MSK BONY PELVIS 1-30-24

Bony Pelvis Osteo/Abscess (Tumor less than 8)

If ordered as MR Hip w & w/o (Rt or Lt)—OK to keep it. Call reading room so they read it out correctly

1. 3 Pl loc ►**All sequences SKIN TO SKIN**
2. Cor T1 ►**Cover pathology**
3. Cor FSTIR ►**Large FOV cover whole bony pelvis and soft tissue**
4. Ax T1 **Iliac Crest through lesser trochanter**
5. Ax T2 dk fat
6. Sag T1 **Cover whole bony Pelvis & pathology**
7. Sag FSTIR

FOR TUMOR—PRE AX T1 FAT (1 nex-ok if grainy)

8.+c Cor T1 dk fat
9. +c Sag T1 dk fat
10. +c Ax T1 dk fat

►Metal /poor fat sat: for Ax T2 FAT substitute STIR or T2 No FAT. For T1 FAT substitute T1 No FAT. Only do IDEAL if requested.

Request: MRI wo/w Bony Pelvis

Contrast: Vueway 0.05mmol/kg Max 10

Peds under 2yo Multihance 0.1 mmol/kg Max 20 mL

Low eGFR inpatient Dose: No Change

Bony Pelvis Tumor (Power Injection)

1. 3 Pl loc ►**All sequences SKIN TO SKIN**
2. Cor T1 ►**Cover pathology**
3. Cor FSTIR ►**Large FOV cover whole bony pelvis and soft tissue**
4. Ax T2 Fat **Iliac Crest through lesser trochanter**
5. Ax T1
6. Sag FSTIR **Cover whole bony Pelvis & pathology**
7. Ax T1 Lava-Flex Pre (send in-phase and Out of Phase to SOURCE)

**OK to increase FOV to cover Skin to Skin

---After Pre—ensure to Manual prescan and select done, this will ensure subtractions are accurate

8. Ax T1 Lava-Flex 2min ►Prep scan inject and start timer, start scan at 2min
9. Cor T1 Lava-Flex **OK to increase FOV to cover Skin to Skin
10. Sag T1 Lava-Flex
11.+c Ax T1 Fat

**Subtract Pre from both post axials—send to ALI_STORE

►Metal: If Tumor is adjacent to metal implant, send Pre Ax T1 Lava-Flex and call RR to see if they want 2d metal sequences instead.
Ax T2 FAT substitute STIR or T2 No FAT. For T1 FAT substitute T1 No FAT. Only do IDEAL if requested.

Request: MRI wo/w Bony Pelvis

If ordered as MR Hip w & w/o (Rt or Lt)—OK to keep it. Add study note so they read it out correctly

POWER INJECTION
Inject @ 2ml/sec

Contrast: Vueway 0.05mmol/kg Max 10

Peds under 2yo Multihance 0.1 mmol/kg Max 20 mL

Nonspecific Hip Pain (Lt, Rt or Bilat) or Nonspecific Pelvic Pain (Lt, Rt or Bilat) Synovitis (w/wo contrast)

**If ordered as an individual Hip, always run the Cor and Sag of that hip
**If ordered as Bony Pelvis, rads should specify which hip to cover or to run bilateral Sag of each Hip.

1. 3 Pl Loc
2. Cor T1 (Large FOV [32-40+] --Bony Pelvis 2cm lateral to trochanters5/2.5) -2 slices posterior to sacrum and anterior to pubis symphysis
3. Cor STIR same coverage as Cor T1
4. Ax T1 (Large FOV [32-40] to include whole bony pelvis 5/2.5) **Iliac Crest through lesser trochanter**
5. Ax T2 dk fat same coverage as Ax T1 (Metal: Ax STIR)

Unilateral hip (Affected hip only):

6. Sag PD cl fat (4/1 18 FOV) **Hip to 2cm lateral to greater troch**
7. Cor T2 cl fat (4/1 20+ FOV) (Metal: Cor STIR)

Bilateral hips:

6. **Lt Hip** Sag PD cl fat (4/1) **Hip to 2cm lateral to gr troch**
7. **Rt Hip** Sag PD cl fat (4/1) **Hip to 2cm lateral to gr troch**

Synovitis (include unilat hip views above even if protocoled bilateral):
Large FOV (Cor & Ax) [32-40+] thinner slices 4/1 or 4/.5

10. PRE Ax T1 Fat (Both Hips) **3cm above joint to below lesser troch** (no fat if metal present)
11. +c Coronal T1 dk fat through hips, not full A/P bony pelvis coverage (no fat if metal present)
12. +c Axial T1 dk fat (both hips) **3cm above joint to below lesser troch** (no fat if metal present)

Request: MRI Bony Pelvis wo, MRI Hip wo (Rt or LT) or w/wo if contrast

Optional Contrast: Vueway 0.05mmol/kg Max 10

Peds under 2yo Multihance 0.1 mmol/kg Max 20 mL

Low eGFR inpatient Dose: No Change

HIP Prosthesis

Needs to be scanned on UH 1.5T, TAC1, 1SP MR2, Protocol is on 3T 750w and 750, but scan there ONLY if there is no other option. MAVRIC has to be scanned!! Should not be scheduled at RP!

MARK TOP & BOTTOM OF SCAR
Complete A/P coverage & skin to skin

1. 3 Pl loc
2. Ax T1 **Bilateral Hips** ► top of iliac crest to below implant
3. Ax STIR **Bilateral Hips**

--A/P coverage not necessary for MAVRIC Scans only, Include Implant and Pathology—

4. Cor PD MAVRIC Bilateral Hips
5. Cor fluid MAVRIC Bilateral Hips
6. Sag FSTIR **Affected hip**

If patient has bilateral implants, run Sag FSTIR of both hips

--Optional Contrast—

7.+c Cor T1 nofat **Bilat Hips**
8. +c Ax T1nofat **Bilat Hips**

Request: MRI Bony Pelvis wo or MRI Bony Pelvis w/wo

Contrast: Vueway 0.05mmol/kg Max 10

Peds under 2yo Multihance 0.1 mmol/kg Max 20 mL

Low eGFR inpatient Dose: No Change

Rapid ED Hip FX

1. 3 Pl Loc
2. Cor T1 (Large FOV [32-40+] Bony Pelvis 2cm lateral to trochanters 5/2.5) -2 slices posterior to sacrum and anterior to pubis symphysis
3. Cor STIR same coverage as Cor T1
4. Ax T2 dk fat (Metal: Ax STIR)

►above sacrum to below lesser trochanter (don't overscan)

Request: MRI Bony Pelvis wo, MRI Hip wo (Rt or LT)

Hip Tumor

**If Peds patient less than 8yo-pull less than 8yo Knee Tumor protocol: no power inject, run Pre Sag T1 and 3 planes post contrast

1.3 Pl loc
2. Cor T1
3. Cor FSTIR
4. Sag T2 Fat
5. Ax T2 Fat
6. Ax T1
7. Ax T1 Lava-Flex Pre (In and Out of Phase to SOURCE)
8. ---After Pre—ensure to Manual prescan and select done, this will ensure subtractions are accurate!
9. Ax T1 Lava-Flex 2 min ►Prep scan inject and start timer, start scan at 2min
10. Cor T1 Lava-Flex
11. Sag T1 Lava-Flex
12. +c Ax T1 Fat

**Subtract Pre from both post axials—send to ALI_STORE

►Metal: If Tumor is adjacent to metal implant, send Pre Ax T1 Lava-Flex and call RR to see if they want 2d metal sequences instead.
Ax T2 FAT substitute STIR or T2 No FAT. For T1 FAT substitute T1 No FAT.
Only do IDEAL if requested by radiologist

Request: MRI Hip w/w0

Contrast: Vueway 0.05mmol/kg Max 10

Peds under 2yo Multihance 0.1 mmol/kg Max 20 mL

Low eGFR inpatient Dose: No Change

HIP: Labrum Scope (3T required) / Hip Preservation

1. 3 Pl Loc **Affected Hip Only**
2. Cor T1 (4/1 20 fov) **Center at lesser troch**
3. Cor T2 cl fat
4. Sag 3D MERGE – cover hip joint
   ►**Reformat:** 1.5 mm in all 3 plane
   If at 1.5T, Sag 3d SPGR IDEAL reformat water series
   ►**ALI:** Water series & reformats
   ►**ALI_SOURCE:** Remaining source images
5. Sag PD cl fat (1.5T 4/.4 3T 3/.2 18FOV)
   ►**Center on joint Hip to 2cm lateral to greater troch**
6. Ax T1 (4/1 22 fov)
   ► **3cm above joint to below lesser troch**
7. Ax T2 cl fat
8. Oblique Ax PD cl fat (3/.3 22 fov)
   ► **Parallel to fem neck**

***Scan 9-11 FOR HIP PRESERVATION**
Webex the CT 3d Room with MR# and patient name and Rt or Lt side

9. Ax T1 Lava-Flex—include bilateral Hips ASIS through lesser trochanter
10. Ax T1—bilateral hips ASIS through lesser trochanter
11. 3pl loc—Knees GE Body Coil--(do not move coil, the scanner's body coil is utilized as the Transmit and receive coil)
12. Ax T1 GE Body Coil- Knees Above Patella to Fibular Head (do not move coil, the scanner's body coil is utilized as the Transmit and receive coil)

Request: MRI Hip wo

IMAGES

For Hip Preservation: Add an "3d Reconstruction from prior data set" order. Group Report for Powerscribe and MERGE exams in PACS.

SPORTS HERNIA/OSTEITIS PUBIS/PUBALGIA

1. 3 Pl loc
2. Cor STIR (Large FOV [32-40+] Bony Pelvis 2cm lateral to trochanters 5/2.5) 2 slices posterior to sacrum and anterior to pubis symphysis
3. Sag T2 cl fat (24 fov 4/1) **GRx on Ax loc**
   ►through ischial tuberosities
4. **Strt** Ax T2 fat (20 fov 4/1) **GRx on Cor loc**
   ►above acetab thru symphysis
5. **Obl** Cor T1 (24 fov 4/1)
   ► Scan parallel to symphysis, from ant symphysis through ischial tuberosities
6. **Obl** Cor FSTIR (24 fov 4/1)
7. **Obl** Ax T2 dk fat (20 fov 4/1) **Grx on Sag**,
   ► parallel to ilio-pubic cortex
   ► Anterior symph through ischial tuberosities
8. **Obl** Ax PD (20 fov 4/1) Copy coverage obl Ax T2

Request: MRI Bony Pelvis wo

**IMAGES*

S/I JOINTS for SACROILIITIS

Contrast: Vueway 0.05mmol/kg Max 10
Peds under 2yo Multihance 0.1 mmol/kg Max 20 mL

1. 3 Pl loc
2. Obl Cor T1 (FOV 22 3/.3) posterior just behind L5-disc through 3cm anterior to Sacrum ~15 slices.
   ► GRx on sag loc parallel to sacrum
3. Obl Cor FSTIR
4. Obl Ax T1 (FOV 22 4/1.5) L5 through Sacrum
   ► GRx on Obl Cor
5. Obl Ax T2 dk fat
6. Obl Cor T1 Lava-Flex (2.6mm, 82loc)
7. Obl Cor oZTEo Bone (if Available)

---optional contrast---

8. +c Obl Cor T1 dk fat Copy coverage from pre
9. +c Obl Ax T1 dk fat Copy coverage from pre

Request: MRI Bony Pelvis wo or MRI Bony Pelvis w & wo

IMAGES

Routine SI Joint imaging can be wo contrast. Scan as ordered, Rads can change to "w/o series only" for a Bony Pelvis, some indication may require contrast

Low eGFR inpatient Dose: No Change

Coccydynia (wo) / Sacrococcygeal Osteomyelitis (w/wo)

1. 3 Pl loc **Images**
2. Obl Cor T1 (FOV 22 4/0.5) Posterior spinal canal at L5-S1 through coccyx
   ► GRx on sag loc parallel to sacrum
3. Obl Cor FSTIR
4. Obl Ax T1 (FOV 22 4/1.5) L5 through coccyx
   ► GRx on Obl Cor
5. Obl Ax T2 dk fat
6. Sag T1 (FOV 22 2/.2) Coccyx
7. Sag T2 dk Fat

   Sacrococcygeal Osteomyelitis---(if for sacral + ischial osteomyelitis use Osteo/Abscess Bony Pelvis protocol for full pelvis FOV sequences)

8. +c Obl Cor T1 dk fat Copy Coverage from pre
9. +c Obl Ax T1 dk fat Copy Coverage from pre
10. +c Sag T1 dk fat Copy Coverage from pre

Request: MRI Bony Pelvis wo or MRI Bony Pelvis w & wo

Contrast: Vueway 0.05mmol/kg Max 10

Peds under 2yo Multihance 0.1 mmol/kg Max 20 mL

Low eGFR inpatient Dose: No Change

MSK TIPS:

- **SHIM all Fat sat scans!!**
- **Patients should have their hands on their chest for bony pelvis imaging. Hands will wrap on MAVRIC and single hip view**

Include in Study notes: Date of injury? previous surgery?

<u>Coil</u>:

8 Ch Cardiac

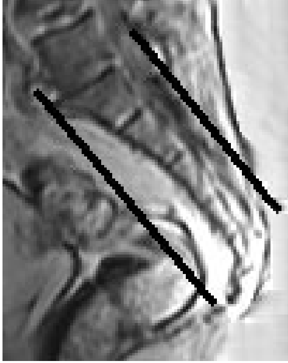
32 Ch Torso

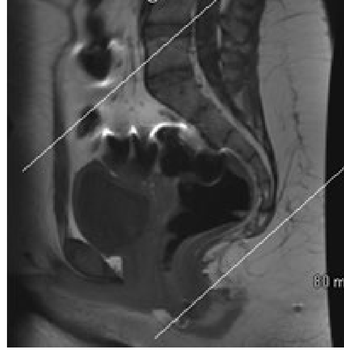
GEMS: 30 SMALL

Only use 32 body array if x-large patient

Set up for S/I Joint and Coccydynia protocol.

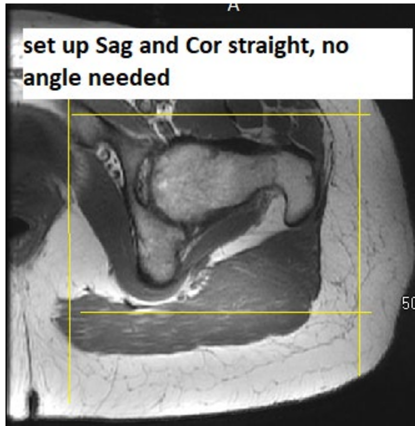
S/I joint only goes through Sacrum

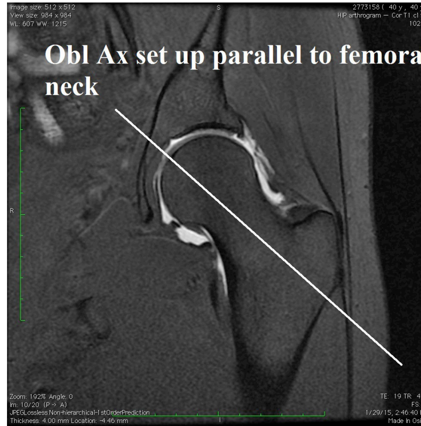




Back to Protocol

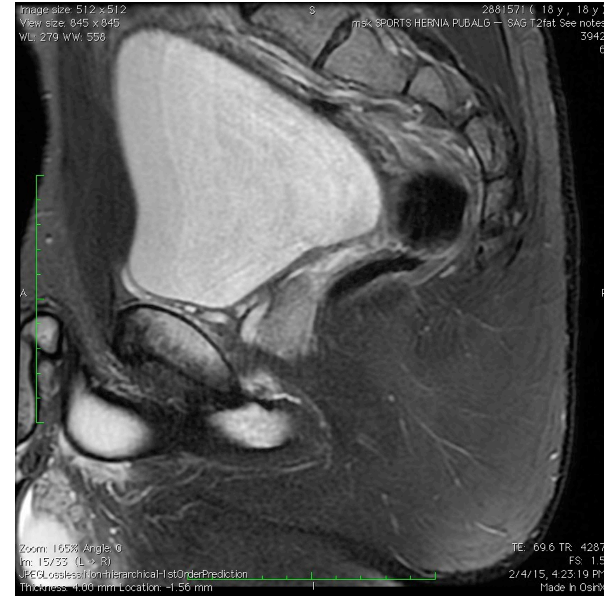
<u>Hip Labrum Scope set up:</u>



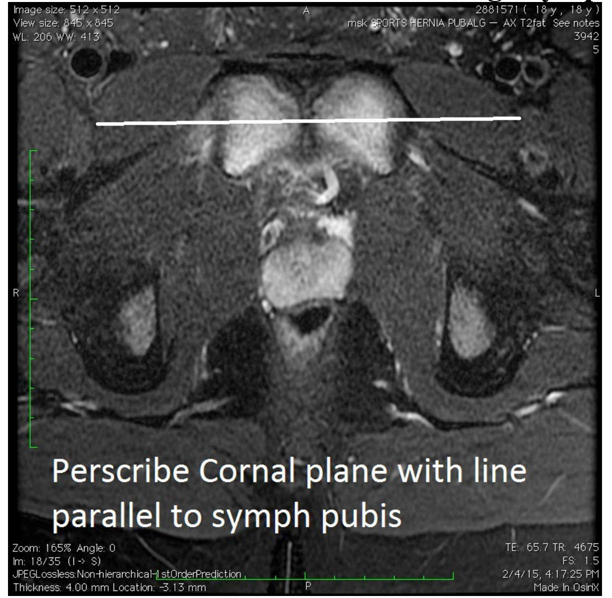


SPORTS HERNIA/OSTEITIS PUBIS/PUBALGIA: **Back to Protocol**

Sagittal: should look like this (Cover through ischial tuberosisties:

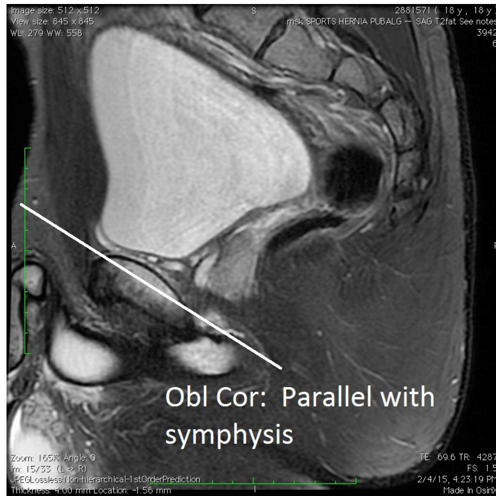


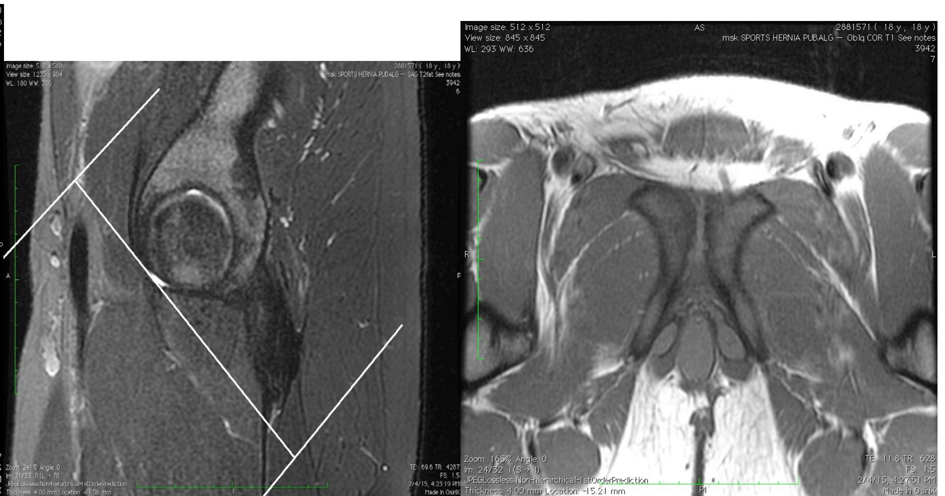
Straight Axial should look like this Cover from above Acetabulum through symph:



Obl Cor: Cover from ant symphysis through ischial Tuberosities

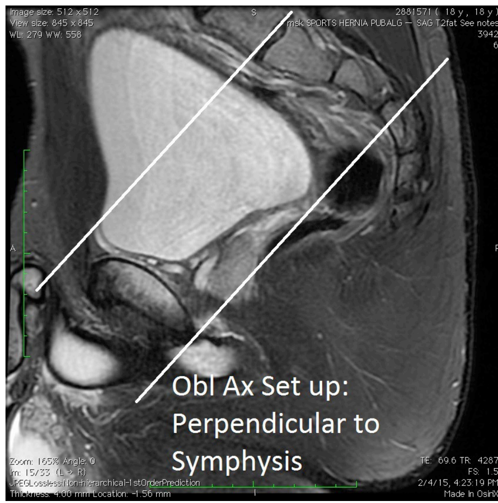
Obl Cor Should look like this:





Obl Ax:

Obl Ax should look like this:


Obl Ax Set up:
Perpendicular to
Symphysis