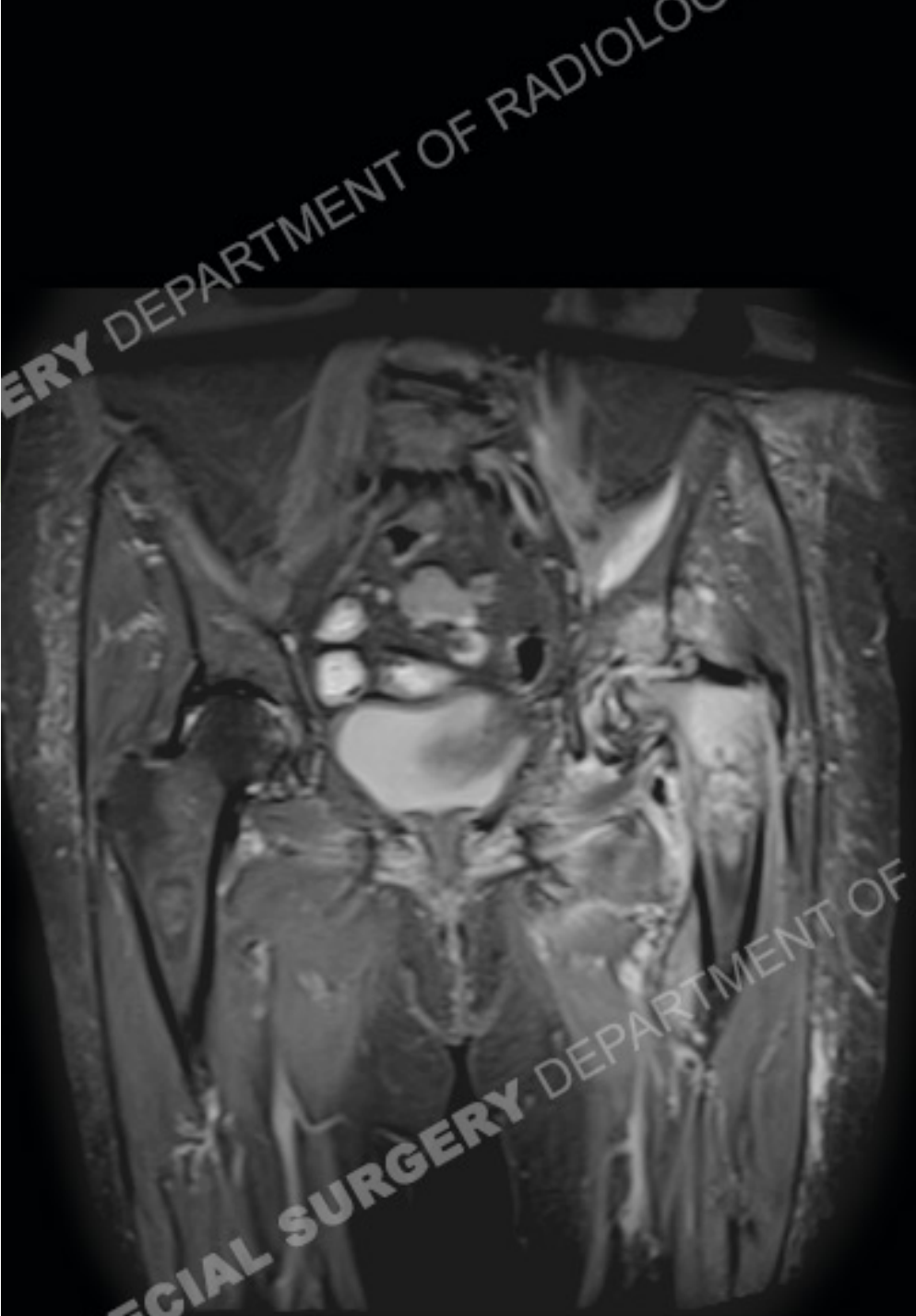


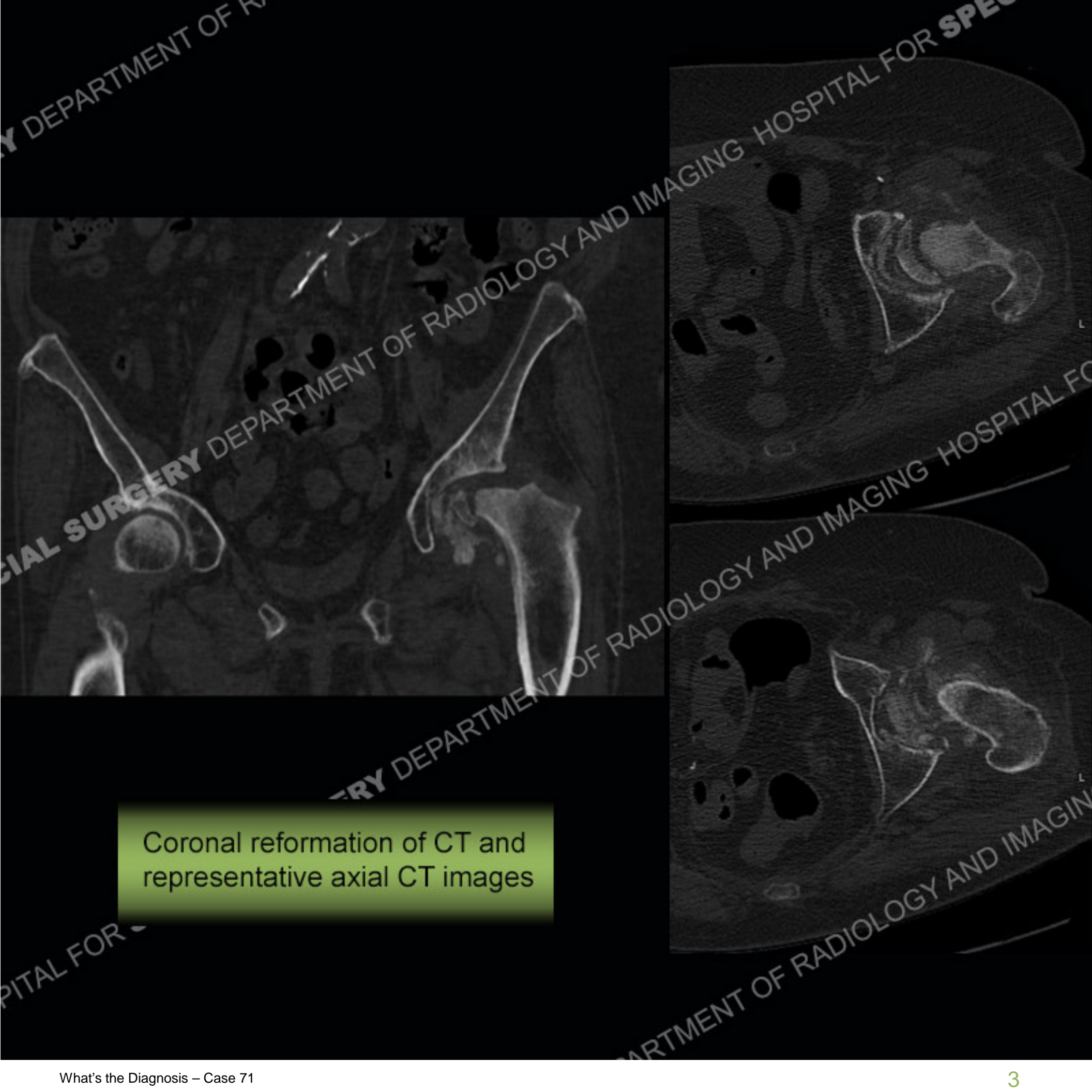
History: 75 year old woman with six weeks of increasing, severe hip pain. No trauma



IR Coronal



T1 Coronal



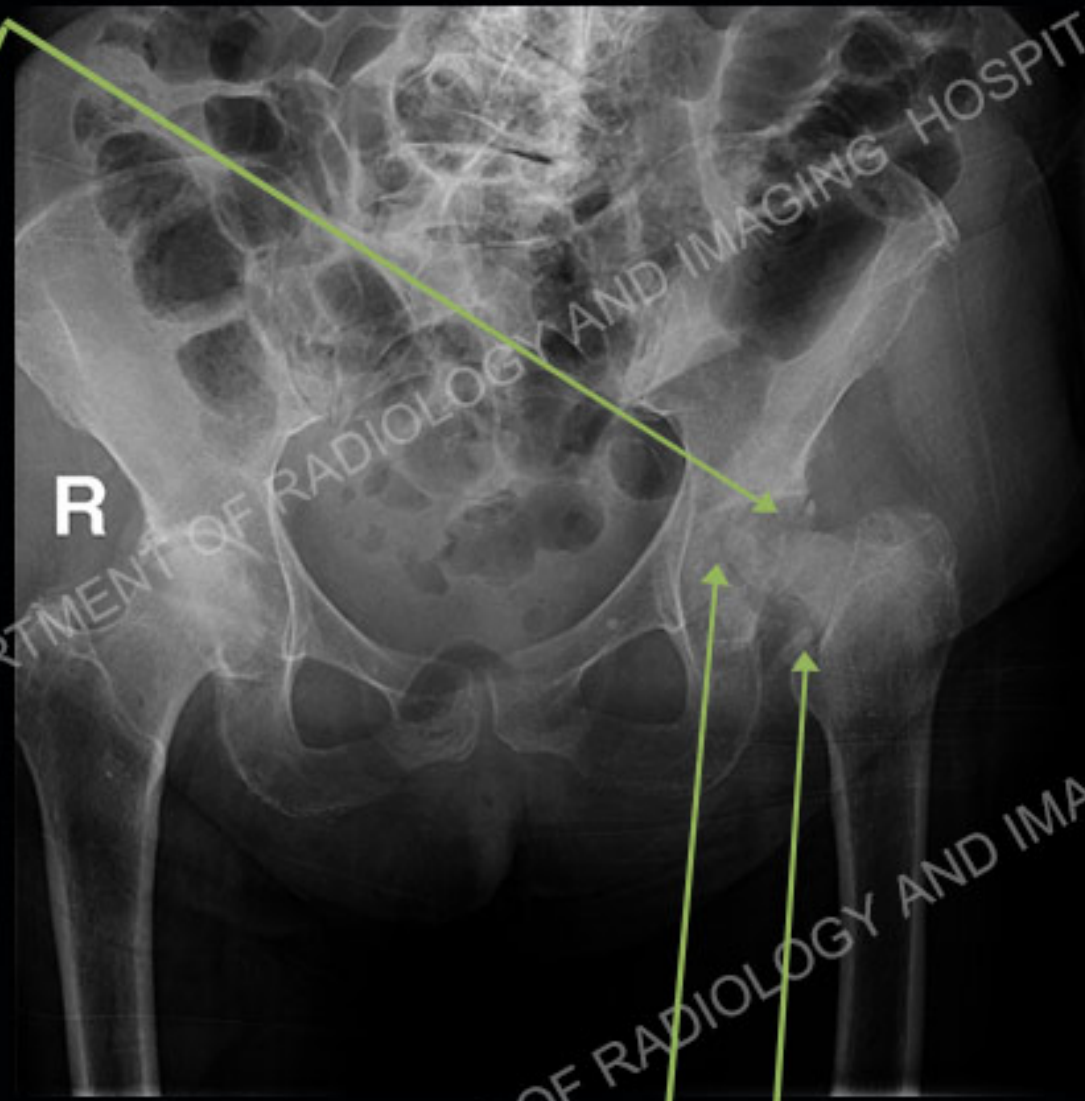
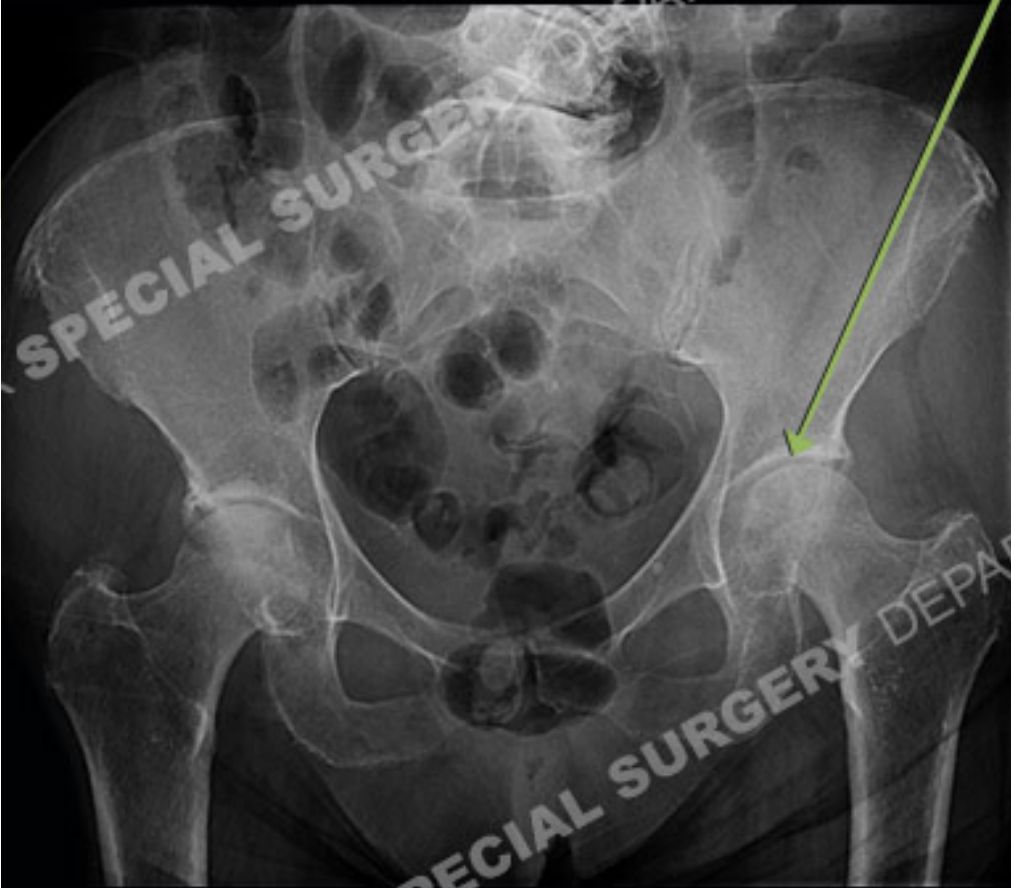
Coronal reformation of CT and representative axial CT images

Findings

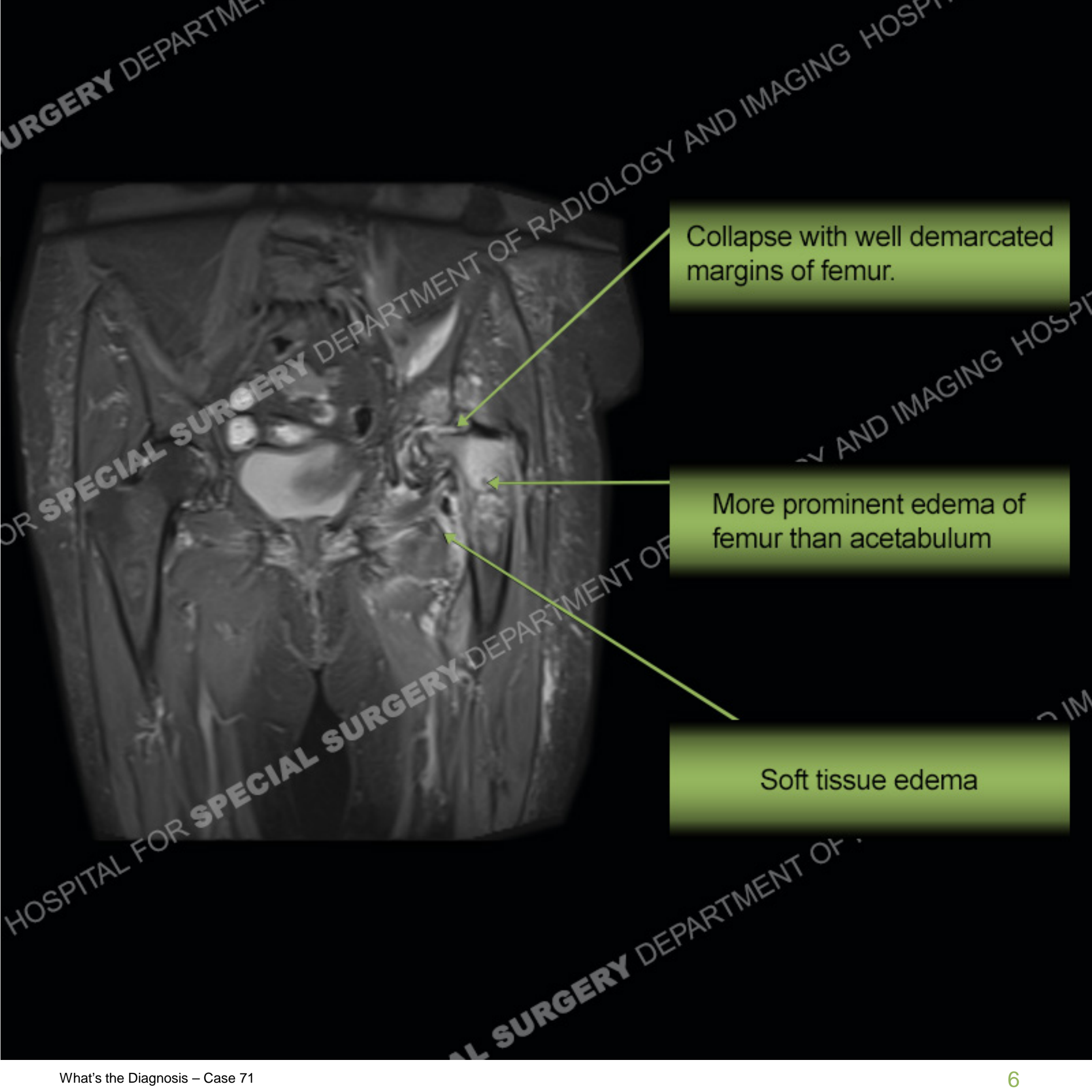
Radiographs demonstrate a rapid destruction of the left femoral head with bony debris that is better appreciated on CT images. CT also helps demonstrate a regular but truncated femoral neck and a regular subchondral surface of the acetabulum. Similar findings are seen on the MRI with a striking amount of marrow edema pattern of the proximal femur and more mild edema of the acetabulum. Edema does extend into the adjacent soft tissues.



Striking collapse



Bony fragmentation

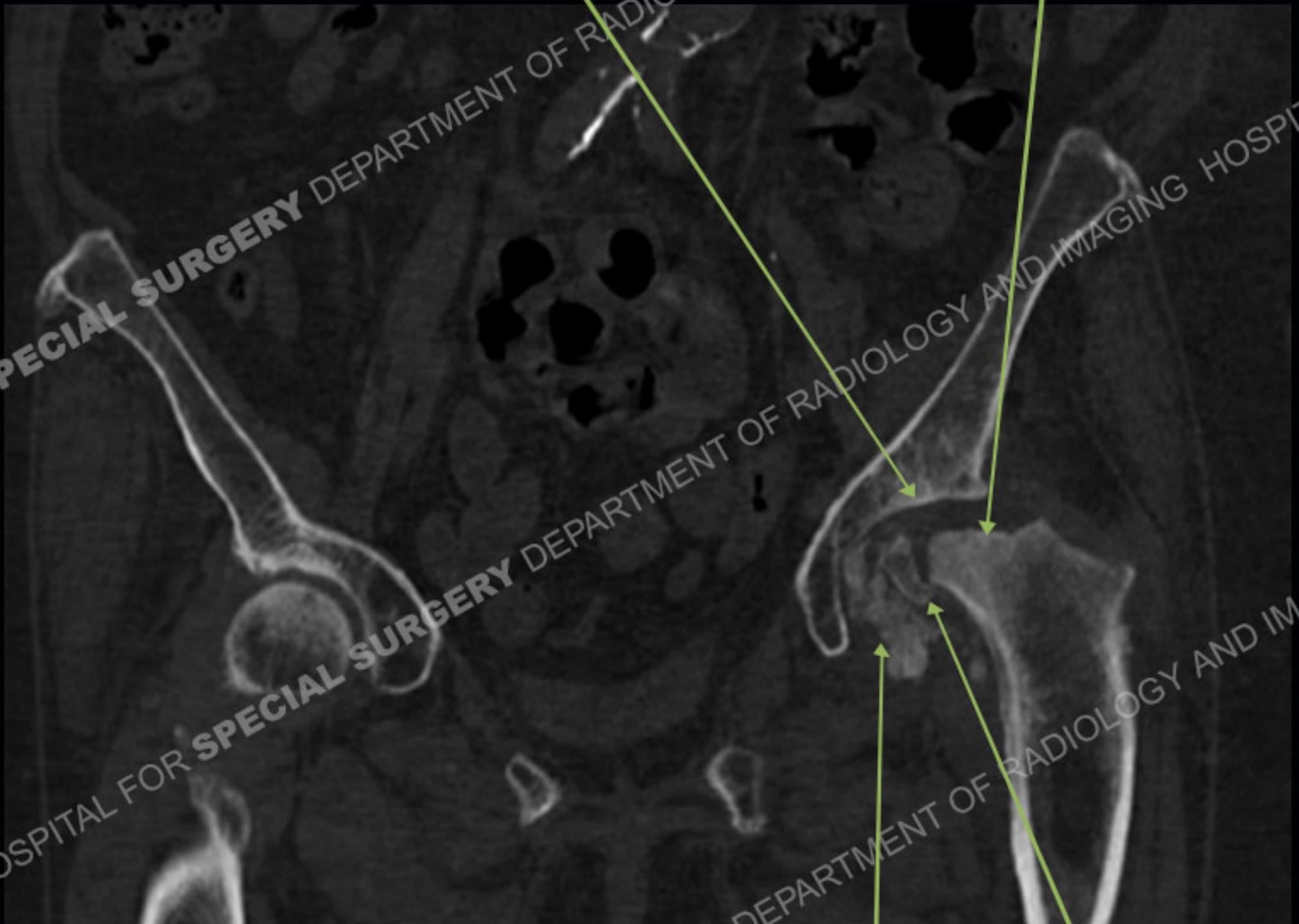


Collapse with well demarcated margins of femur.

More prominent edema of femur than acetabulum

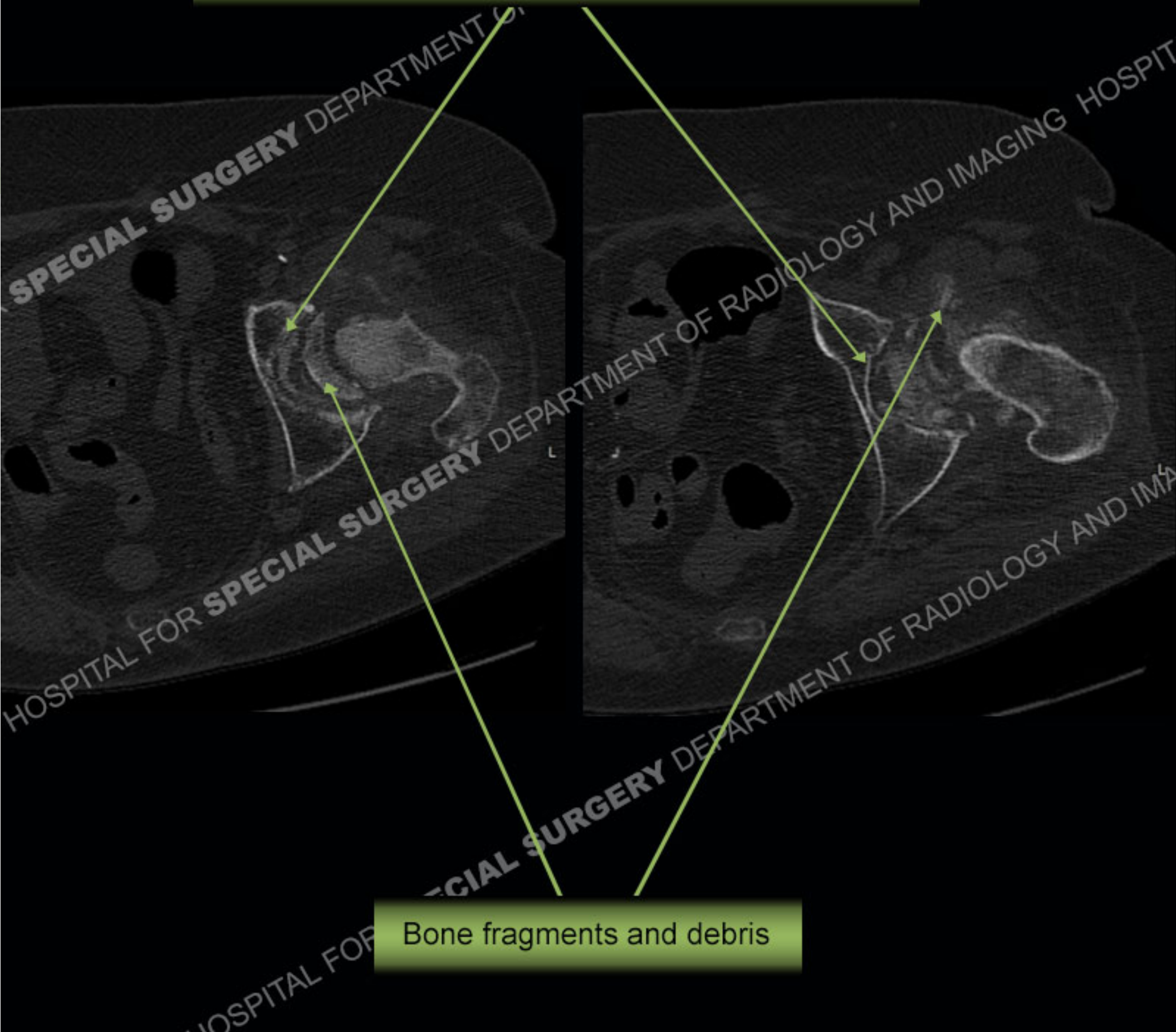
Soft tissue edema

Well demarcated acetabulum subchondral surface and femur



Bone fragments and bony debris

Well maintained acetabular subchondral surface

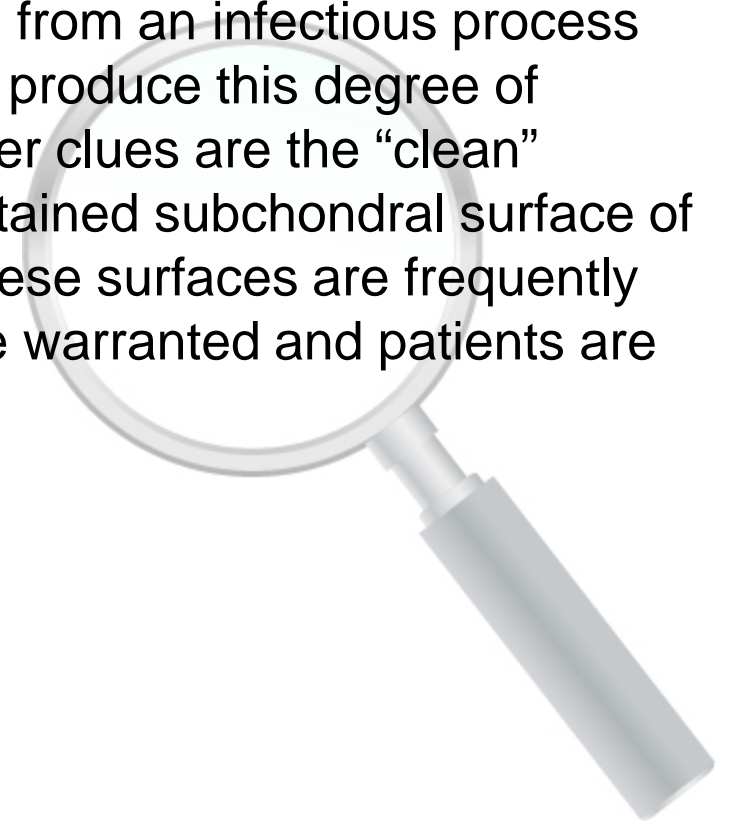


Bone fragments and debris

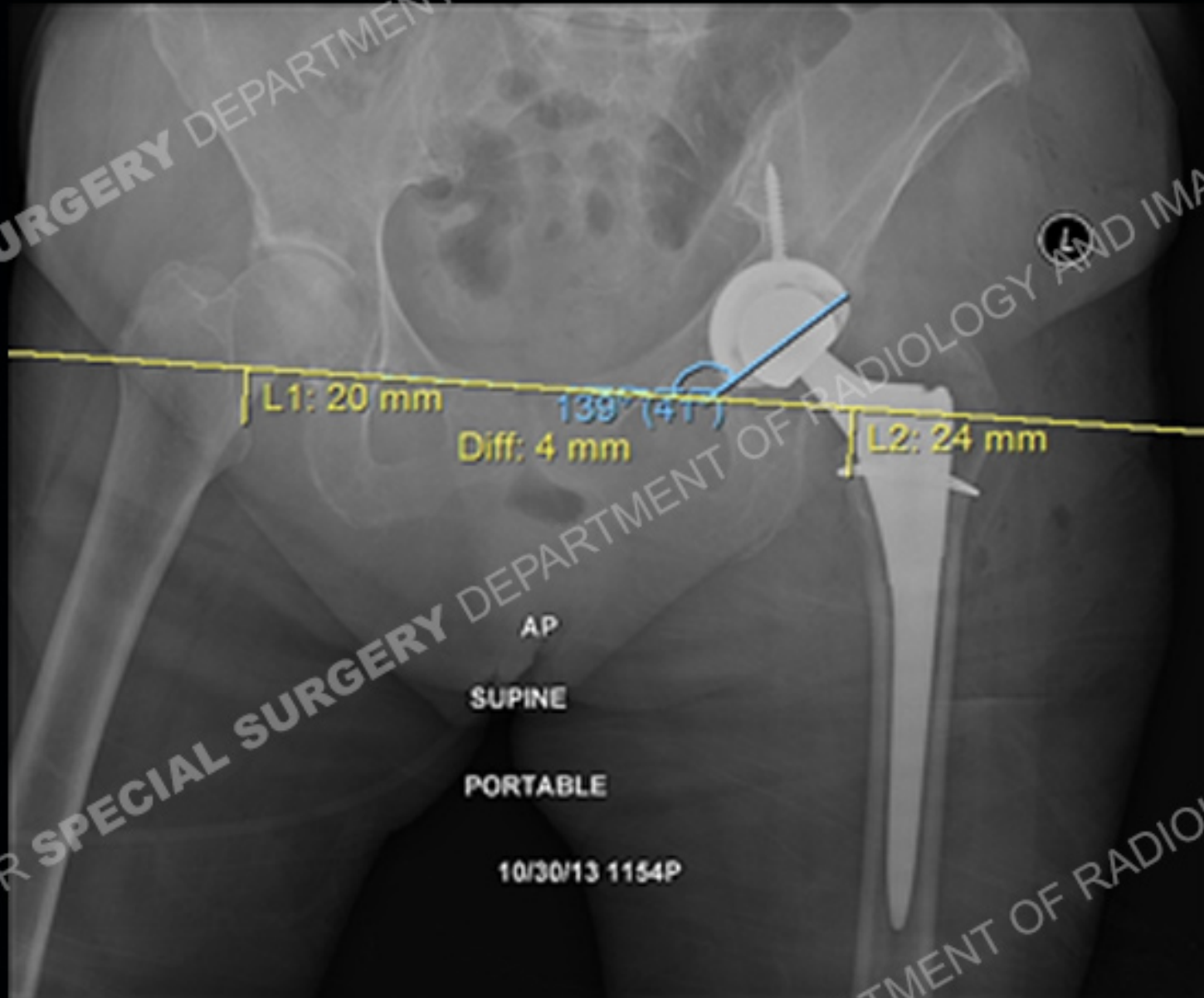
Diagnosis: Rapidly Destructive Osteoarthritis/Subchondral Fracture

A still confusing entity to many, these subchondral fractures were in the past thought to be a primary necrosis. Pathology specimens demonstrated areas of necrosis which would be seen in the setting of any fracture and more so represent secondary necrosis than the primary process. This process is typically in the older, osteoporotic population without a remembered traumatic event. The initial fracture likely continues to propagate as the patient continues to bear weight.

The entity at times may be difficult to discern from an infectious process although even a septic joint does not tend to produce this degree of destruction in such a rapid time course. Other clues are the “clean” truncation of the femoral neck and well maintained subchondral surface of the acetabulum. In the setting of infection, these surfaces are frequently very irregular. An aspiration at times may be warranted and patients are treated with joint replacement.



Resolution with THA



Resources

Subchondral insufficiency fracture of the femoral head: histopathologic correlation with MRI. Yamamoto T, Schneider R, Bullough PG. Skeletal Radiol. 2001 May;30(5):247-54.

Bilateral rapidly destructive arthrosis of the hip joint resulting from subchondral fracture with superimposed secondary osteonecrosis. Yamamoto T, Schneider R, Iwamoto Y, Bullough PG. Skeletal Radiol. 2010 Feb;39(2):189-92. doi: 10.1007/s00256-009-0834-3. Epub 2009 Dec 2.

