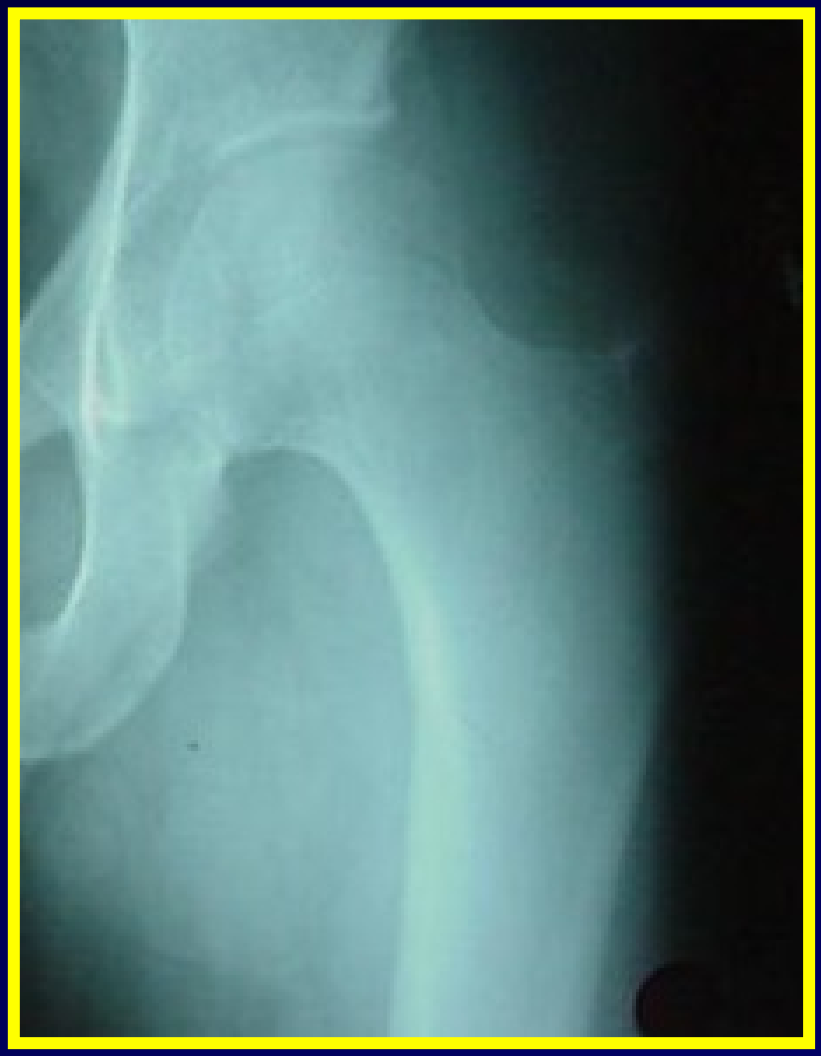
Real Hip Pain (2)

- 32 year-old male
- Groin pain, worse with activity, unilateral, insidious
- No history of steroid use
- Social drinker, non-smoker

Real Hip Pain (2)

- Pain in groin with active SLR
- Pain in groin with internal rotation
- Remainder of exam normal
- Radiographs normal

Plain Films

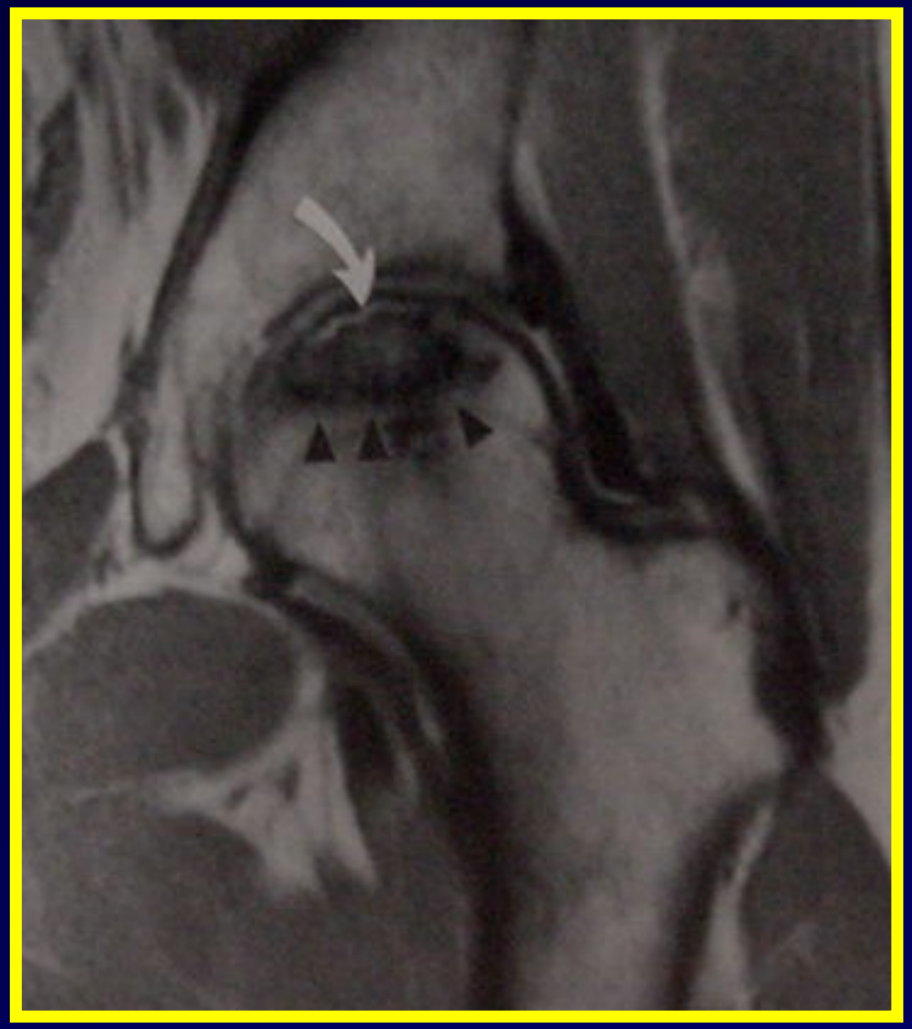


What’s your next move?

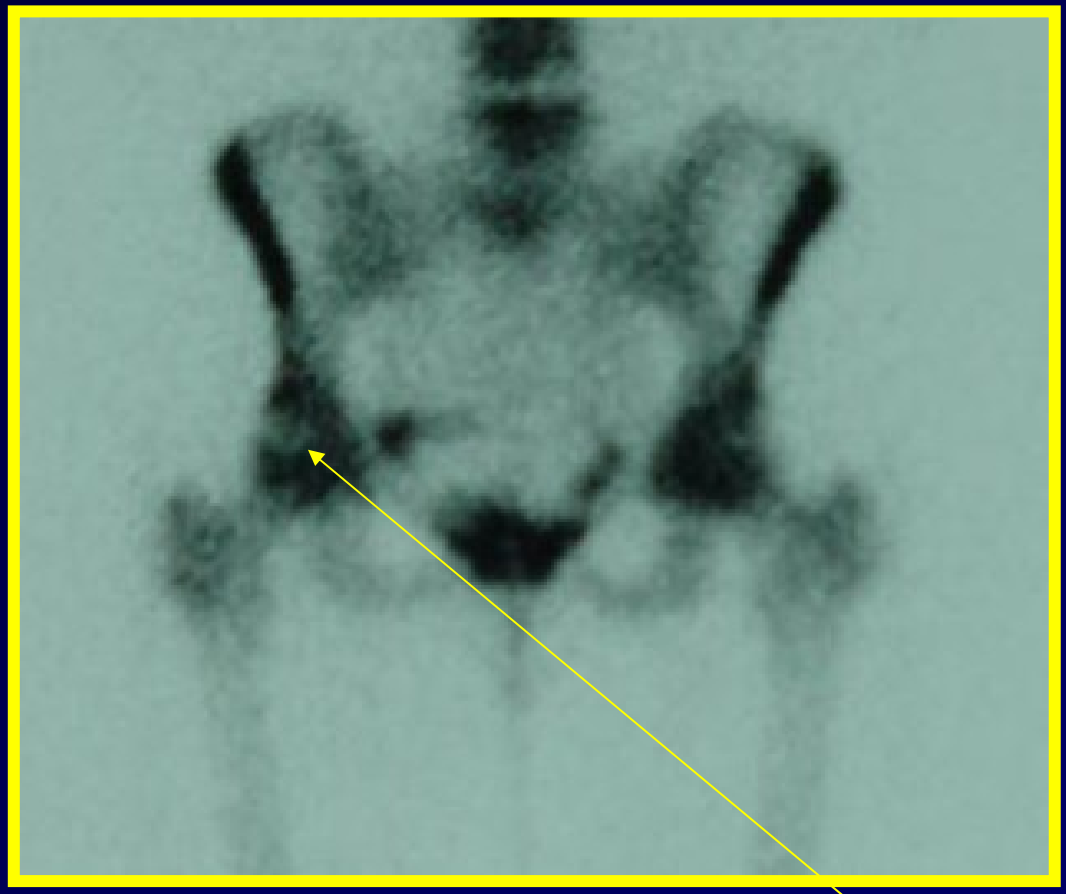
Very serious, not rare…

Surgical disease...

MRI



Bone Scan



Increased uptake, only in femoral heads, small “cold” area within lesion

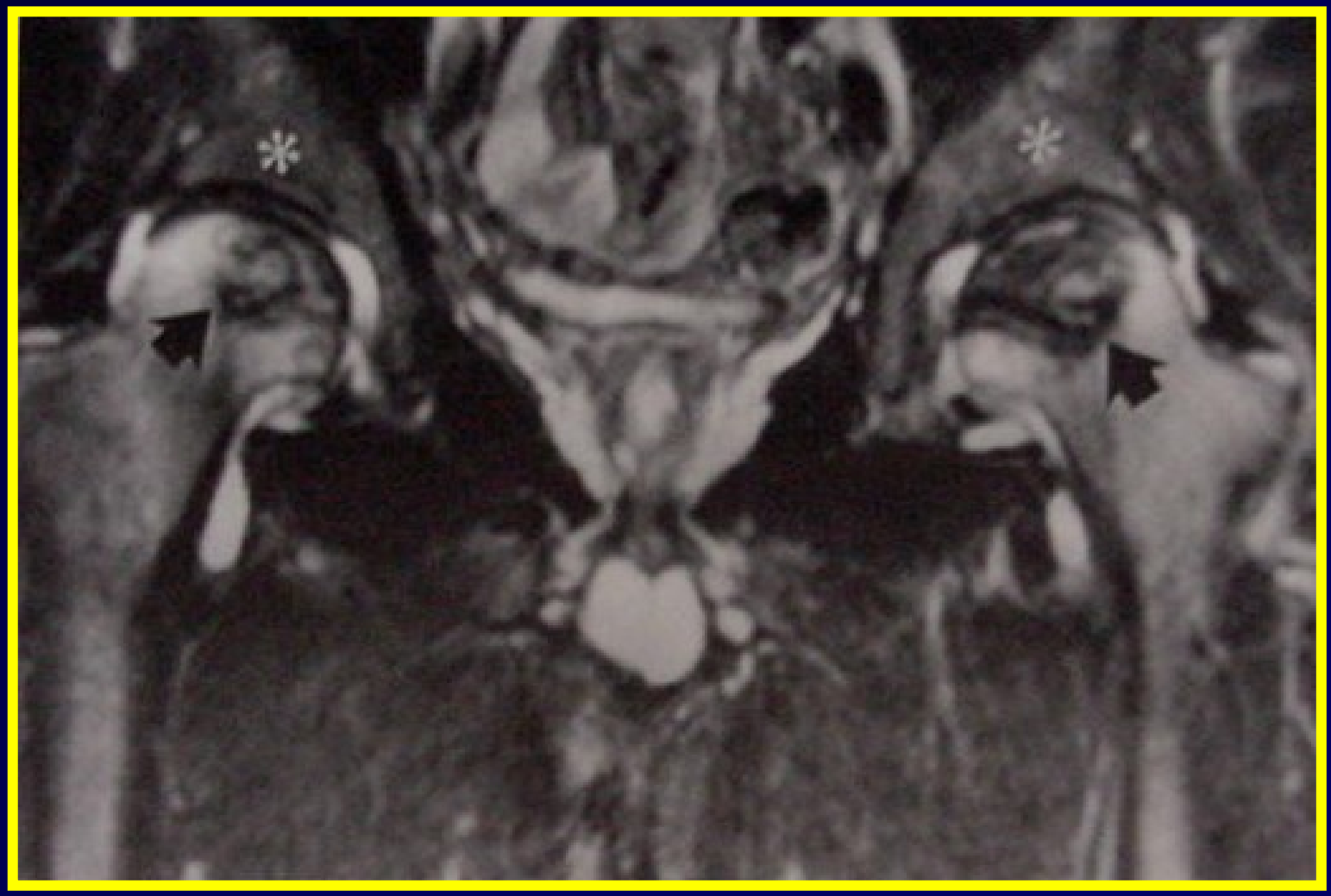
Avascular Necrosis

- Also called osteonecrosis
- Steroids, EtOH (varying amounts), occupational RF's, coagulopathy, sickle-cell disease
- Often bilateral
- Other joints: Knee > Shoulder > Ankle

Avascular Necrosis

- MRI is diagnostic, also gives info about asymp contralateral hip
- Only treatment is surgery
- Delay in Dx associated with progression
- Later stages do very poorly

Avascular Necrosis



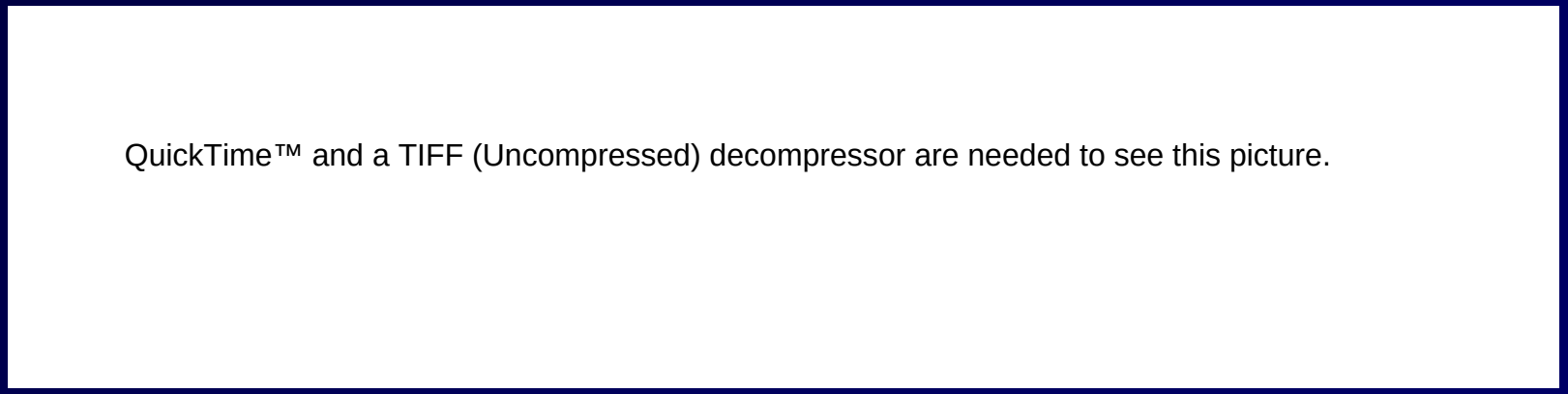
Remember

- ***NEVER*** **dismiss groin pain in a young adult without a workup, even if X-rays are negative!**

So the take-home message is...

- ***NEVER*** **dismiss new onset groin pain in an adult without a workup, even if X-rays are negative!**

THANK YOU!


QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.