

Evaluation of the Patient with Hip Pain



Ted Parks, MD



Causes of Hip Pain (common things)

- Arthritis
- Greater Trochanteric Bursitis
- Lumbar Spine Pathology



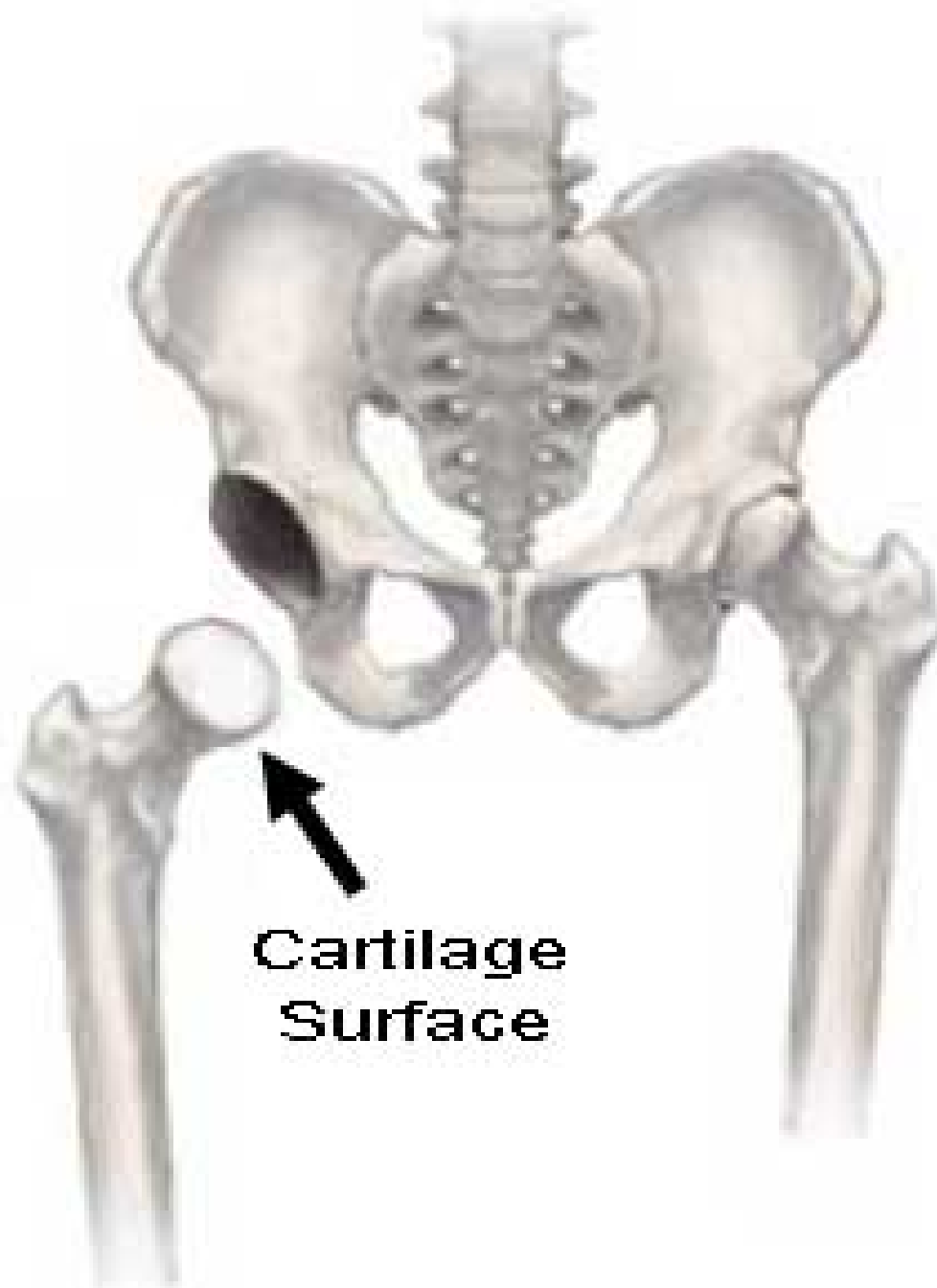
Causes of Hip Pain (less common things)



- Avascular Necrosis
- Femoral-Acetabular Impingement
- Labral Tears

HIP PAIN

Common cause #1:
Arthritis



**Articular
Surface**

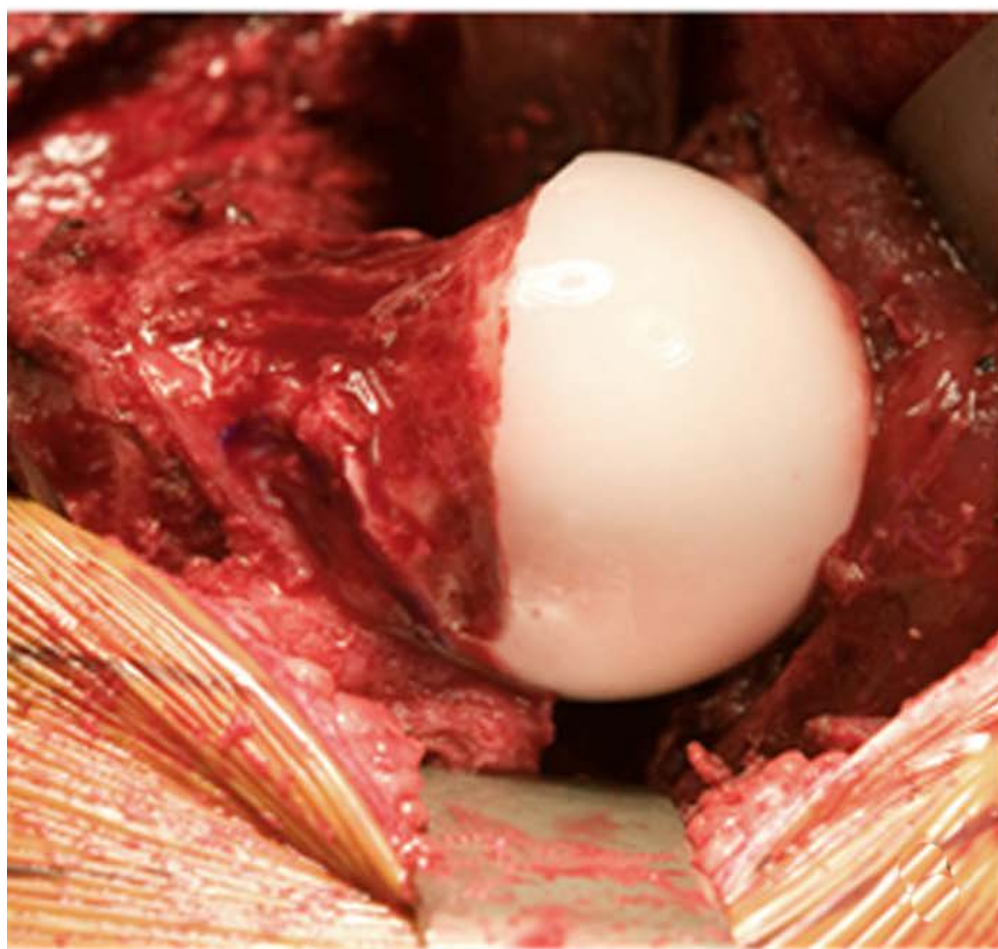




Normal



Arthritis



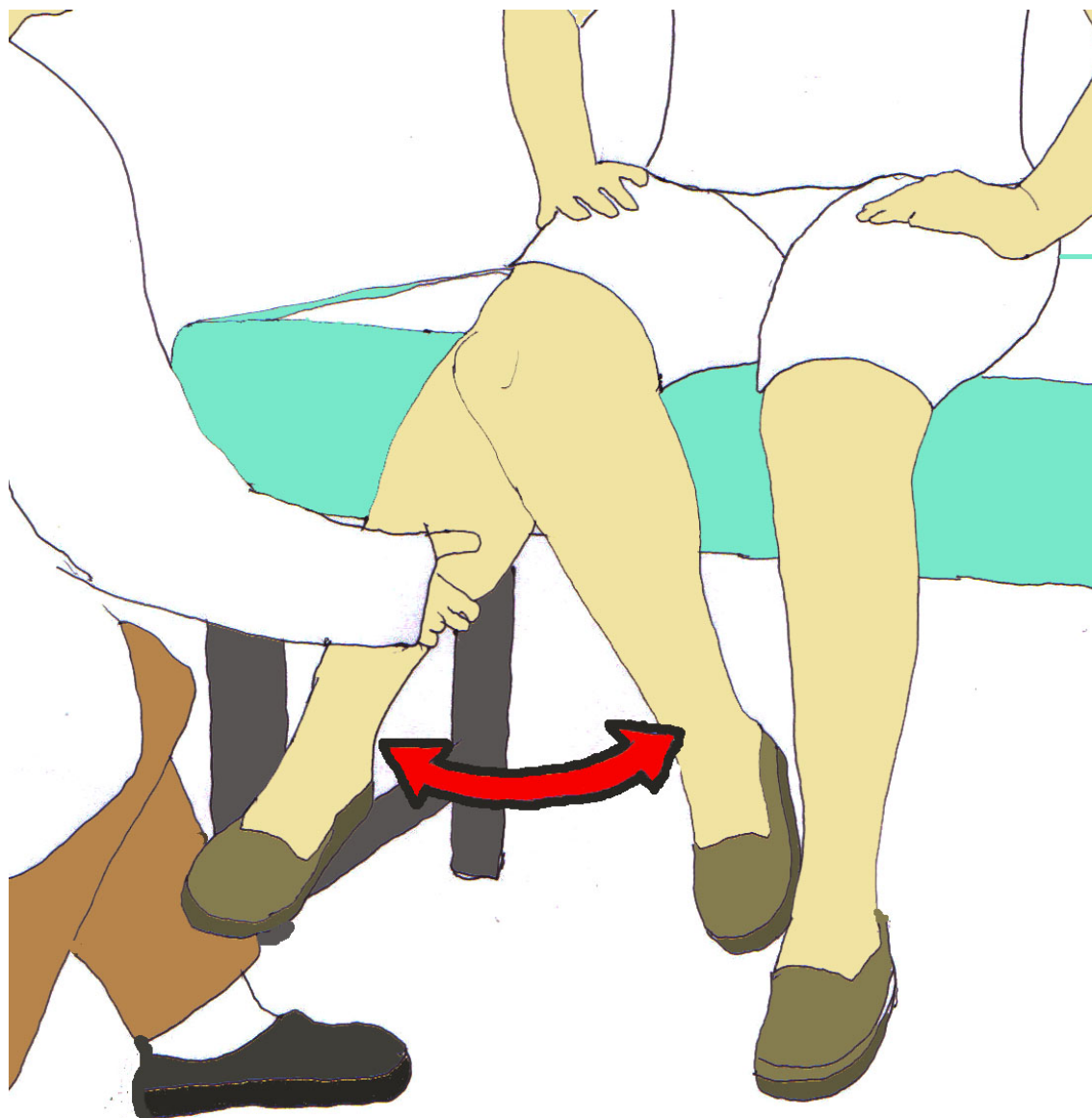
Hip Arthritis: Signs and Symptoms

Hx:

- Age
- Trouble getting shoes/socks on, clipping toe nails

PE:

- “Windshield wiper test”





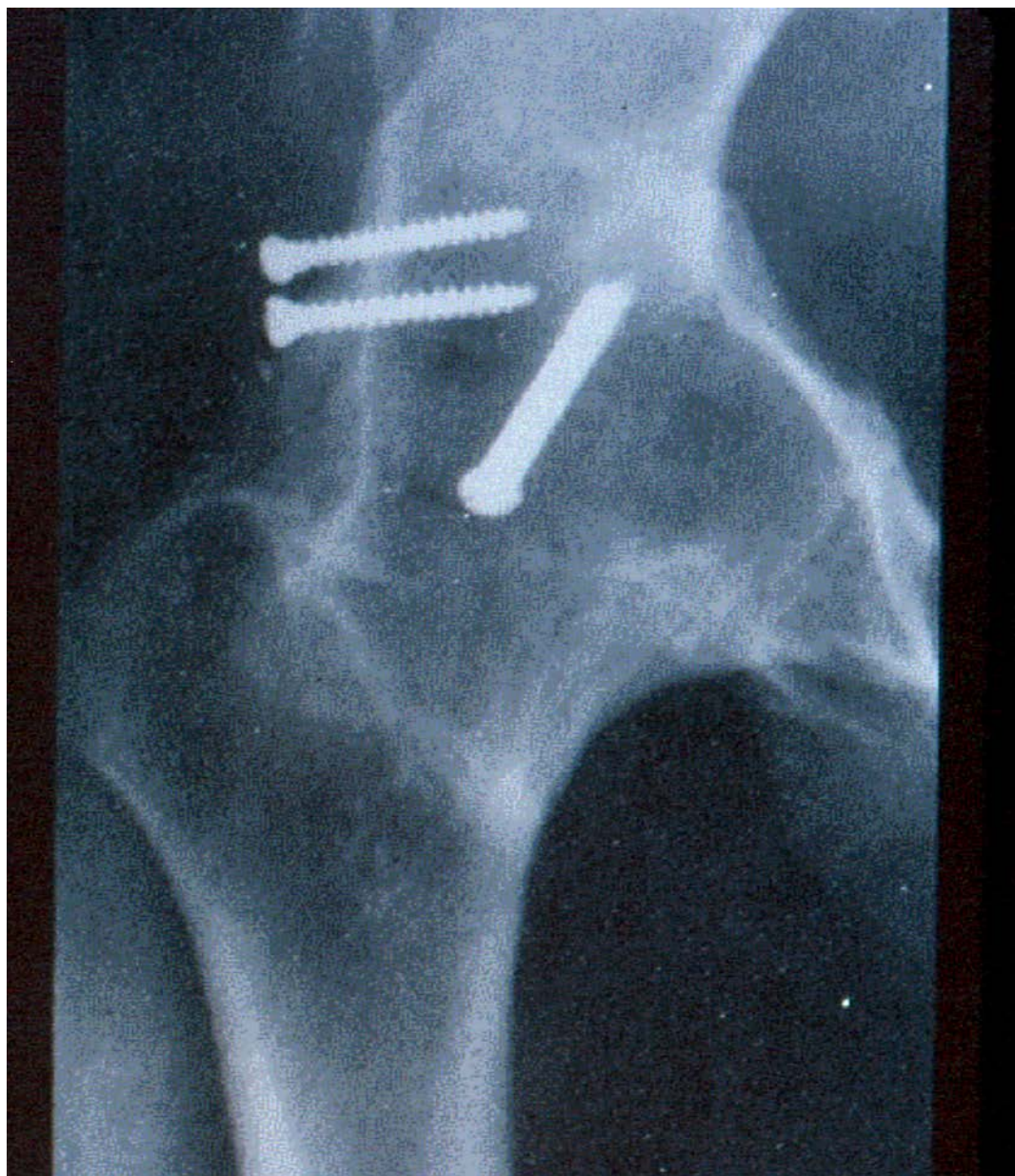
Treatment

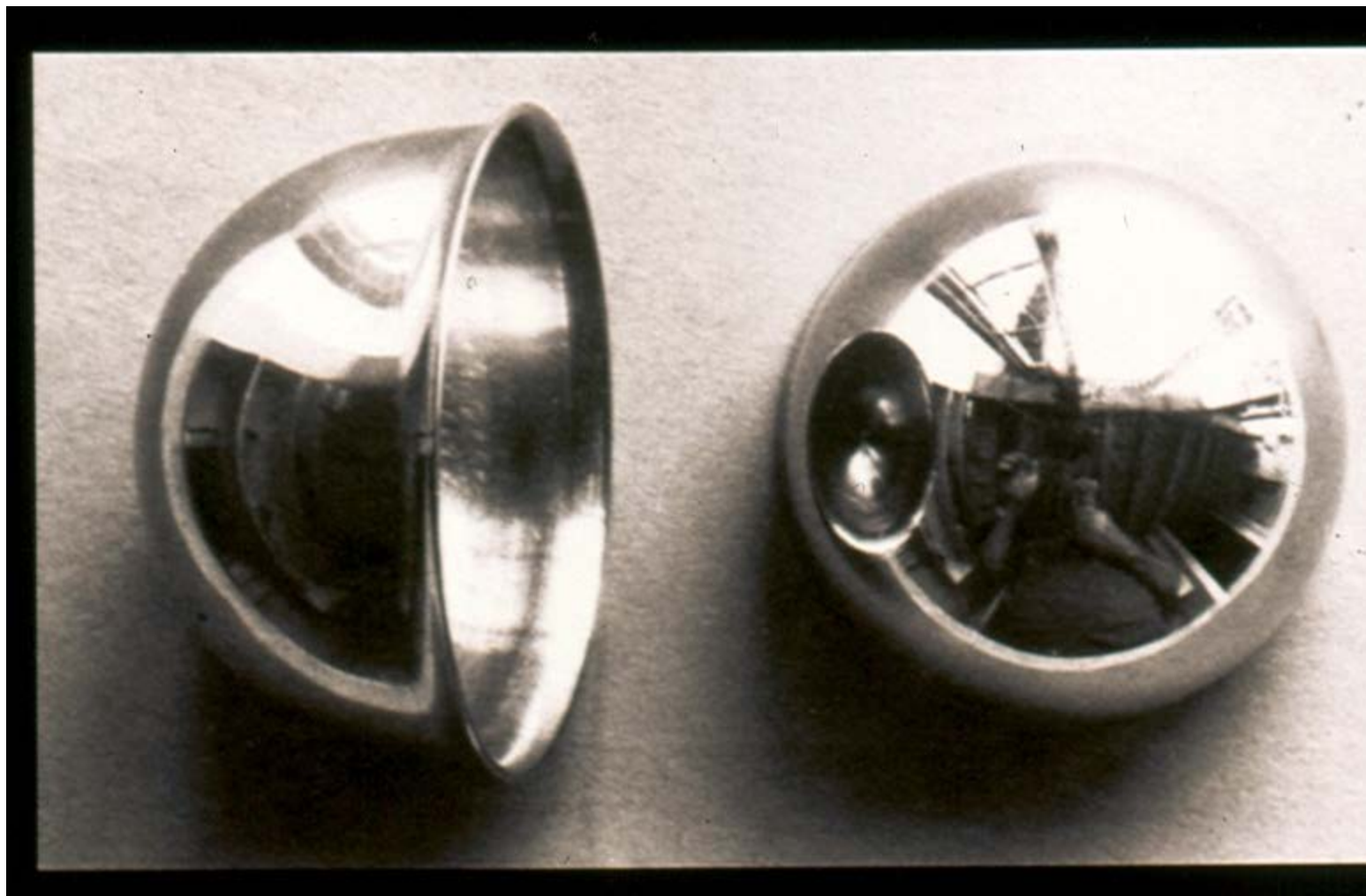
- NSAIDS (Aspirin, Ibuprophen, Aleve, Celebrex, etc)
- Cortisone Injection
- Nutritional Supplements
- Weight loss
- Assistive Devices
(cane, crutches, walker)
- Physical Therapy

Surgical Treatment











Problems with cup arthroplasty:

- 1) Poor relief of socket sided pain
- 2) Poor bond to femur bone

Better Solution

- Resurface ball and socket
- Low friction
- Durable
- Permanently bonded to bone



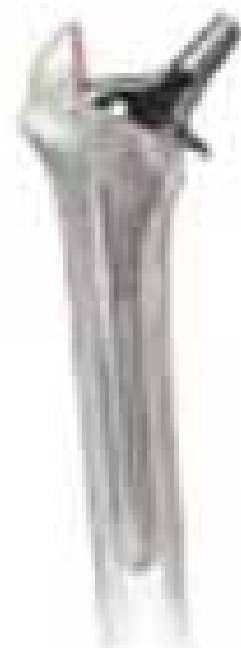
Sir John Charnley

























Modern Hip Replacement

- Safe, reproducible procedure with excellent patient satisfaction
- The replacement may only last 7 – 15 years

Factors Leading to Hip Replacement Failure

- Weight
- Activity Level
- Bone Quality
- Age





Wear Debris

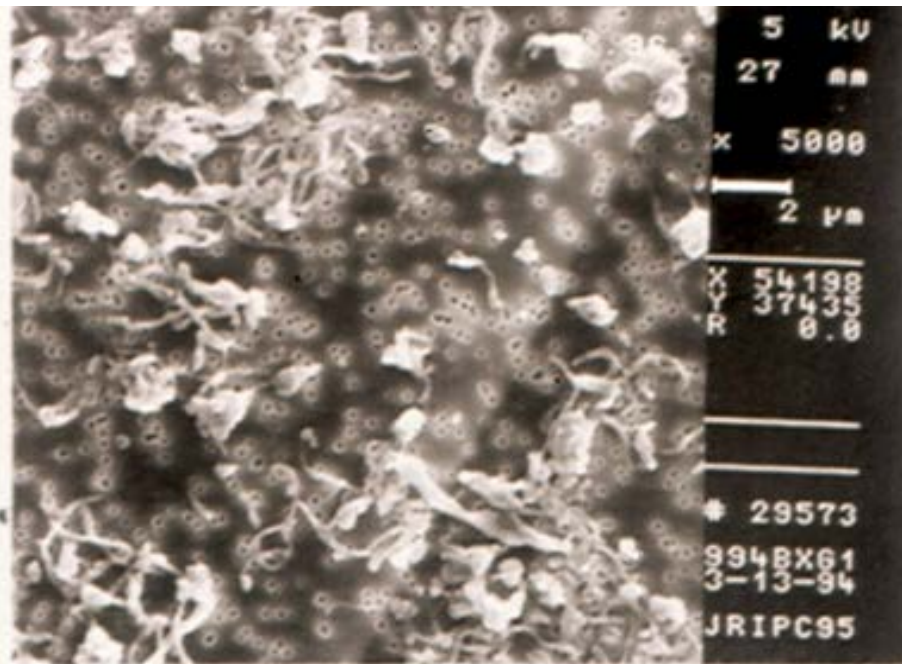
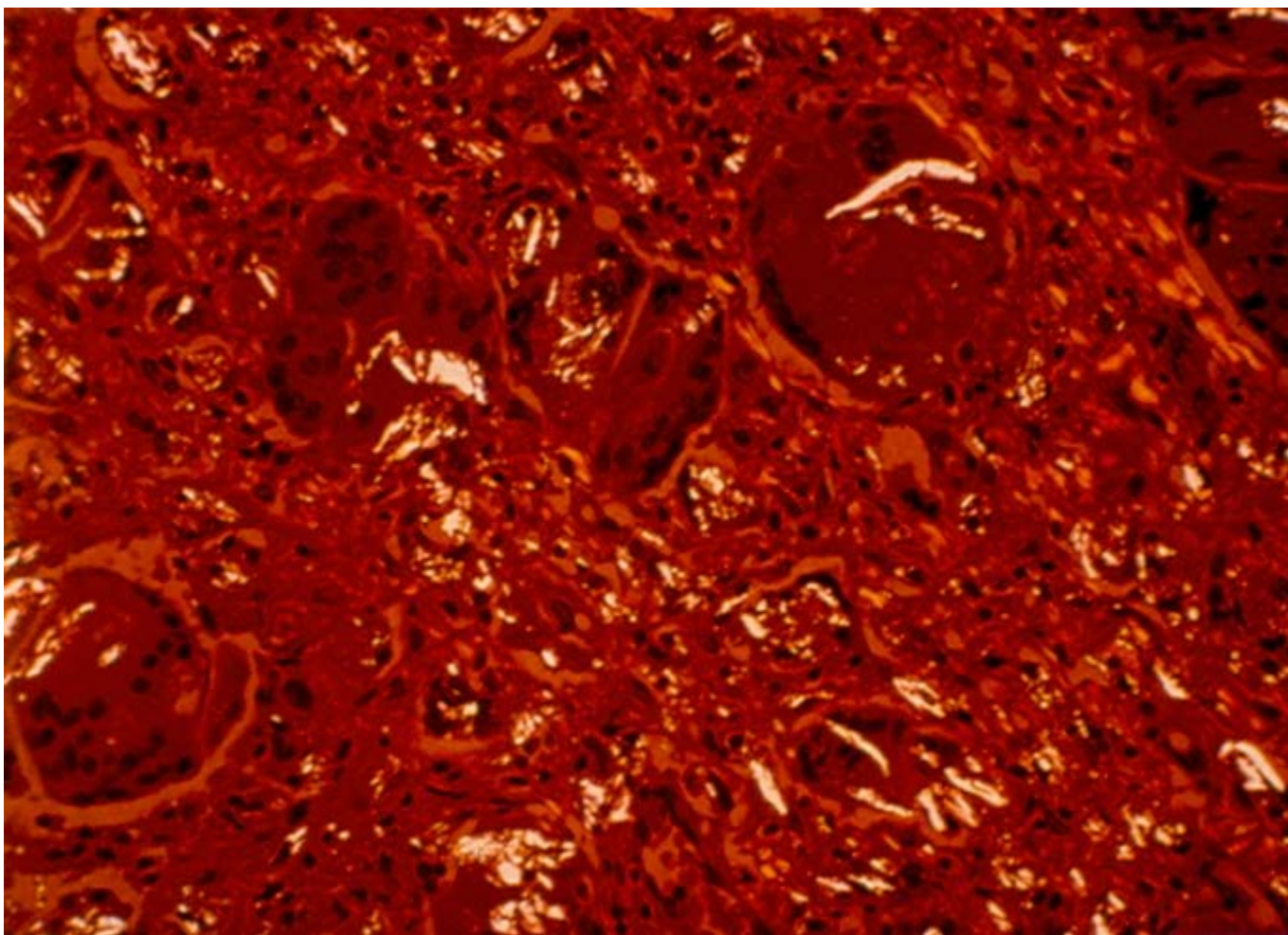


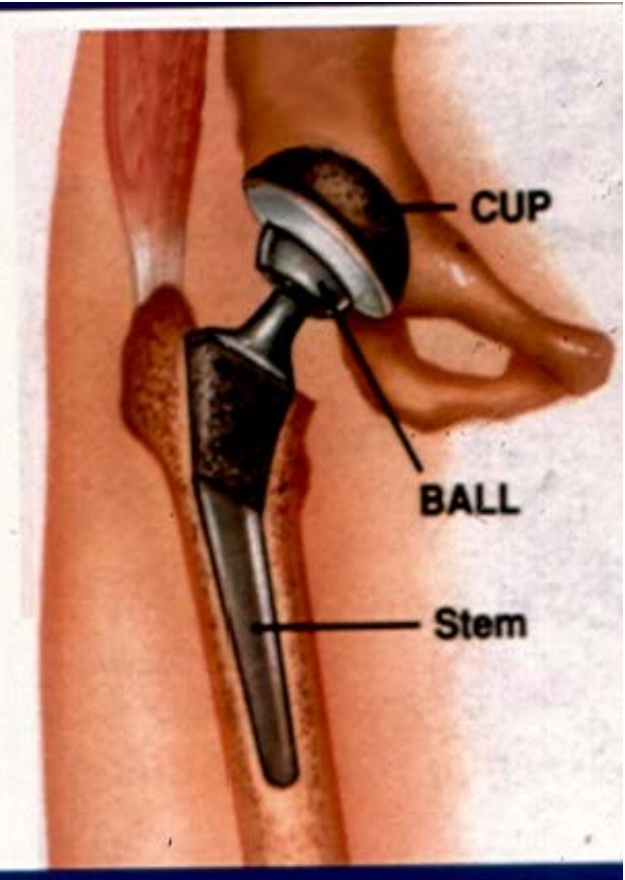
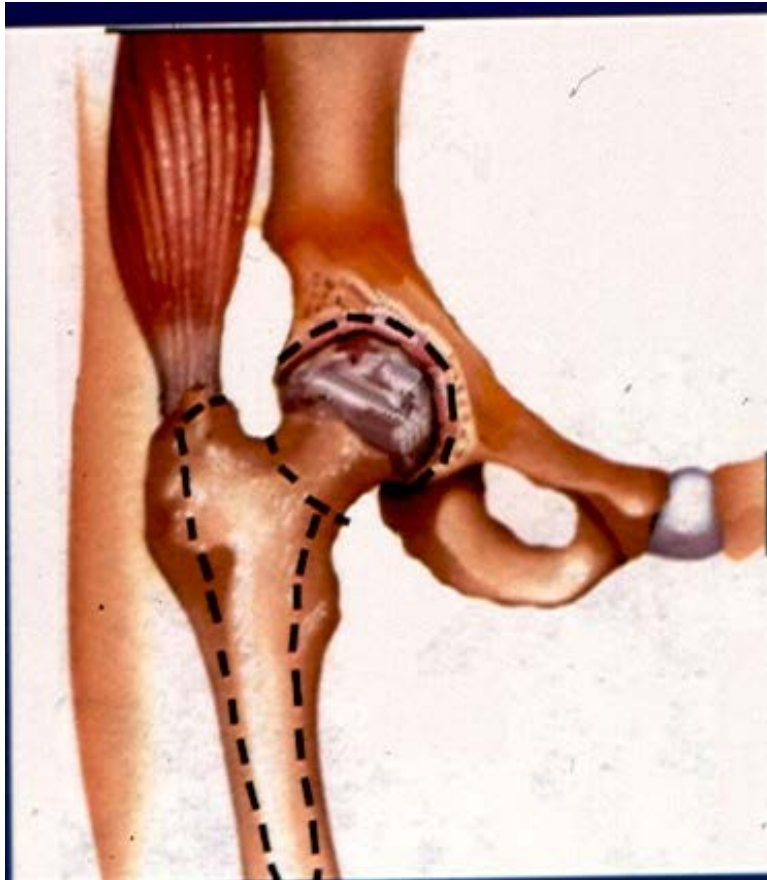
Fig 2. Shown are polyethylene wear particles that were isolated from tissues around a metal on polyethylene resurfacing hip prosthesis and studied with scanning electron microscopy. The 0.2 μm pores of the filter on which the particles are collected, are visible in the background. The particles are either rounded granules or elongated fibrils. Many submicron sized particles are visible. (Magnification, $\times 5000$).

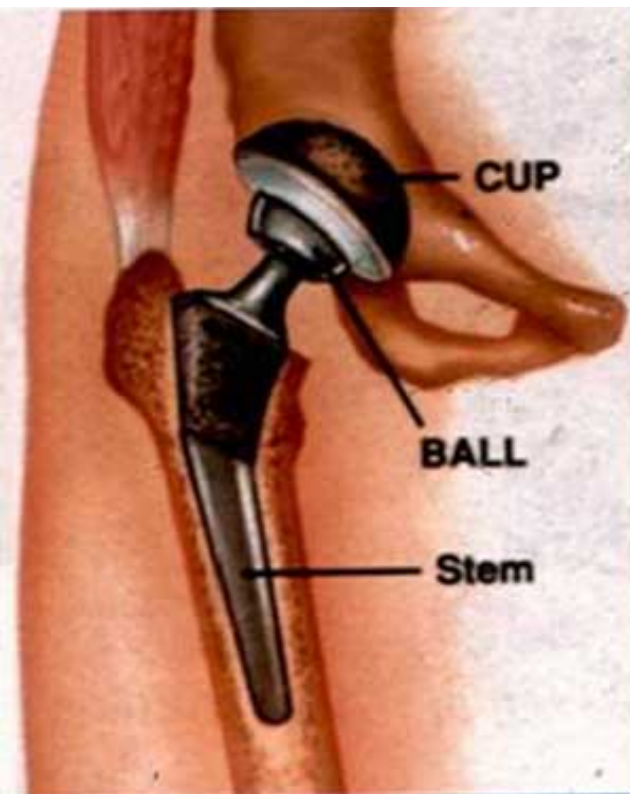


“...500,000 polyethylene
particles generated per step
taken...”

- Clin. Ortho. 311:1 1995

Polyethylene debris is what causes joint replacements to fail.

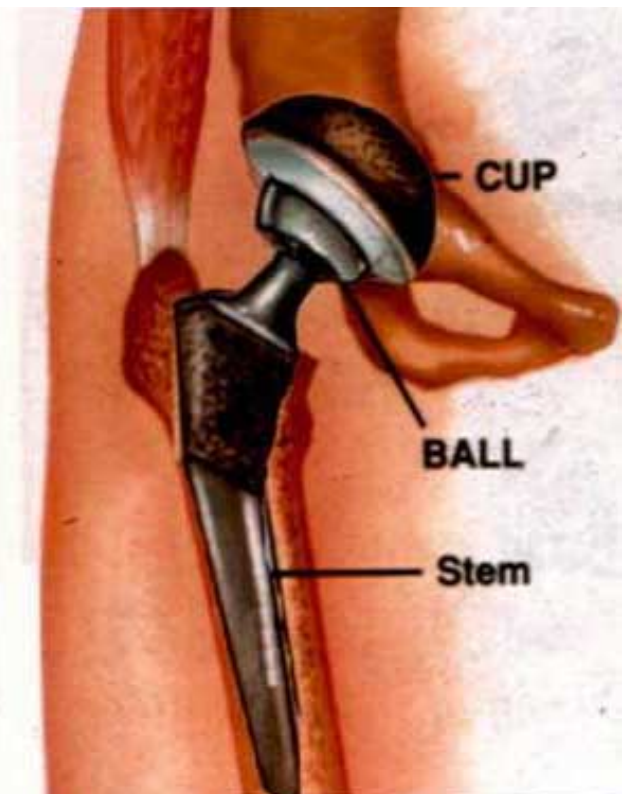




original



loose



revised

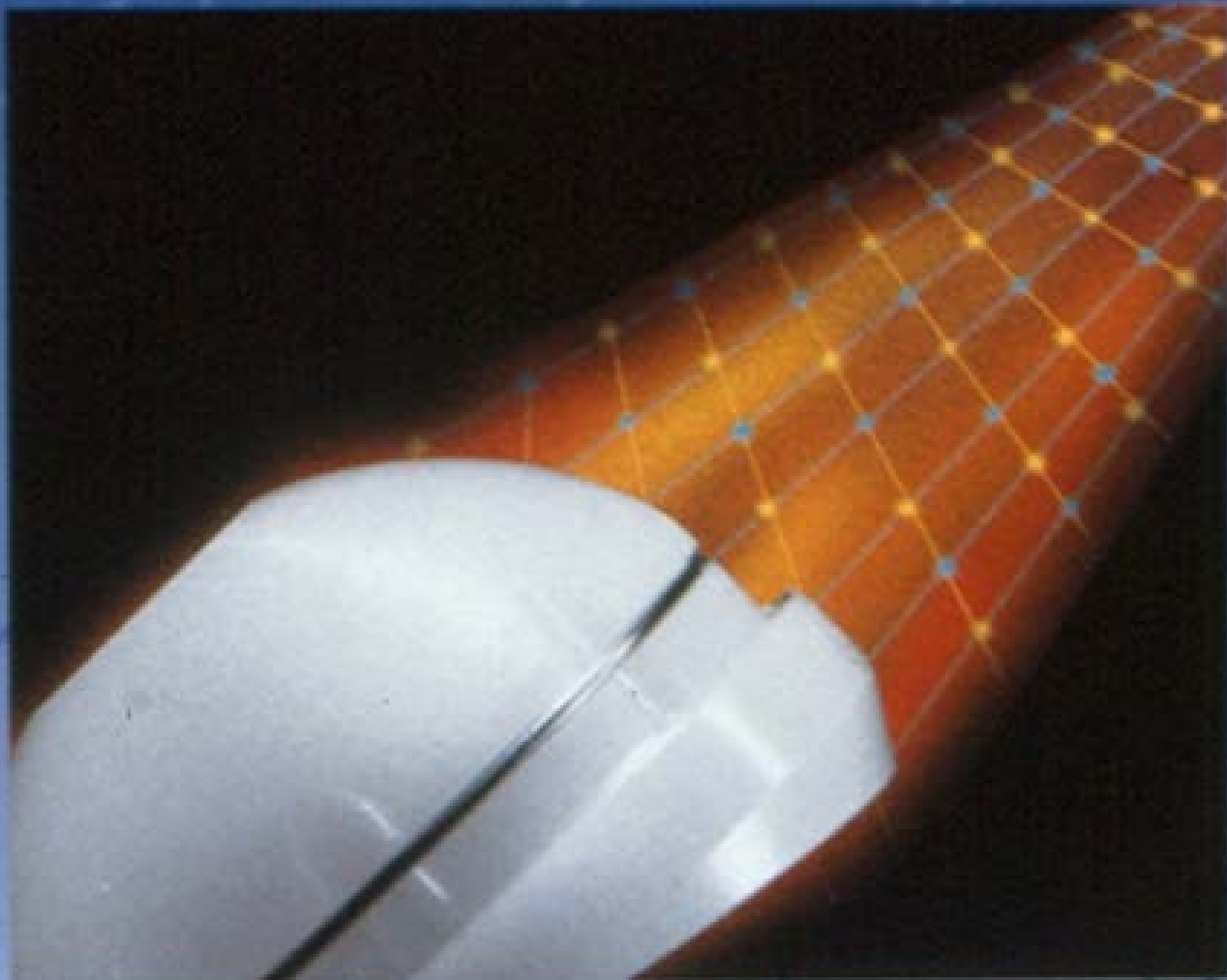
Our Current Goal in Hip Replacement Research:

- Make the hip replacement last the lifetime of the patient

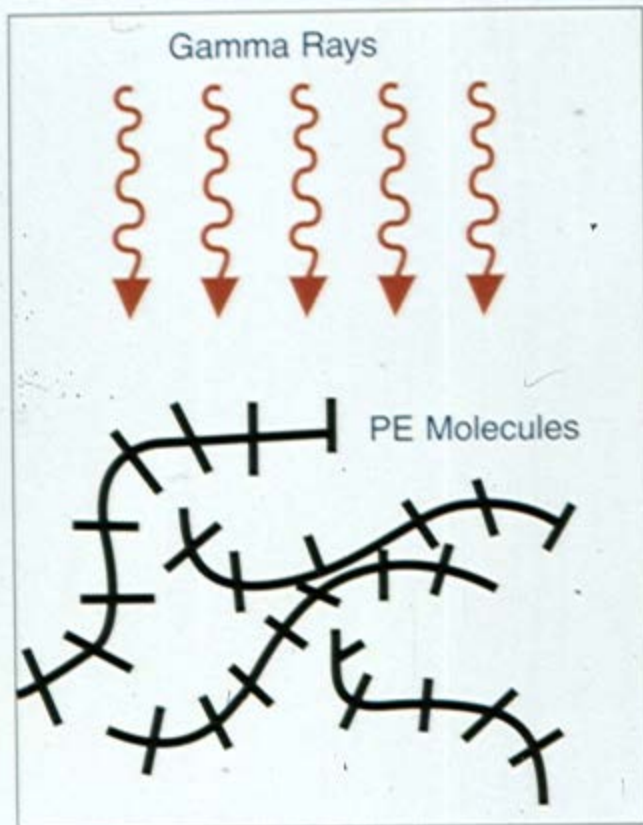
Poly particles → Biological rxn → Loosening → Failure

- **Limit or eliminate poly particles**

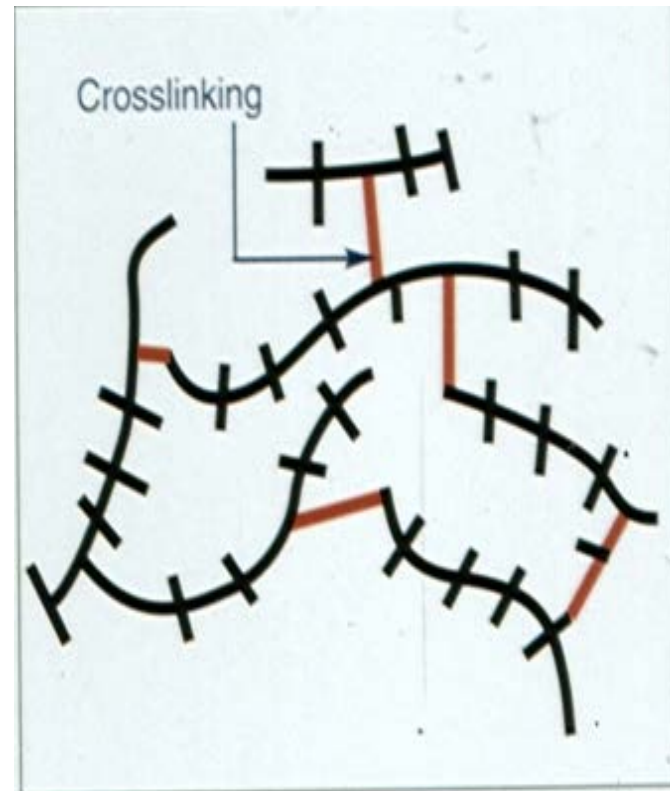
Crosslinked Polyethylene



Typical Crosslinking Process



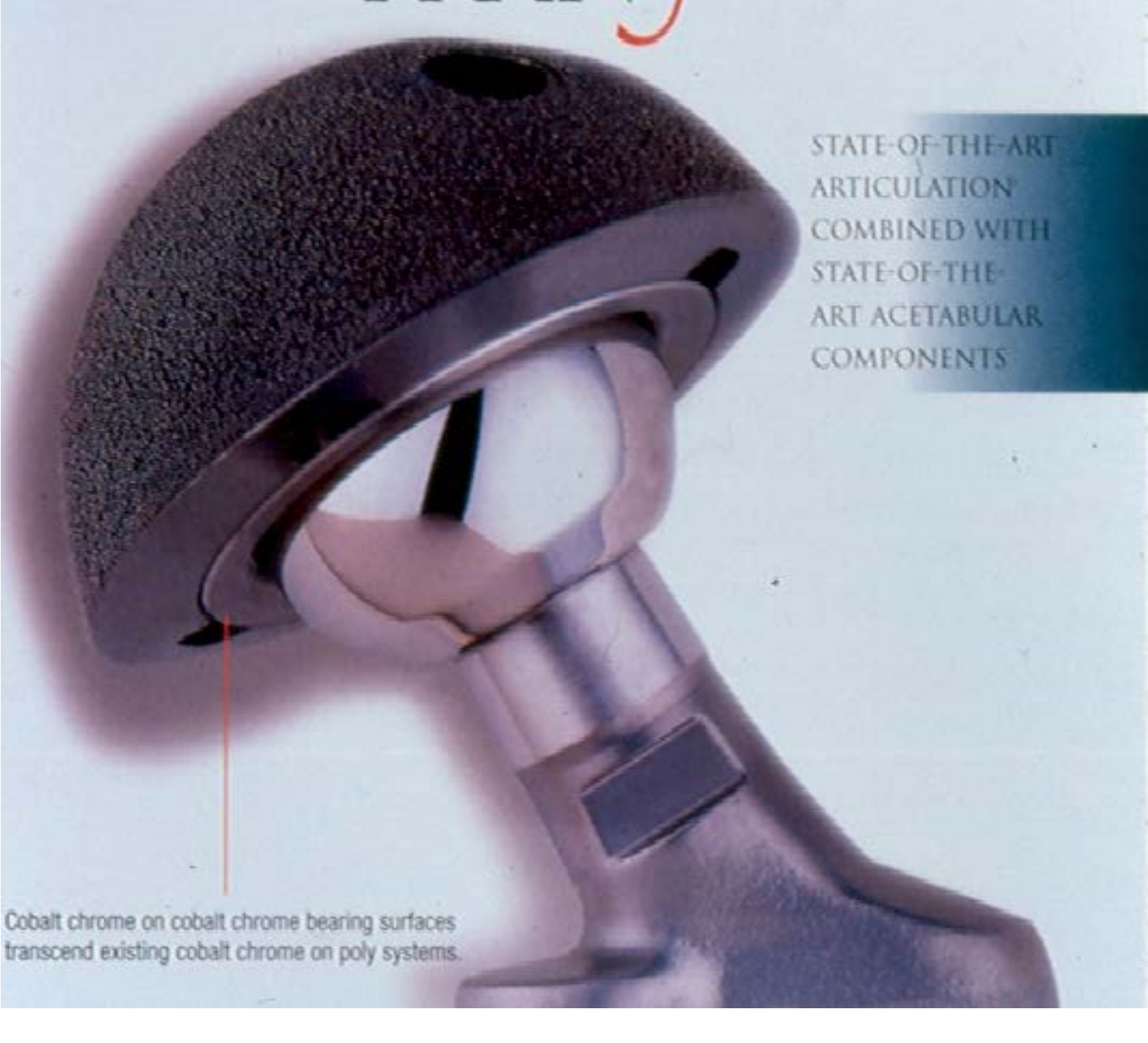
Schematic showing radiation process.



Schematic showing crosslinked molecular structure.

Traditional vs. New Poly



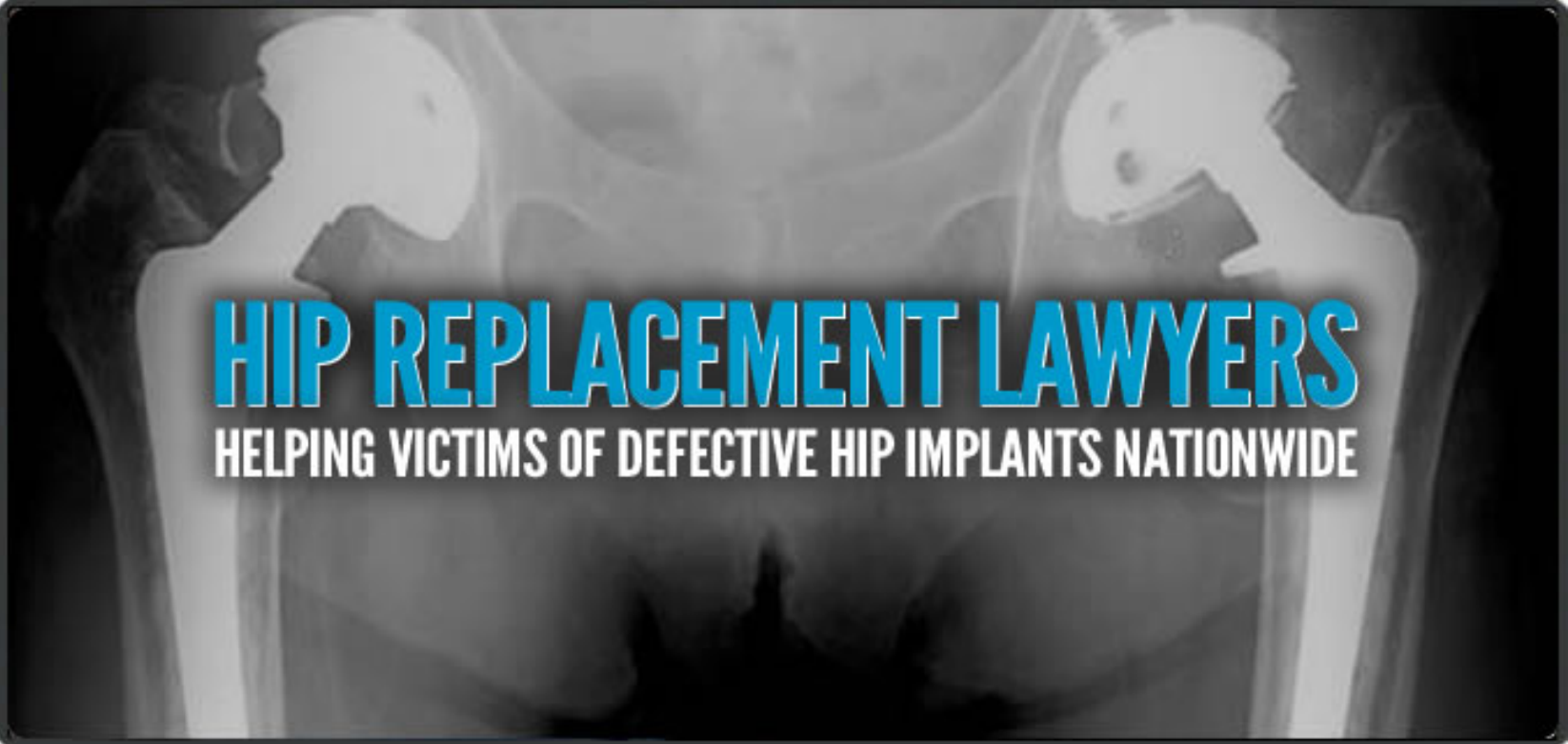


STATE-OF-THE-ART
ARTICULATION
COMBINED WITH
STATE-OF-THE-
ART ACETABULAR
COMPONENTS

Cobalt chrome on cobalt chrome bearing surfaces
transcend existing cobalt chrome on poly systems.

Metal on Metal



An X-ray image of a human pelvis, showing the hip joints. Both hips appear to have undergone replacement surgery, with artificial implants visible. The image is in grayscale and serves as a background for the text.

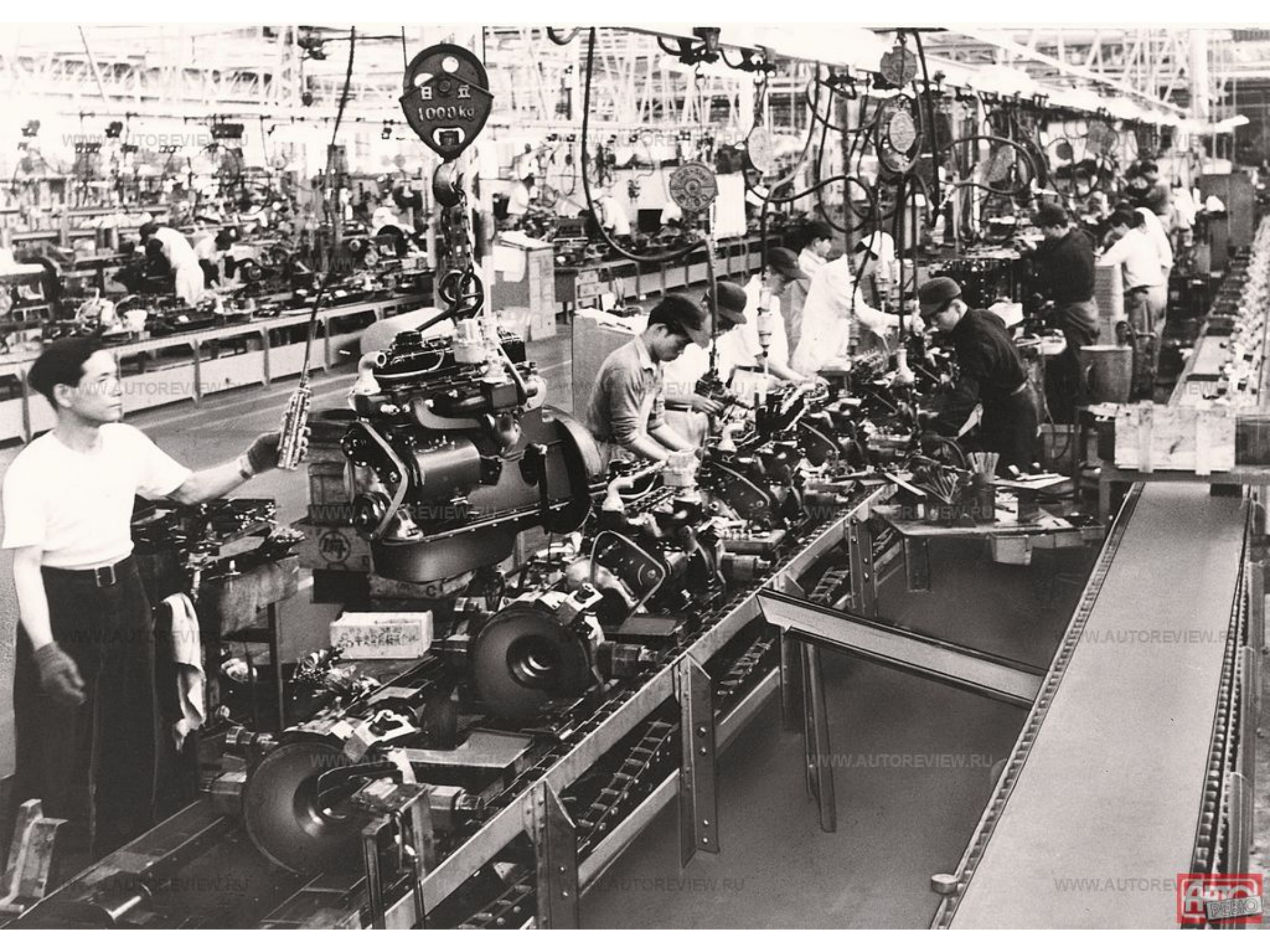
HIP REPLACEMENT LAWYERS

HELPING VICTIMS OF DEFECTIVE HIP IMPLANTS NATIONWIDE

Trace metal elevation compared to normal people

- Chromium in blood: 28 fold increase
- Chromium in urine : 146 fold increase

(Jacobs, 1996)





Julia
Roberts
is
**Erin
Brockovich**

©2000 UNIVERSAL STUDIOS

WWW.CHARLOTTE.COM/JUSTDO/MOVIES/



Ceramic on Ceramic

**Wear
Rate**
(microns/year)



CoCr/Polyethylene

200 microns/year



**CoCr/Crossfire[®]
Polyethylene**

20 microns/year



Metal/Metal

4.3 microns/year



Alumina/Alumina

<1 micron/year



Ceramic Head Fracture



Ceramic on New Poly

**Wear
Rate**
(microns/year)



CoCr/Polyethylene

200 microns/year



**CoCr/Crossfire[®]
Polyethylene**

20 microns/year



Metal/Metal

4.3 microns/year



Alumina/Alumina

<1 micron/year



Alumina/X3[™]

1.4 micron/year

Hip Resurfacing

Old (1940s) →



New →
(2006)





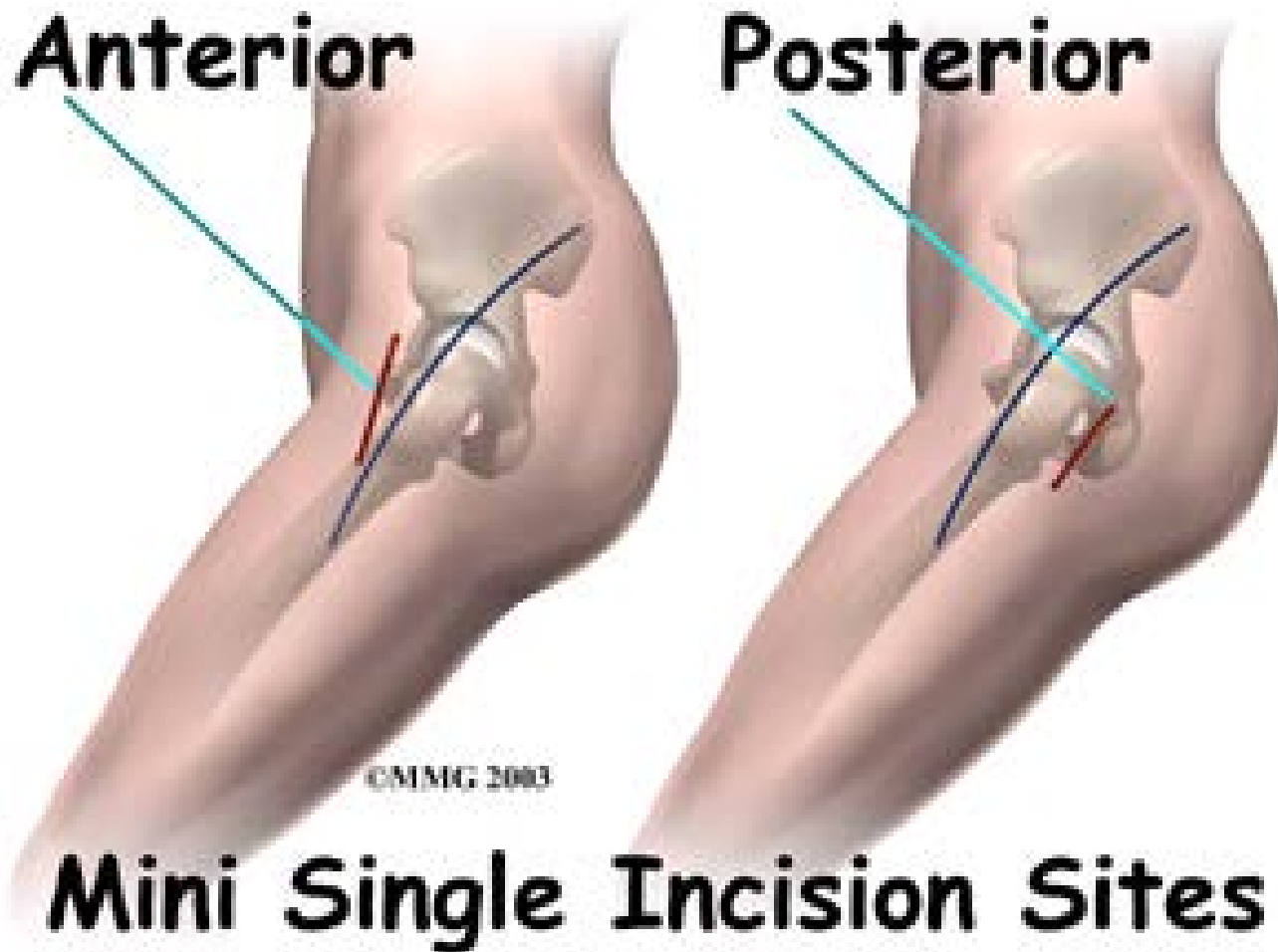
Old



New



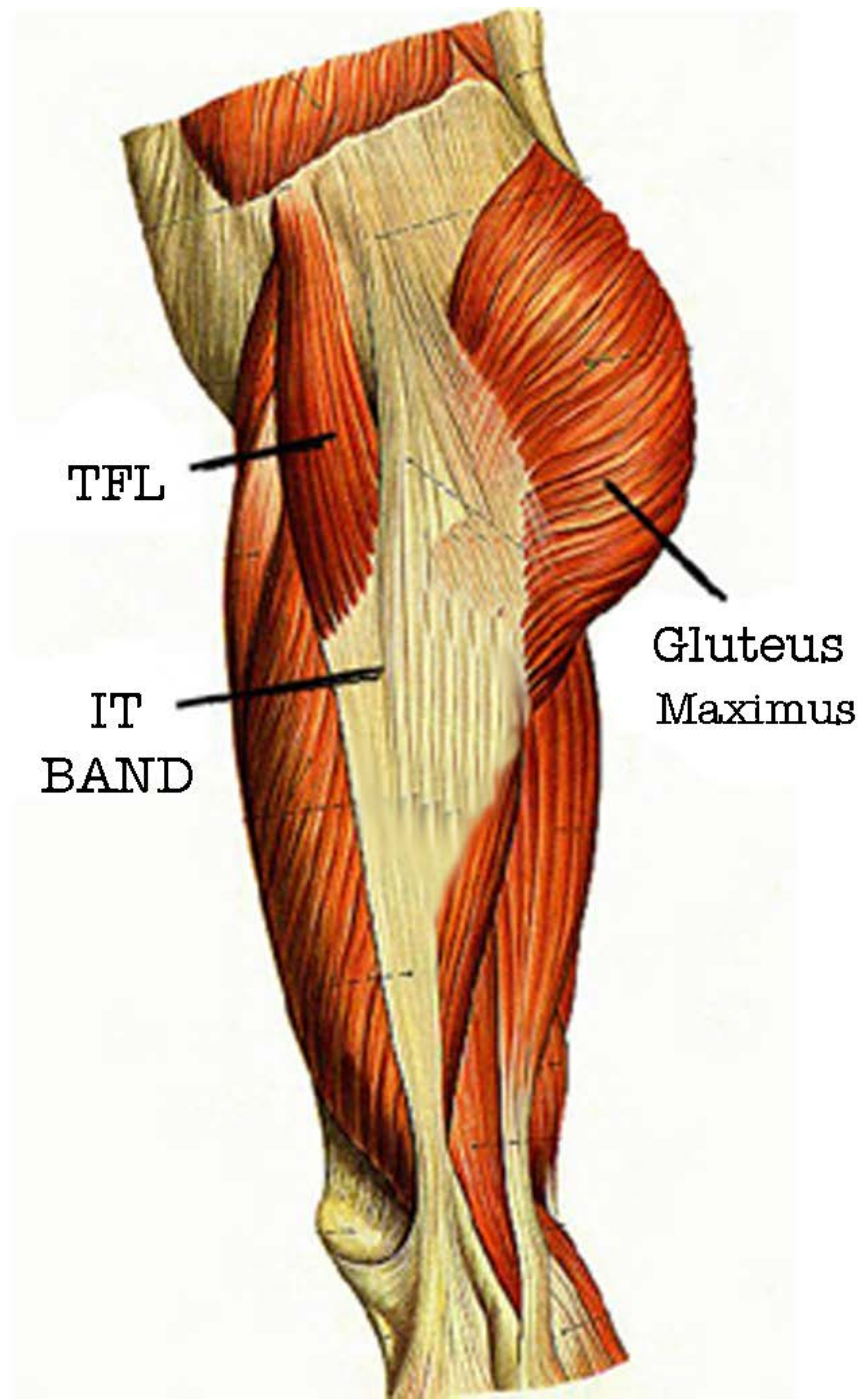
Minimal Incision Hip Replacement



The Future...

HIP PAIN

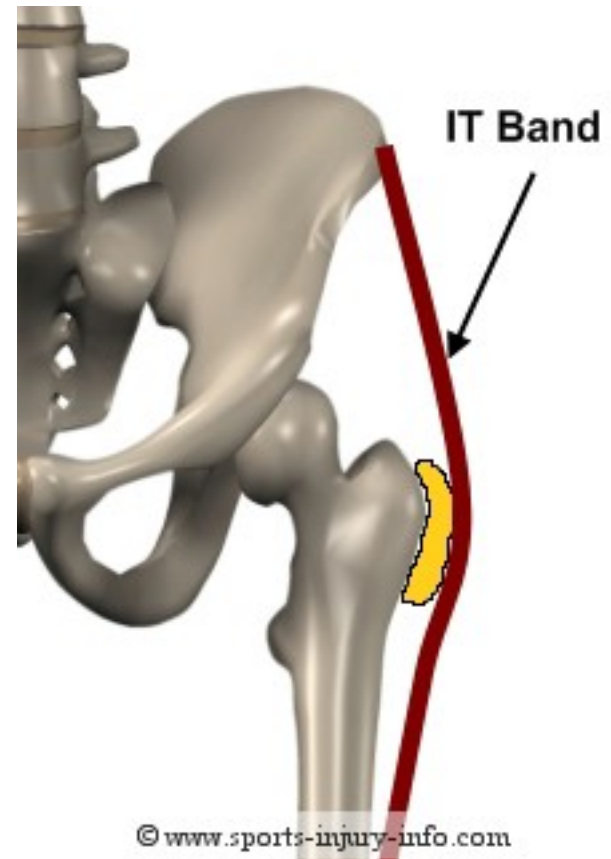
Common cause #2:
Greater Trochanteric
Bursitis



Greater Trochanteric Bursitis:

History

- Pain at night
- Pain is usually lateral
- Can radiate to the knee



Greater Trochanteric Bursitis:

Exam

- Full range of motion with no or minimal pain (negative windshield wiper test)
- Pain to palpation over the greater trochanter



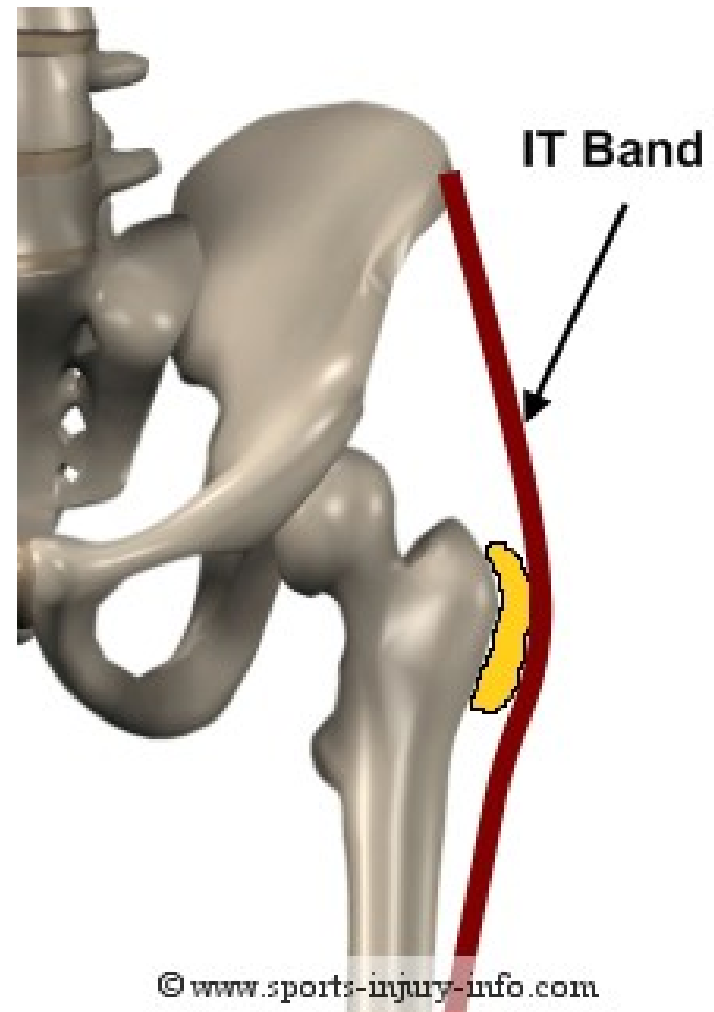
Greater Trochanteric Bursitis: **Studies**

- X-rays = Normal



Greater Trochanteric Bursitis: Treatment

- Stretches/NSAIDs
- Cortisone injection



Stretches for Hip Bursitis

- Supine cross-over



- Standing wall lean



CA LIC. # 23POI4U203

Family Physician Medical
Group Inc.

245290WUFCSD

8232 Garvey Avenue, Suite 107 , Rosemead, CA 91770

TEL: (800) 518-9505 FAX:

PATIENT NAME: THOMAS BOOK

DOB: 12/01/1976

ADDRESS:

DATE: 03/22/2004

Rx Dx= (R) HipTrochanteric Bursitis
Rx= ITB, Gluteal, TFL eccentric
PREs and Stretches
2 - 3x/wk + HEP x4wks

_____, MD

John Doe MD

☐ LABEL

☐ DO NOT SUBSTITUTE

Cortisone Injection



HIP PAIN

Common cause #3:
Back Problems



Hip Pain from Spine **History**

- Pain that radiates below the knee
- Numbness/tingling
- Back pain

Hip Pain from Spine Exam

- Normal, pain free range of motion
- No trochanteric tenderness
- Radicular findings
 - decreased sensation
 - weakness
 - reflex changes
- Hip Xrays = normal

Causes of Hip Pain (common things)

- Arthritis
- Greater Trochanteric Bursitis
- Lumbar Spine Pathology



Causes of Hip Pain (less common things)



- Avascular Necrosis
- Femoral-Acetabular Impingement
- Labral Tears

HIP PAIN

Uncommon cause #1:

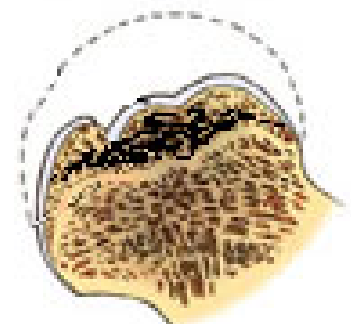
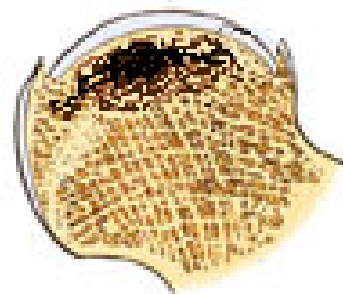
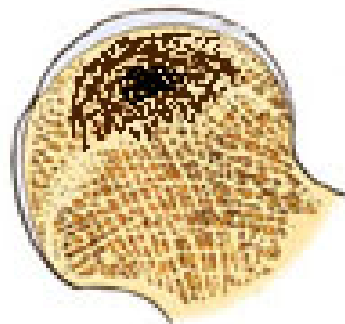
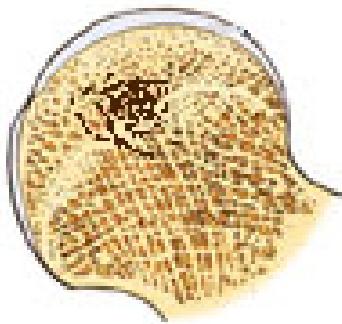
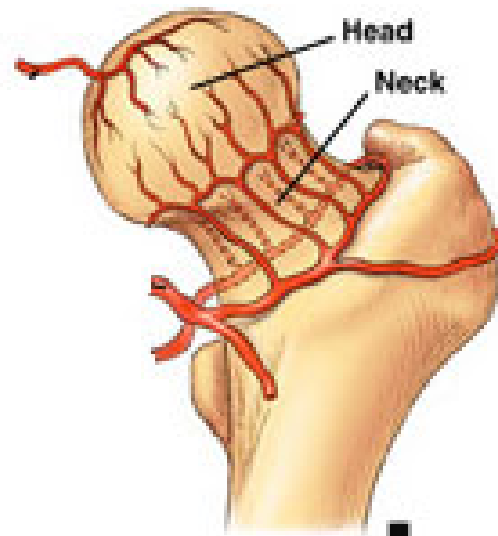
Avascular Necrosis
Of the
Femoral Head

HIP PAIN

Uncommon cause #1:

Avascular Necrosis
Of the
Femoral Head











AVN: Signs and Symptoms

Hx:

- Systemic Corticosteroids
- Alcoholism
- Vaso-occlusive diseases

PE:

- Positive “Windshield wiper” sign

AVN: Treatment

Early (pre-collapse) stages

- Core decompression operation
- Non-wt bearing

Late (post-collapse) stages

- Hip replacement

Core decompression operation



AVN: Treatment

Early (pre-collapse) stages

- Core decompression operation
- Non-wt bearing

Late (post-collapse) stages

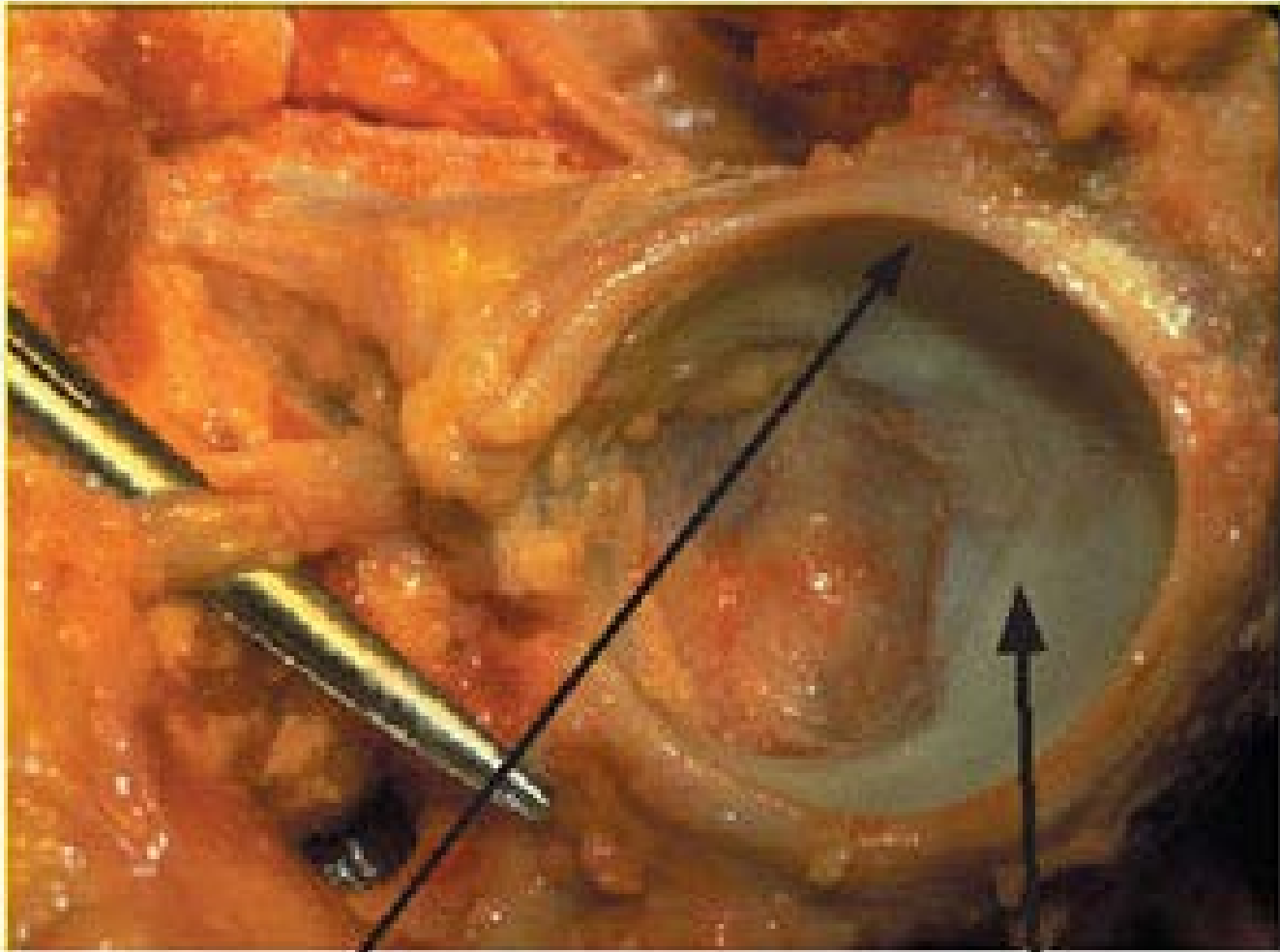
- Hip replacement

HIP PAIN

Uncommon causes #2&3:

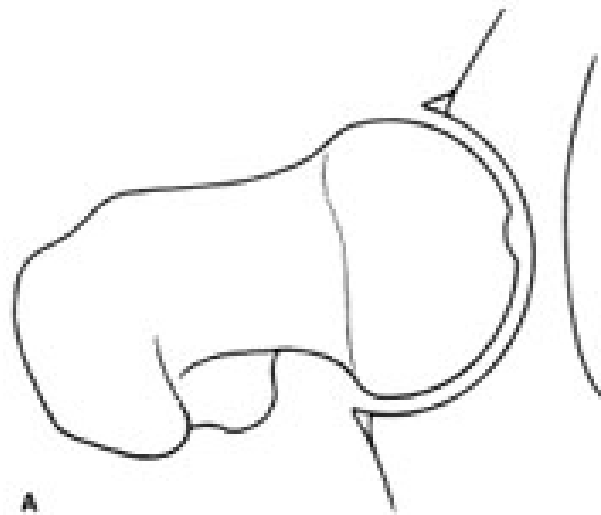
Labral Tears and Femoral-
Acetabular Impingement

Labral Tears

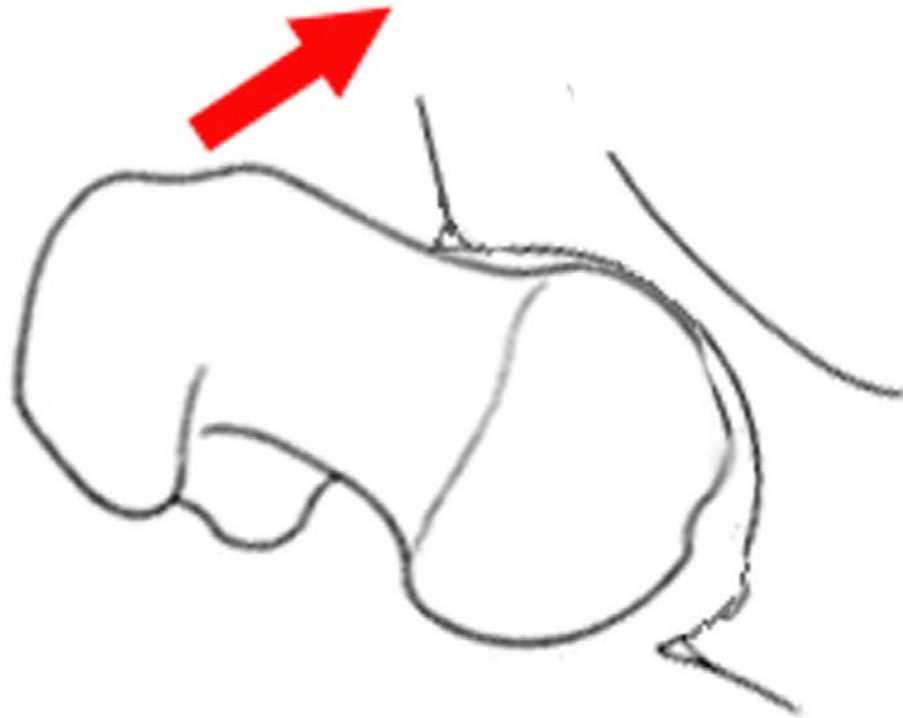


LABRUM

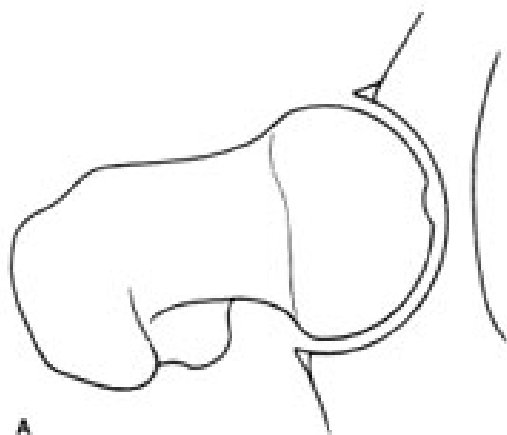
CARTILAGE



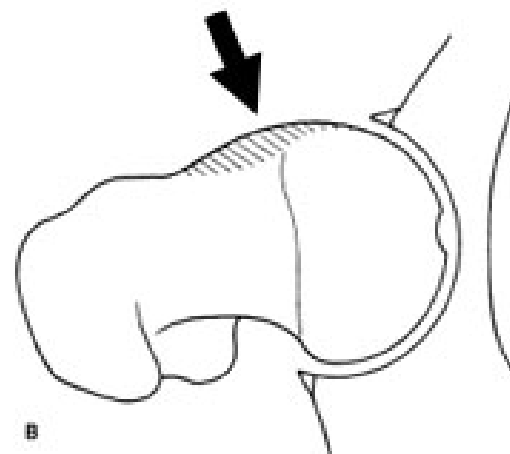
Normal



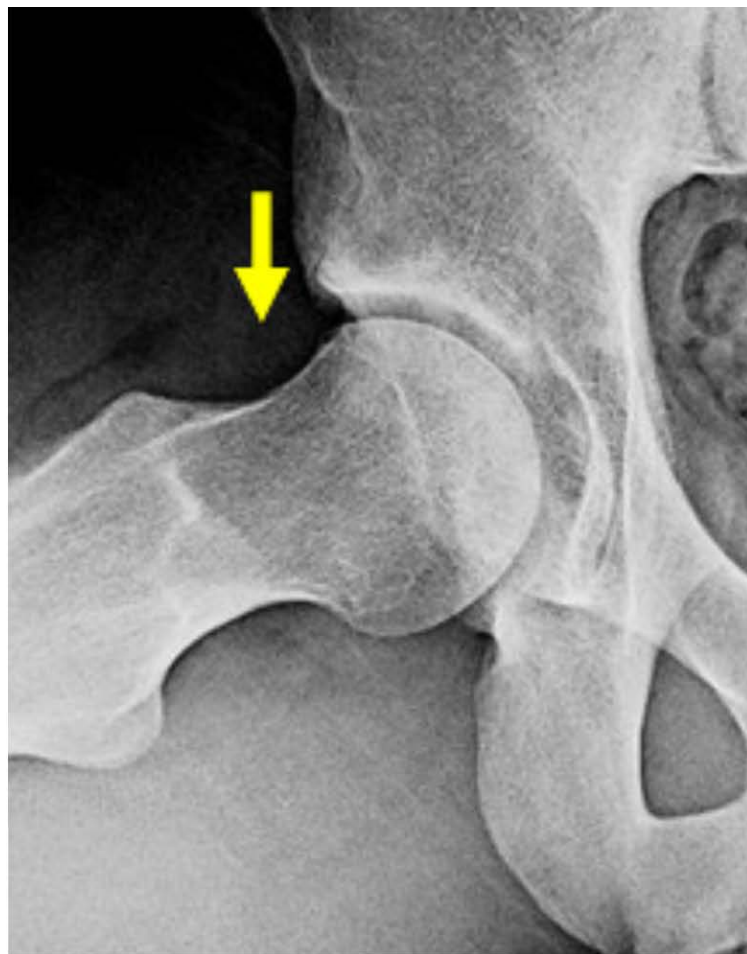
**Maximal internal
rotation position**



Normal

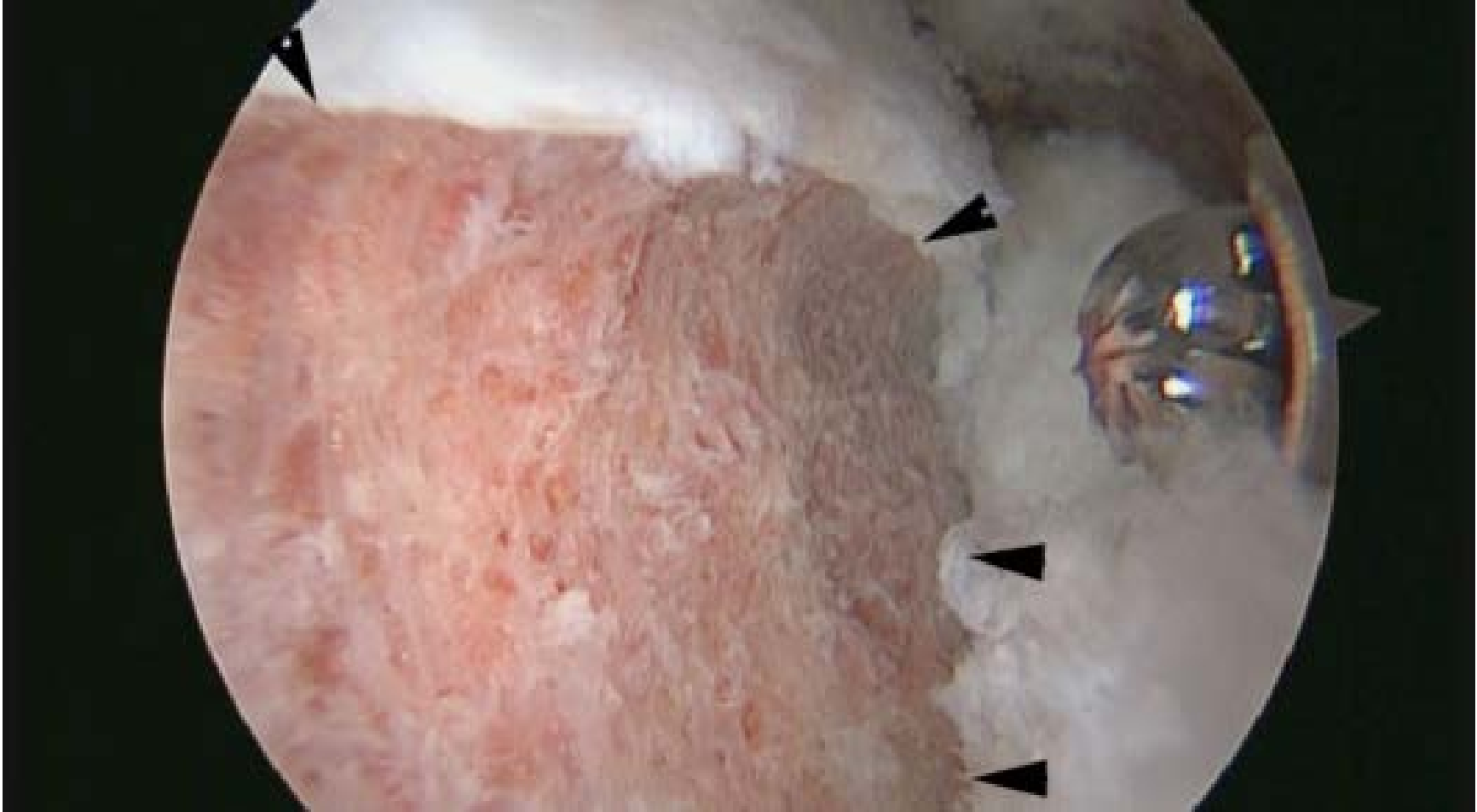


**Femoral
Impingement**



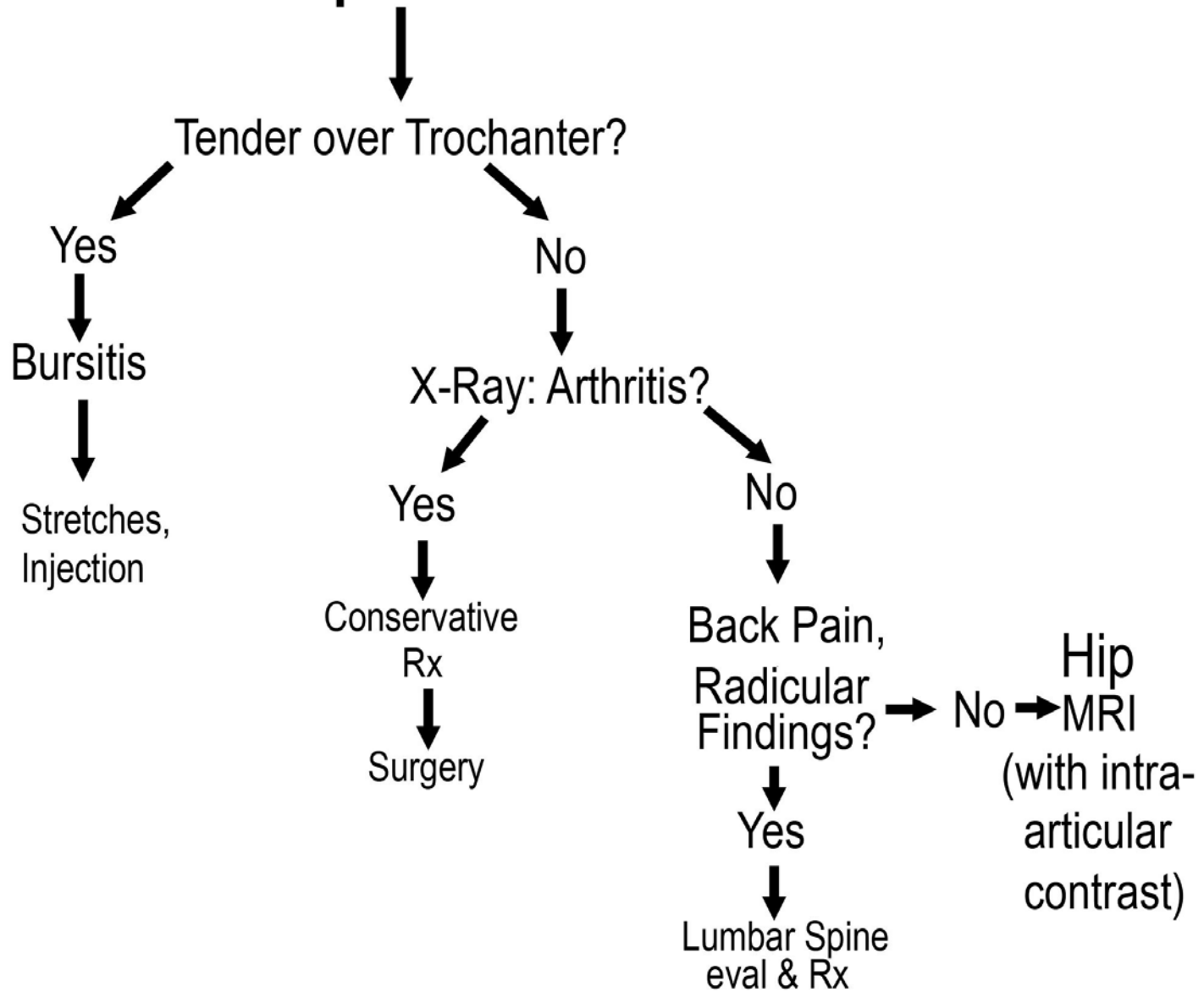








Hip Pain



CA LIC. # 23POI4U203

**Family Physician Medical
Group Inc.**

245290WUFCSD

8232 Garvey Avenue, Suite 107 , Rosemead, CA 91770

TEL: (800) 518-9505 FAX:

PATIENT NAME:

THOMAS BOOK

DOB: 12/01/1976

ADDRESS:

DATE: 03/22/2004

R_x

(R) Hip MRI Anthrogram

R/O Labral Tear

_____, MD

John Doe MD

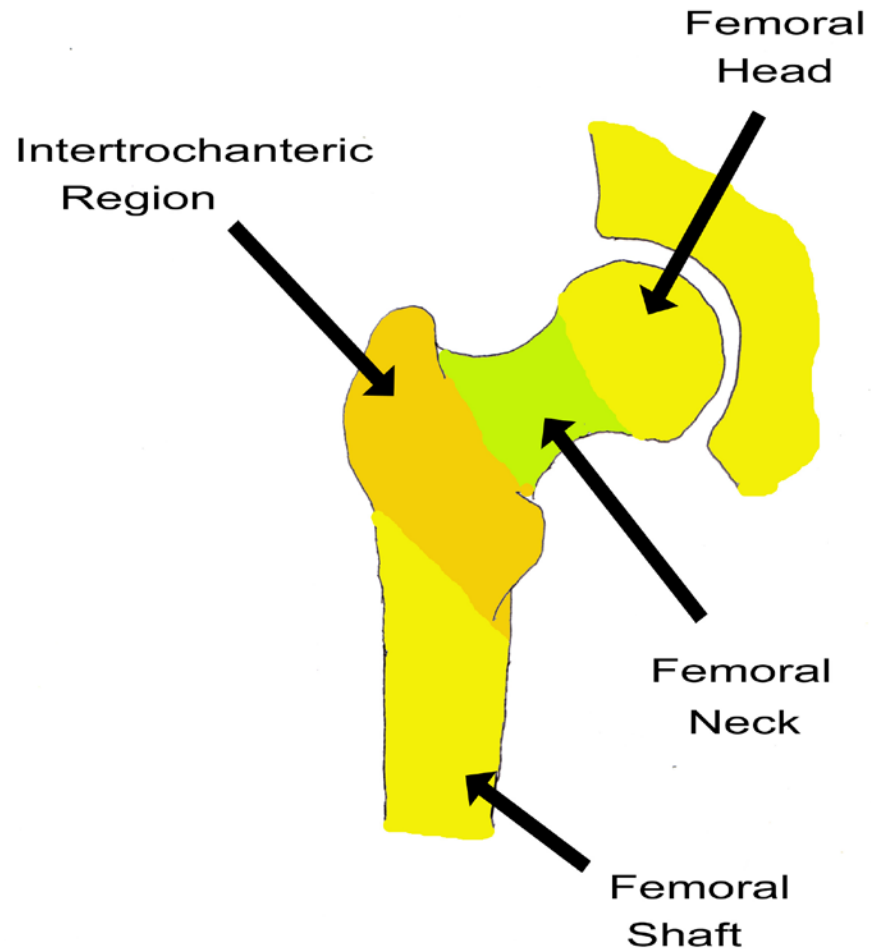
☐ LABEL

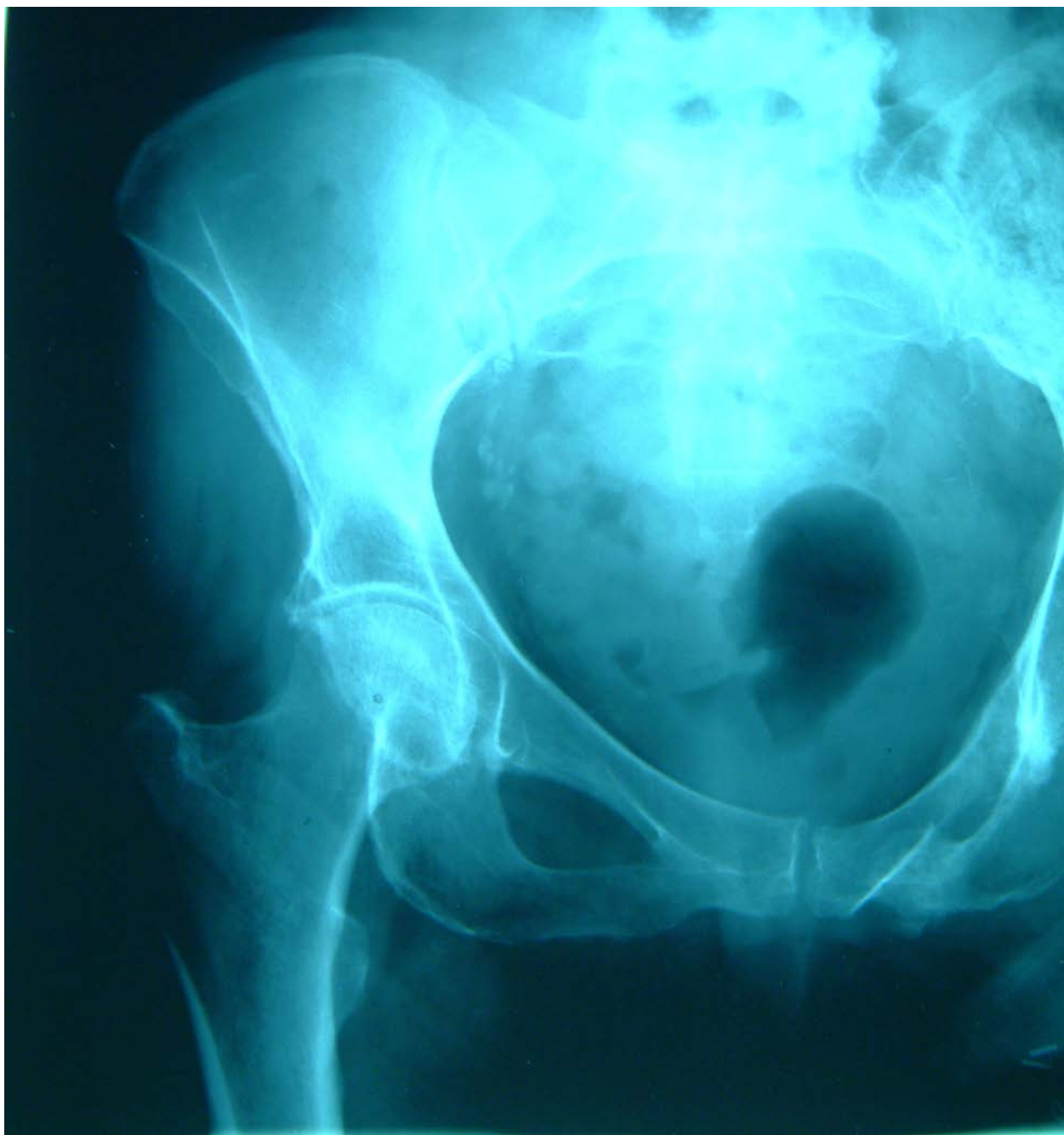
☐ DO NOT SUBSTITUTE

Hip Fractures:

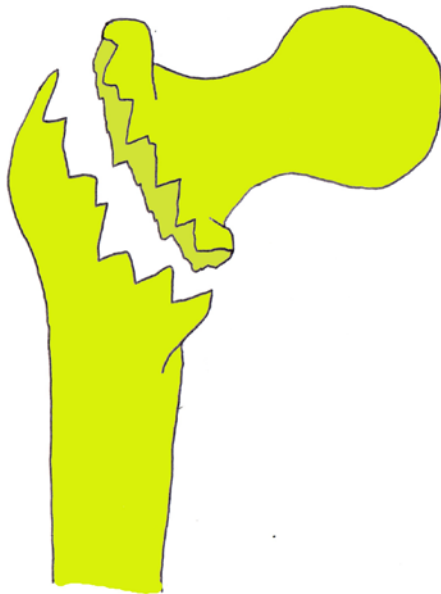
- Common orthopaedic problem
- Poorly understood

Anatomy

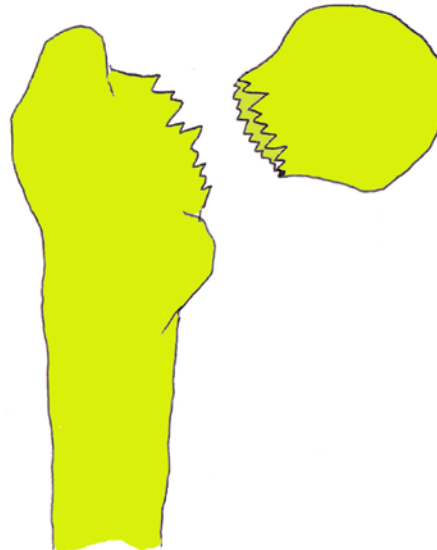




Types of Hip Fractures



Intertrochanteric
Fracture



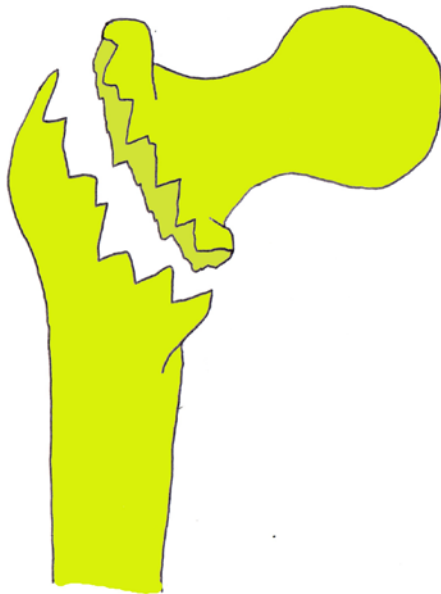
Femoral
Neck Fracture

Treatment of Hip Fractures: SURGERY

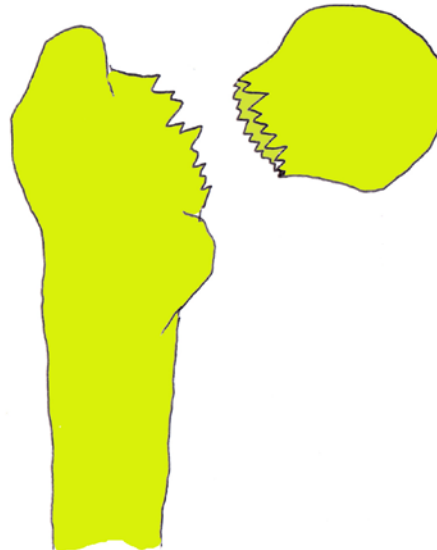
Goals of Treatment

- Decrease mortality
- Preserve ability to ambulate
- Decrease pain

Types of Hip Fractures

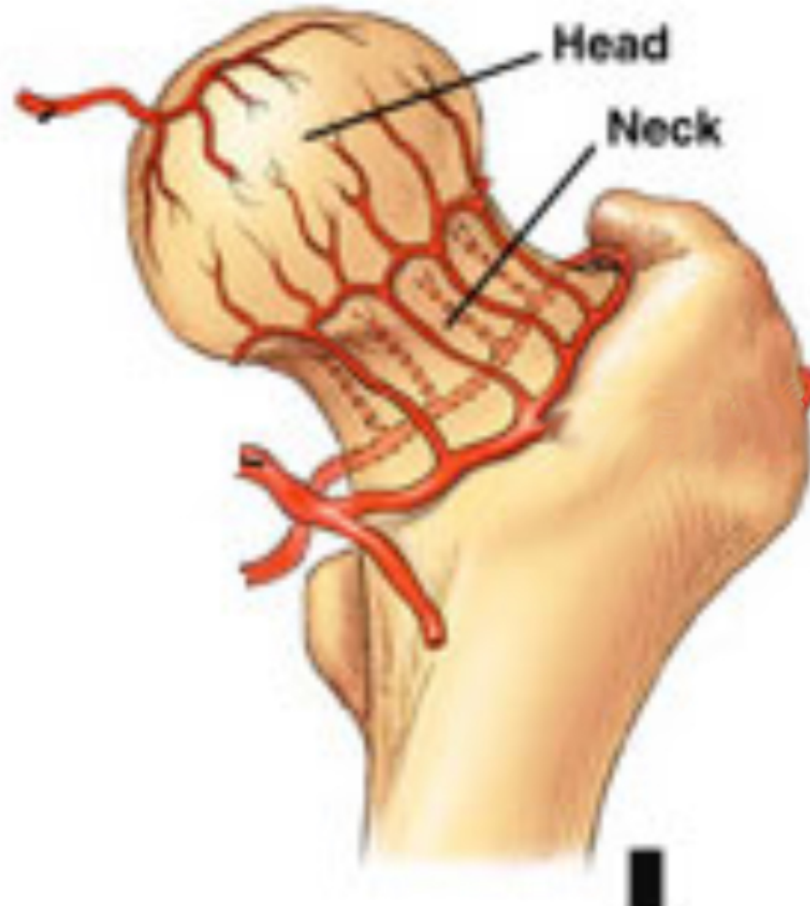


Intertrochanteric
Fracture

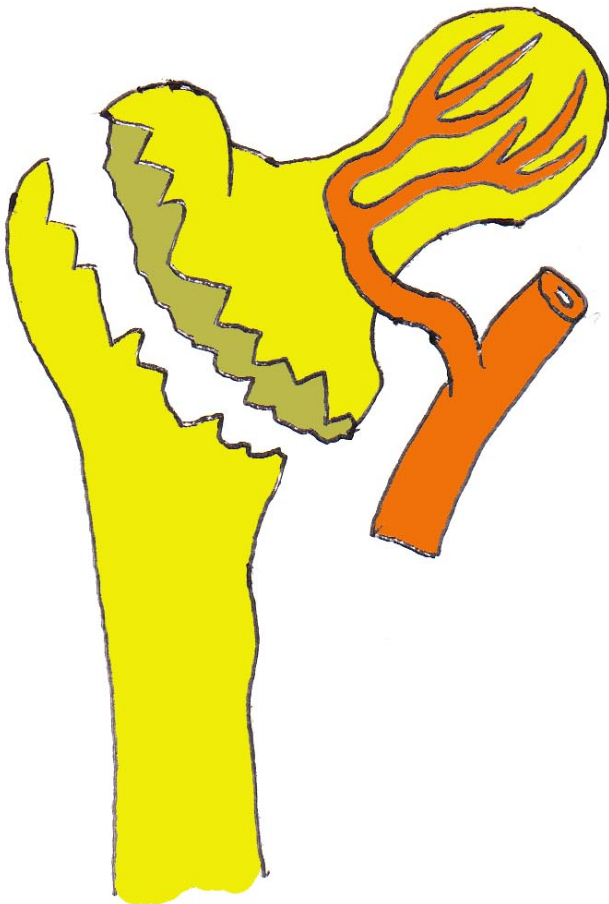


Femoral
Neck Fracture

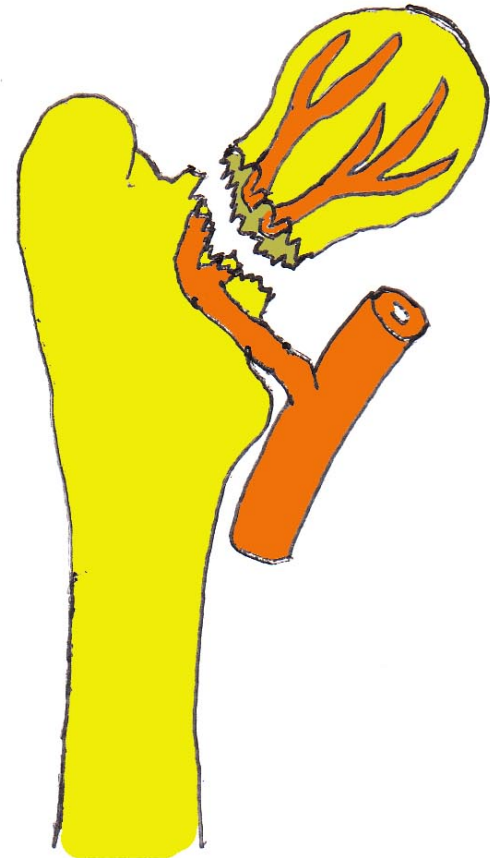
Blood Flow: the key to determining type of surgery

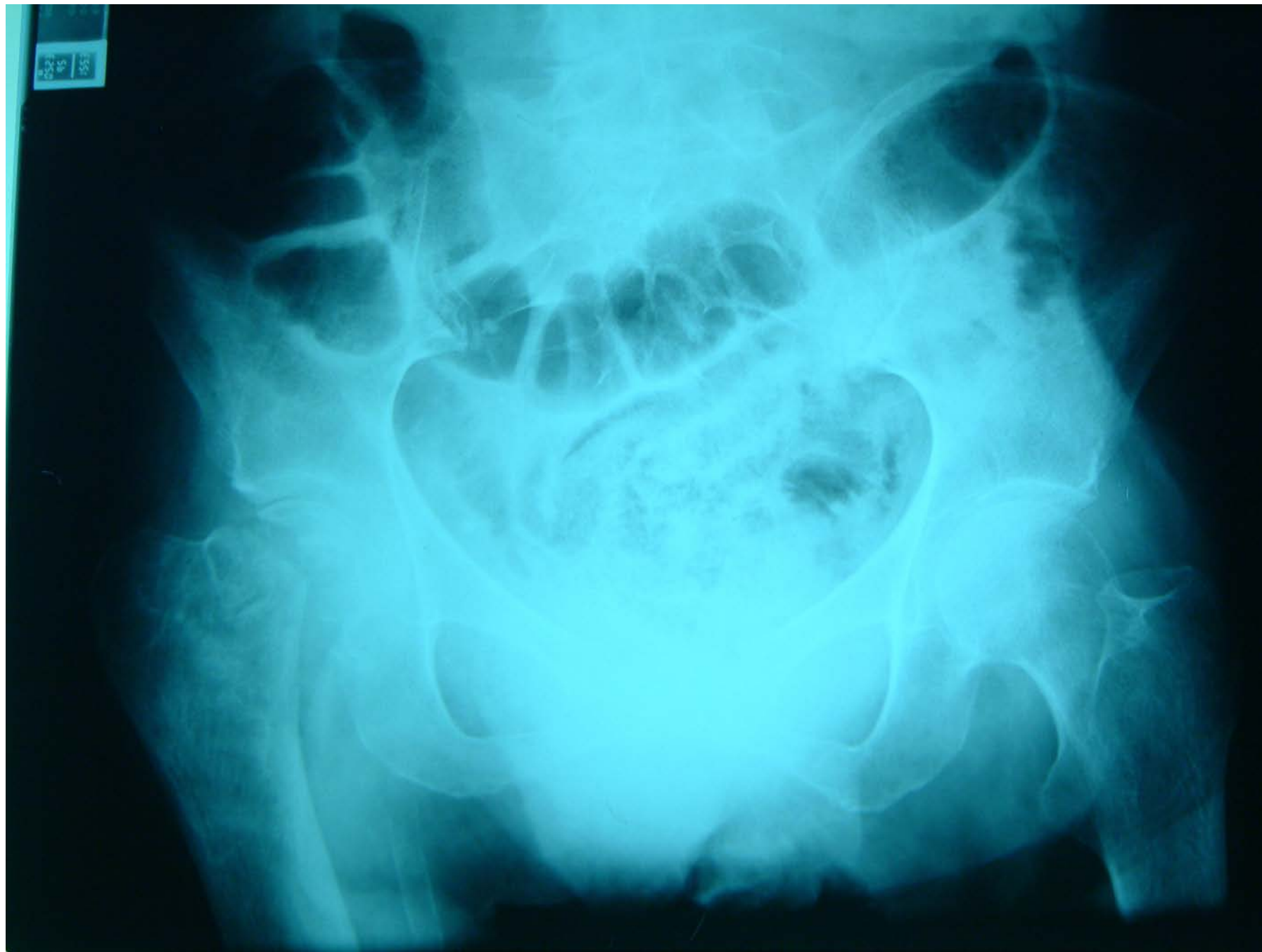


Intertroch fx

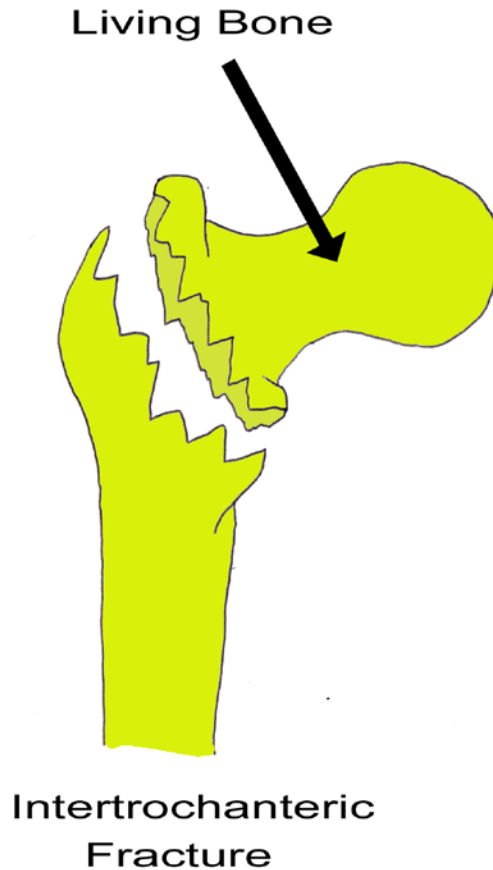


Femoral neck fx

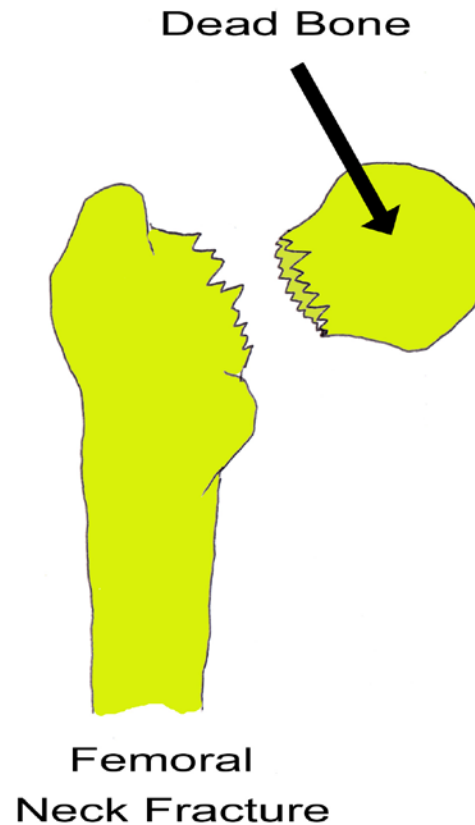




Intertroch fx:
osteosynthesis



Femoral neck fx:
Hip replacement



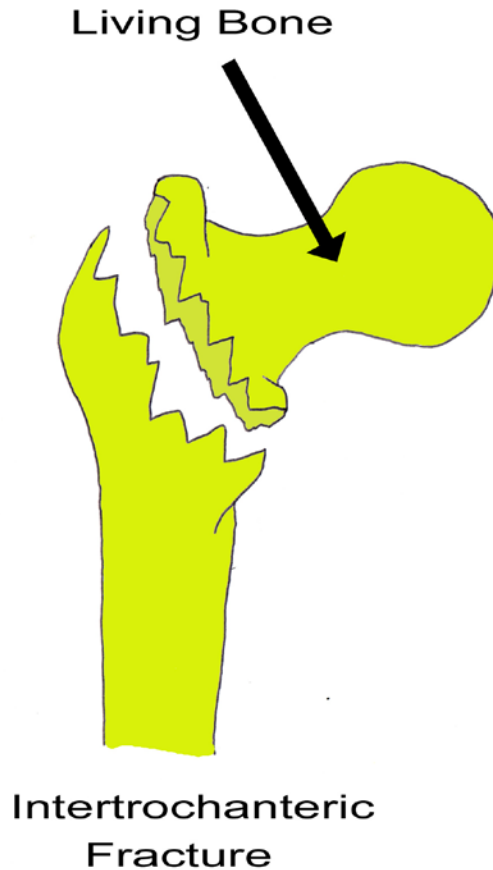
Fracture Table



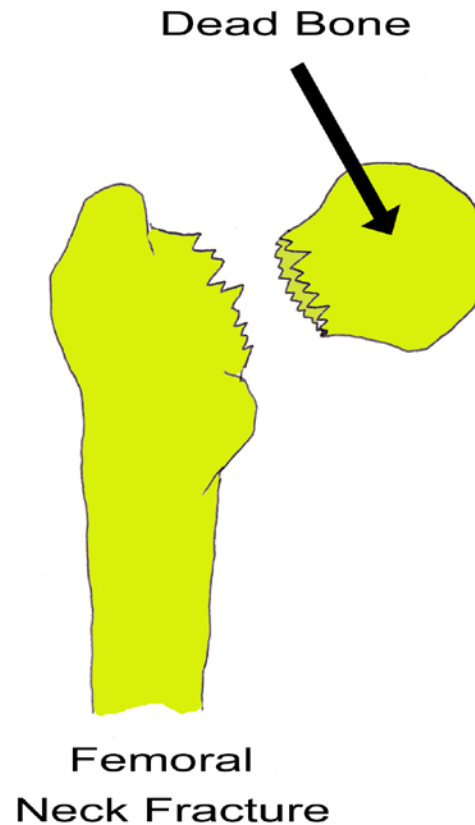
Osteosynthesis (for intertrochanteric fxs)



Intertroch fx:
osteosynthesis



Femoral neck fx:
Hip replacement





Example Cases

Tips:

- 1) Look for the “hour glass” of the femoral neck
- 2) If it's on the border, it's an intertrochanteric fracture



Copy
WO# 53347

1601 East 19th Ave. Suite 100
Denver, Co. 80218-0001

354774
05/21/79
0001 1000-1000

R
MM



6090

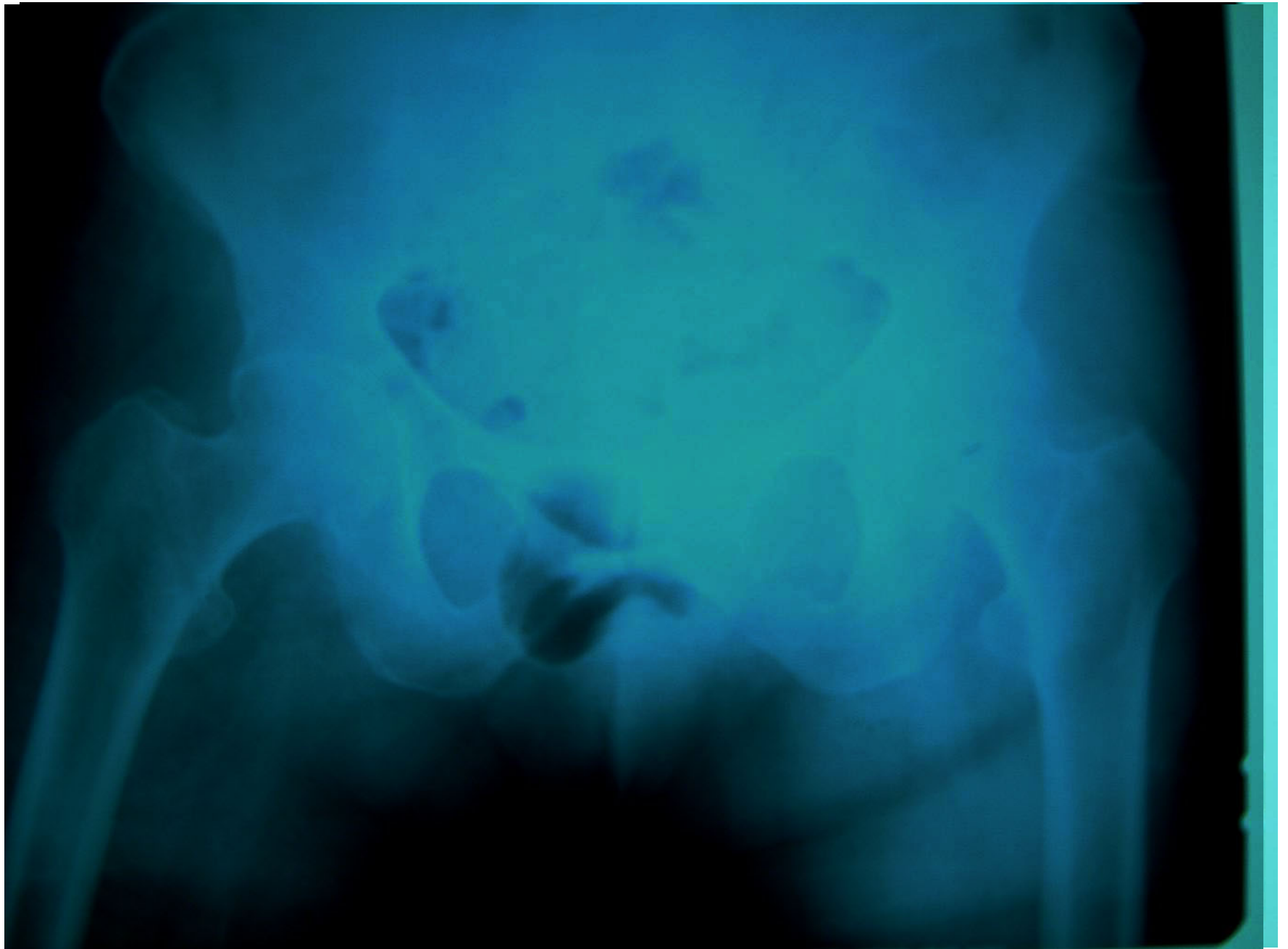
4

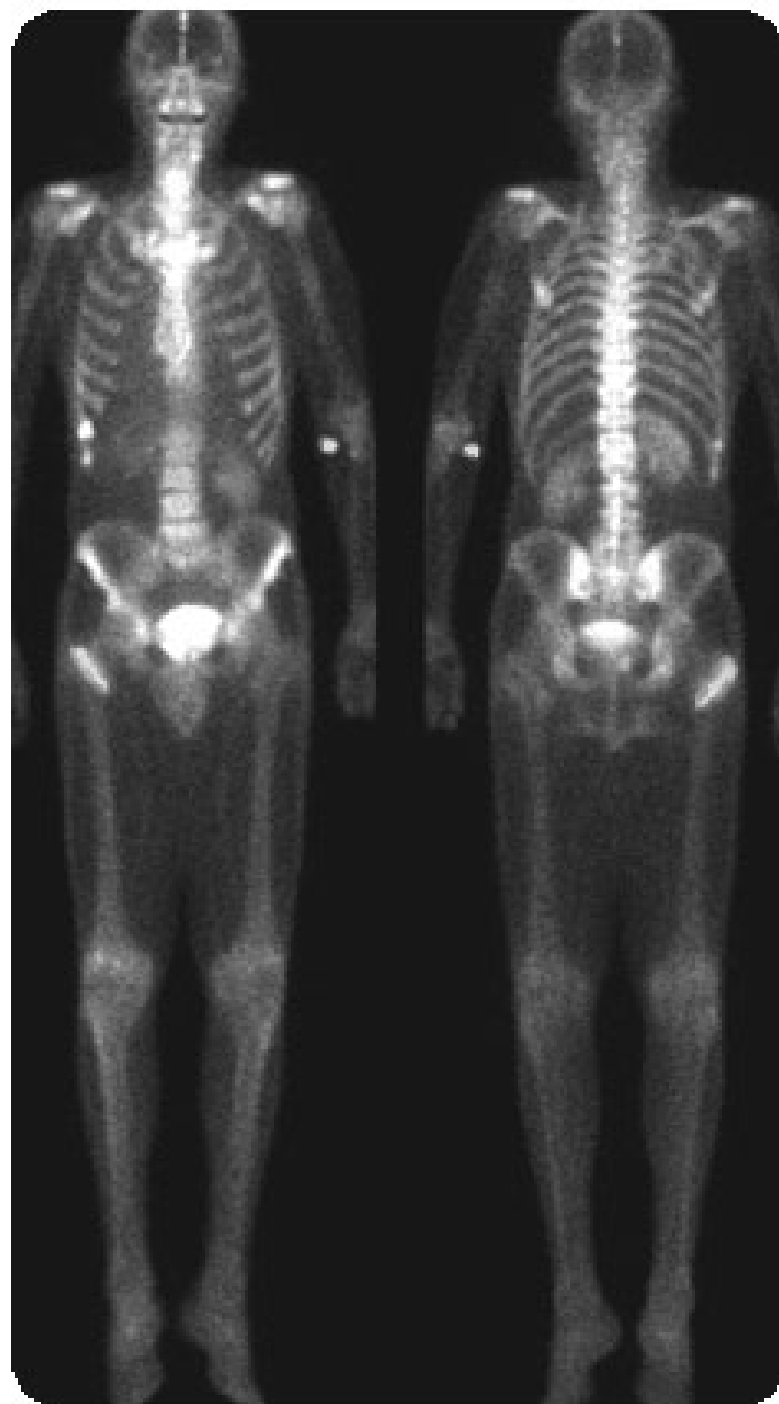


RIGHT • LR

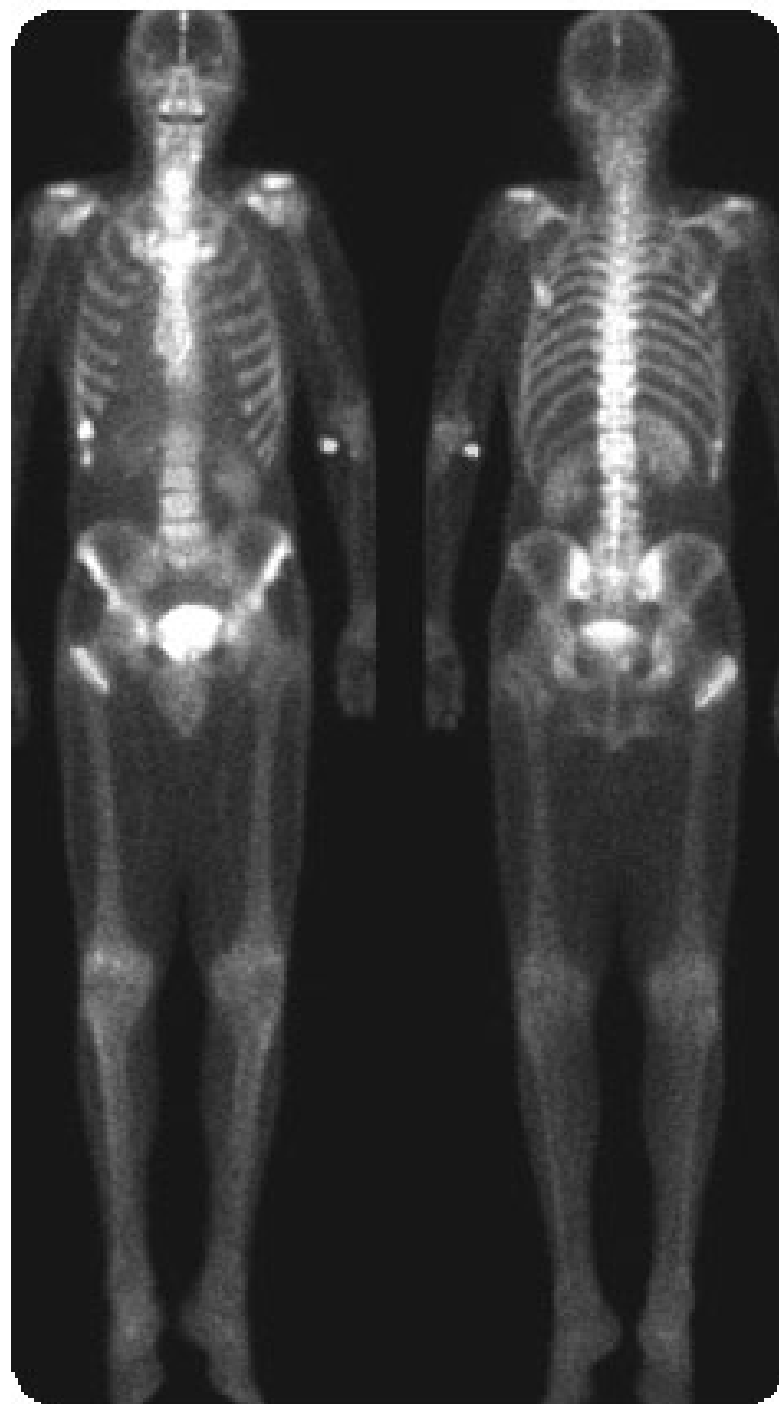
RIGHT • LR
15101102
18
15101102
18
15101102
18

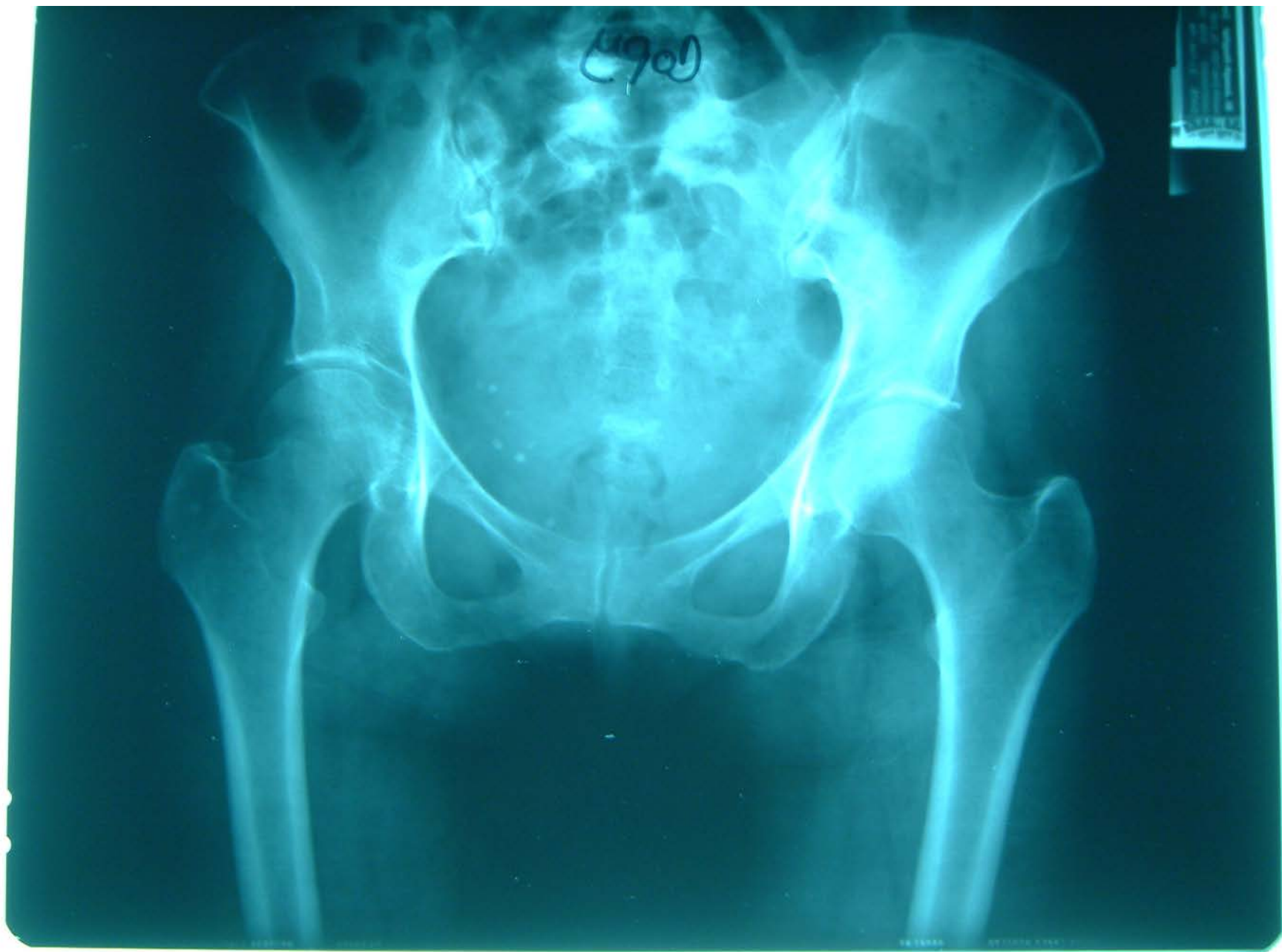


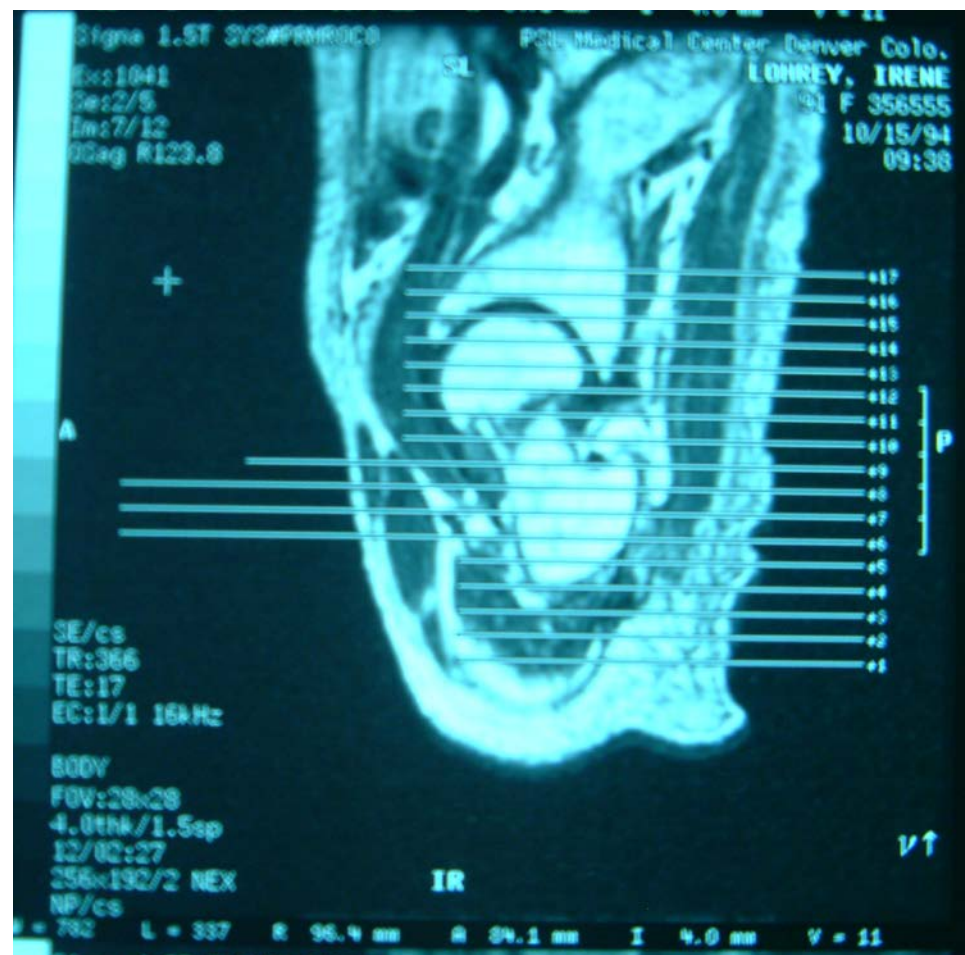




How Does a Bone Scan work?







How Does an MRI Work?

PSU Medical Center Denver Colo.

21

LONREY, IRENE

1981 F 356555

10/15/94

09:39

00ag R123.8

09:39

SE/cs
TR:366
TE:17
EC:1/1 16kHz

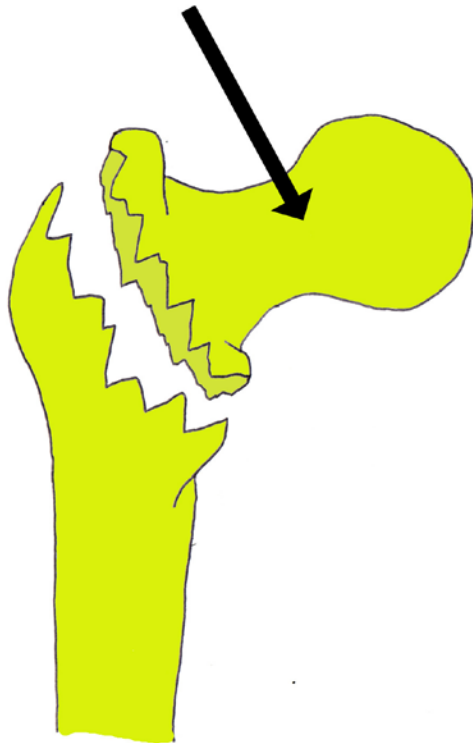
BODY
FOV:28x28
4.0tHA/1.5sp
12/02:27
256x192/2 NEX
NP/cs

IR

 $\nu \uparrow$

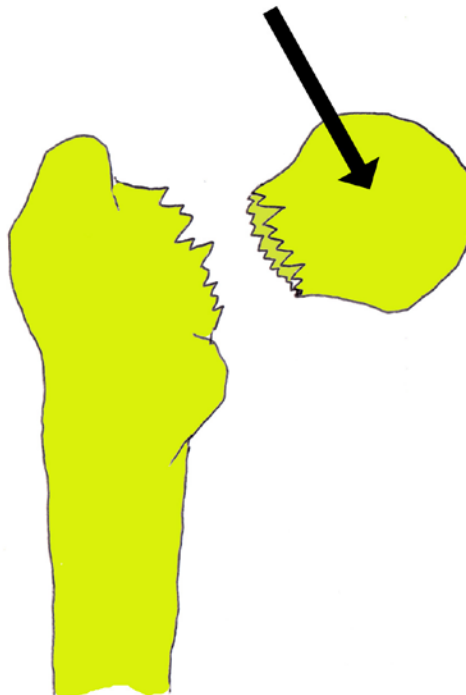
$V = 782$ $L = 337$ $R = 95.4$ mm $A = 34.1$ mm $I = 4.0$ mm $V = 11$

Living Bone



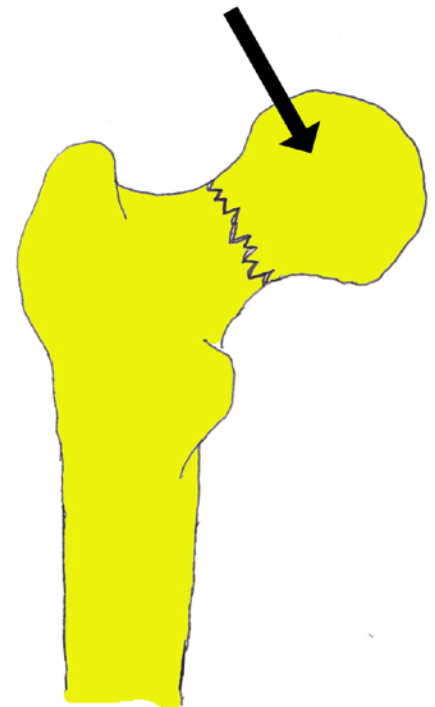
Intertrochanteric
Fracture

Dead Bone



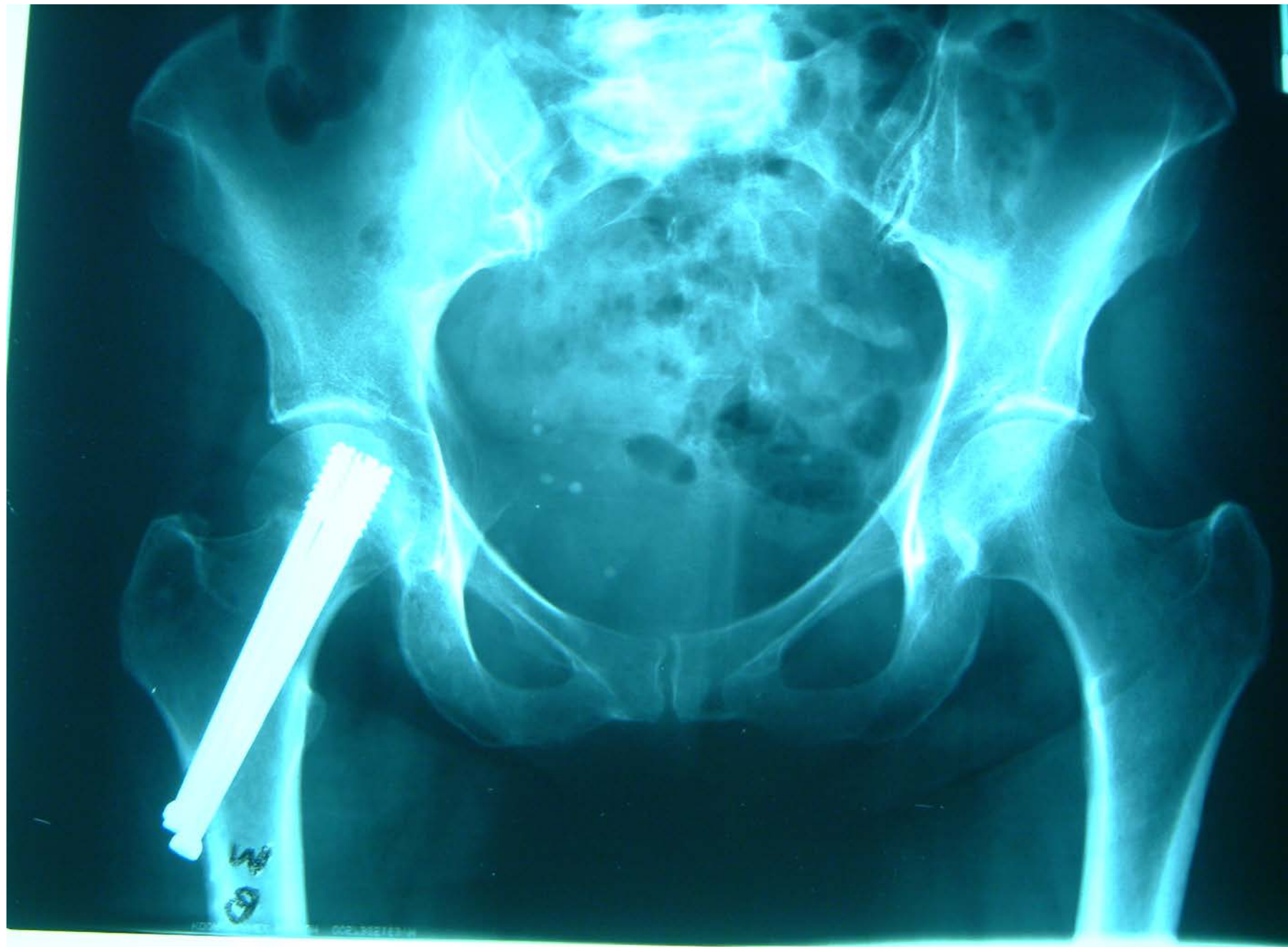
Displaced
Femoral
Neck Fracture

Living Bone



Non-Displaced
Femoral Neck
Fracture









Thank You!

Ted Parks, MD

