HOUSTON Methodist LEADING MEDICINE

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Computed Tomography (CT) - Hip Protocol

Name _____ Today's Date _____

Diagnosis ___***ICD-9 719.85***_____ Hip R / L

Imaging studies ordered: Hip CT with femoroacetabular impingement radiographic parameters and femoral and acetabular version analysis.

Protocol system basis: 64-channel CT scanner protocol based off of GE Lightspeed VCT 64-channel scanner; GE Medical Systems, Milwaukee, WI) that provides images on GE Centricity PACS-IW work station (GE Medical Systems).

Image acquisition: Axial acquisition at hip and pelvis with slice thickness 2.5 mm (retrospectively reconstructed to 0.625 mm), pitch 0.531:1, 512 x 512 resolution, 120 kVp, 400 mAs, acquisition algorithm bone, and reformation algorithm standard. Axial images reconstructed in coronal, sagittal, and oblique axial (oriented parallel to the plane of the femoral neck) planes. Axial acquisition of images also just above knee to knee joint line with slice thickness 2.5 mm with same parameters as hip/pelvis images. Please display 4 series: 1) Axial; 2) Axial Oblique; 3) Coronal; 4) Sagittal.

3-D reconstruction: Three-dimensional rendering performed on GE advantage workstation (running version 4.3 software), to create 11 3-D views of hip, each view rotated in the axial plane 32.7° relative to previous view, thus forming a 360° view of the hip. These 11 views should apply to an acetabulum/pelvis plus femoral head set (11 views), a femoral head only set (11 views), and an acetabulum/pelvis only set (11 views).

Position: Supine; Please keep feet and toes turned inward toward each other and taped together, so toes pointing straight up.

Joints: Hip and ipsilateral knee (distal femur only)

Radiation exposure: Modified radiation exposure protocol. If available, please use Adaptive Statistical Iterative Reconstruction, a dose-lowering algorithm designed by GE Healthcare that lowers radiation dose by an additional 20%, equates to 2.85 mSv at hip and 0.075 mSv to knee. The average annual background radiation dose in US is 3.6 mSv and average dose of single posteroanterior chest radiograph is 0.02 mSv. The effective dose for CT hip/pelvis is approximately 3 mSv.

Reading Radiologist:

Femoral version measurement: Please superimpose image of knee at posterior condylar axis and image of hip at femoral neck. Measure femoral version (torsion) via angle subtended by line drawn across posterior femoral condyle axis and line drawn through center of femoral neck.

Acetabular version measurement: Please measure at 3 separate axial (not axial oblique) through acetabulum: Cranial (1 o'clock; 5 mm distal to acetabular roof), Central (2 o'clock; through longitudinal center of acetabulum), and Caudal (3 o'clock; 5 mm proximal from most inferior edge of acetabulum). Please correct for pelvic rotation angle relative to patient position within CT gantry table (i.e. the angle between the posterior pelvic line and a straight horizontal line) on axial when measuring version.

Alpha angle: Please measure on oblique axial image through center of femoral neck and in direction of femoral neck.

Lateral center-edge angle: Please measure on coronal cut through center of femoral head.

Comments: This study is utilized for characterization of bony morphology and determination of amount of osseous resection needed during surgery. This is not for evaluation of labrum. Thus, no intra-articular contrast is used. Please call Dr Joshua Harris at 713-441-8393 with questions.

Signature _____ Date _____