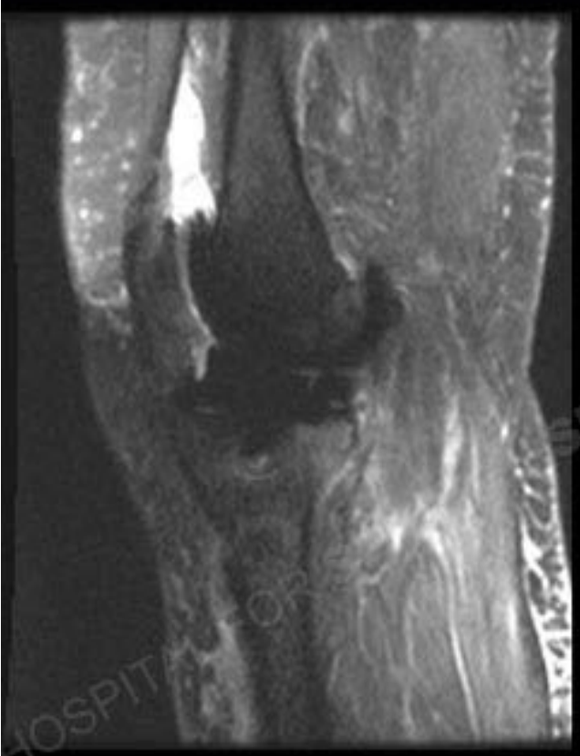
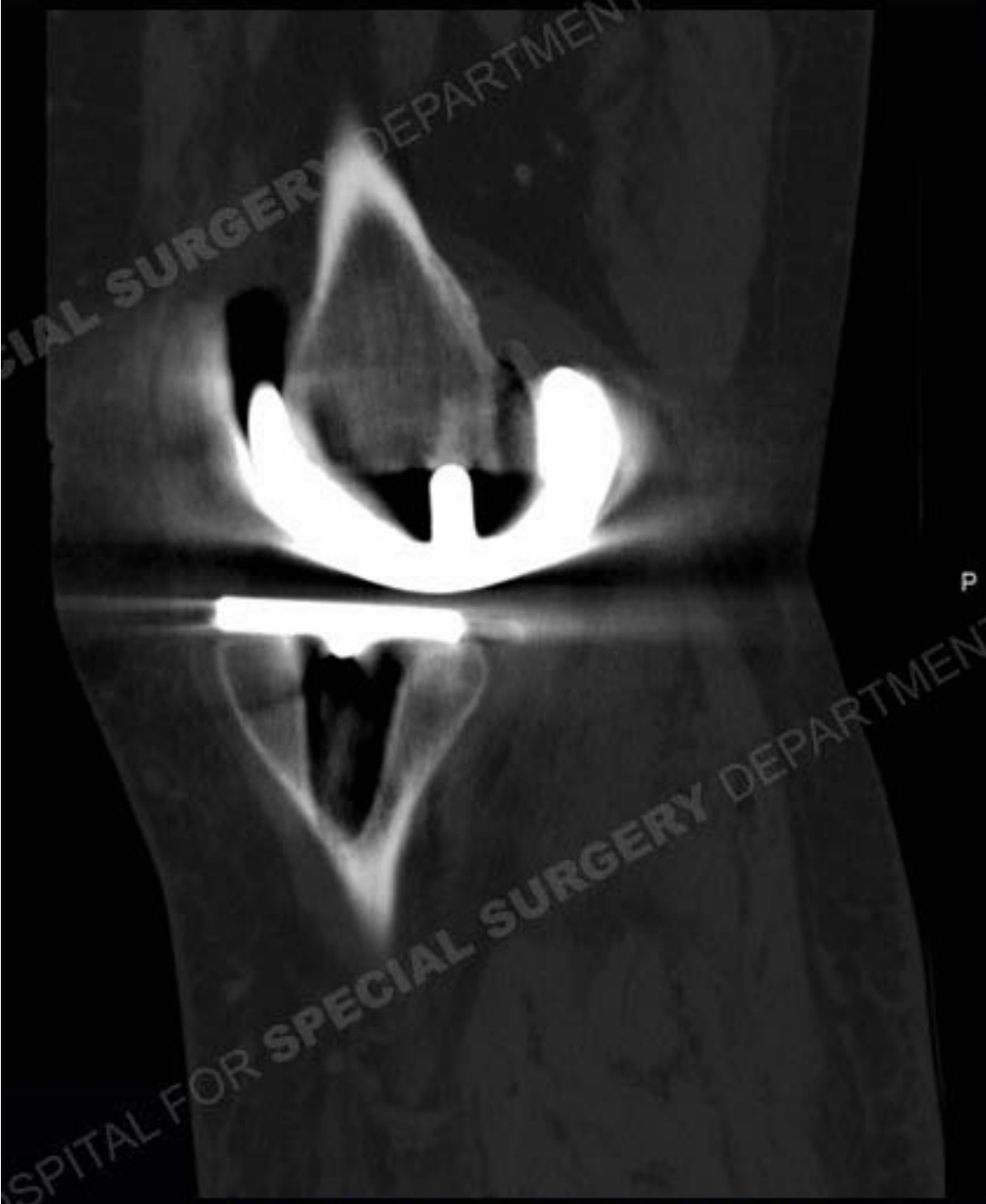
History: 77 year old man with left TKA seven years prior. New onset pain and sensation of instability after recent fall in May 2014.



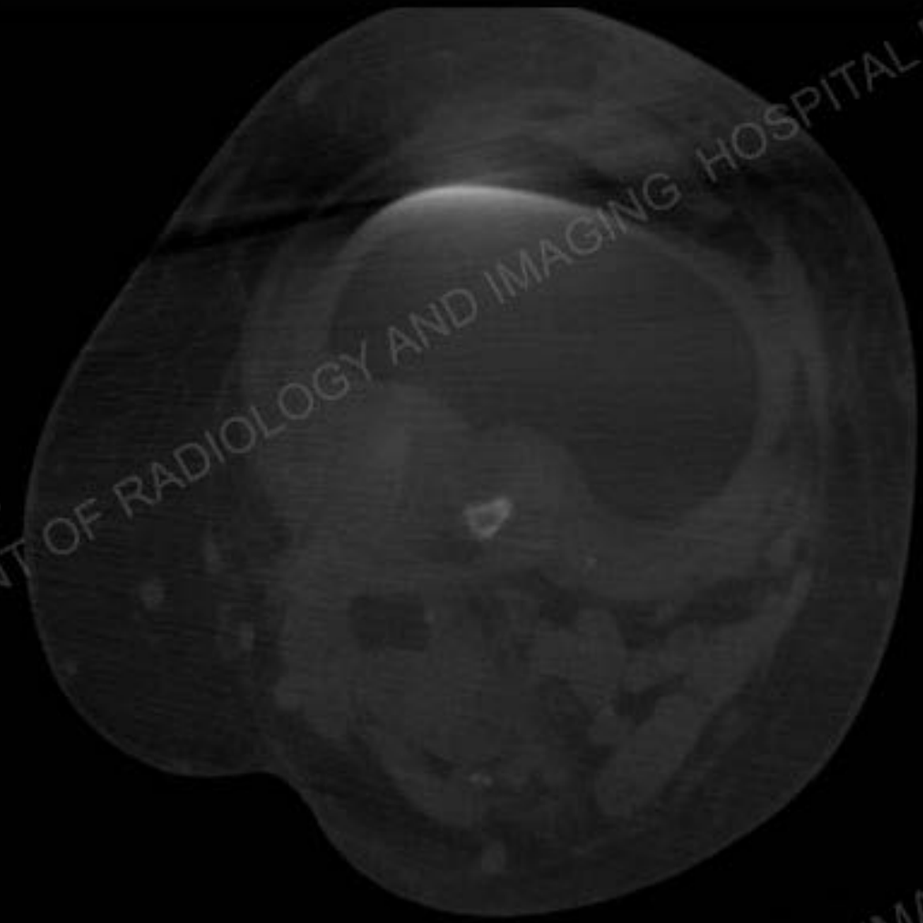
Sagittal IR and Sagittal PD at same location

Sagittal PD through PCL

All images shown are from sequences employing multi-acquisition variable resonance image combination technique. MRI is from 5/2014.



Sagittal reformatted CT image



Axial CT image

Images from 7/2014

Knee
7/25/2014, 10:26:36 AM
Hospital for Special Surgery

Representative image from arthrogram

7/25/2014, 9:13:07 AM
Hospital for Special Surgery

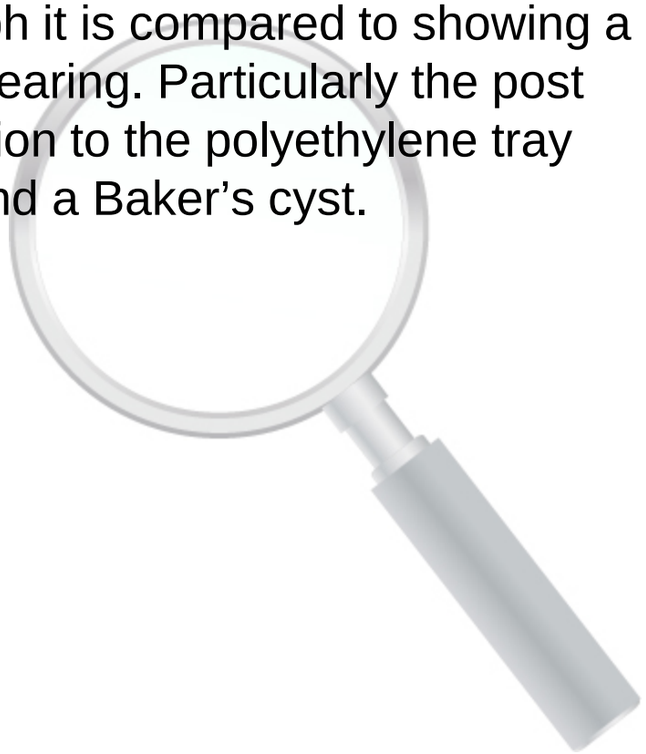
Upright AP view

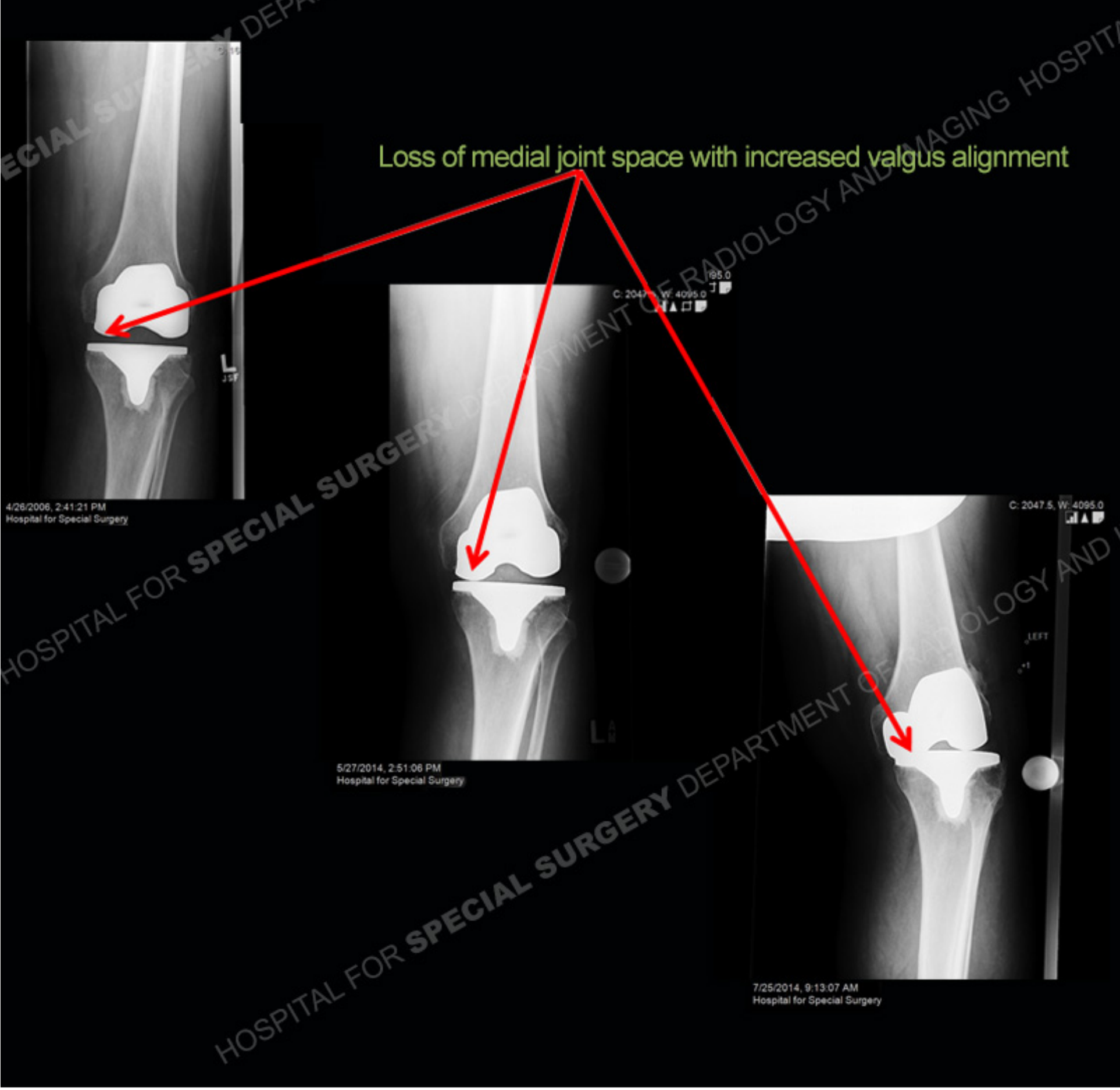
Sagittal reformatted and axial images of CT performed following athrogram on the same day as previously shown CT.

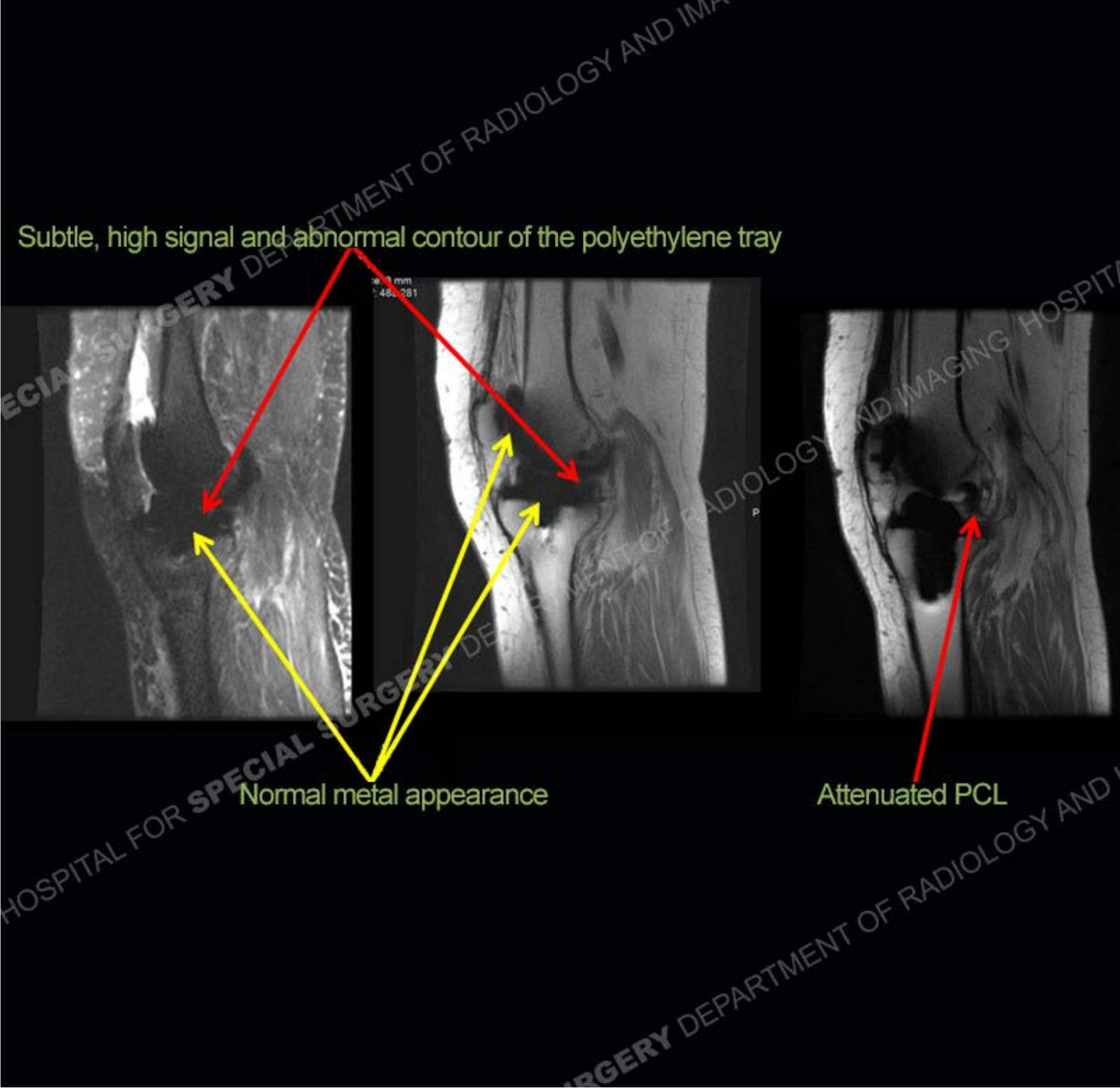
Findings

The multiple sets of radiographs demonstrate a mild loss of medial joint space width from 2006 to 2009 but then with a stable appearance through 2012. Then, in 5/2014 there is a precipitous loss of medial joint space with increased valgus of the femoral component. This becomes even greater in 7/2014. MRI shows a very subtle area of fluid intensity and subtle offset at the posterior medial aspect of the polyethylene tray. The PCL is attenuated in this PCL retaining prosthesis.

The arthrogram is the same day as the radiograph it is compared to showing a difference in alignment with and without weight bearing. Particularly the post contrast CT study shows an abnormal configuration to the polyethylene tray and multiple low attenuation bodies in the joint and a Baker's cyst.



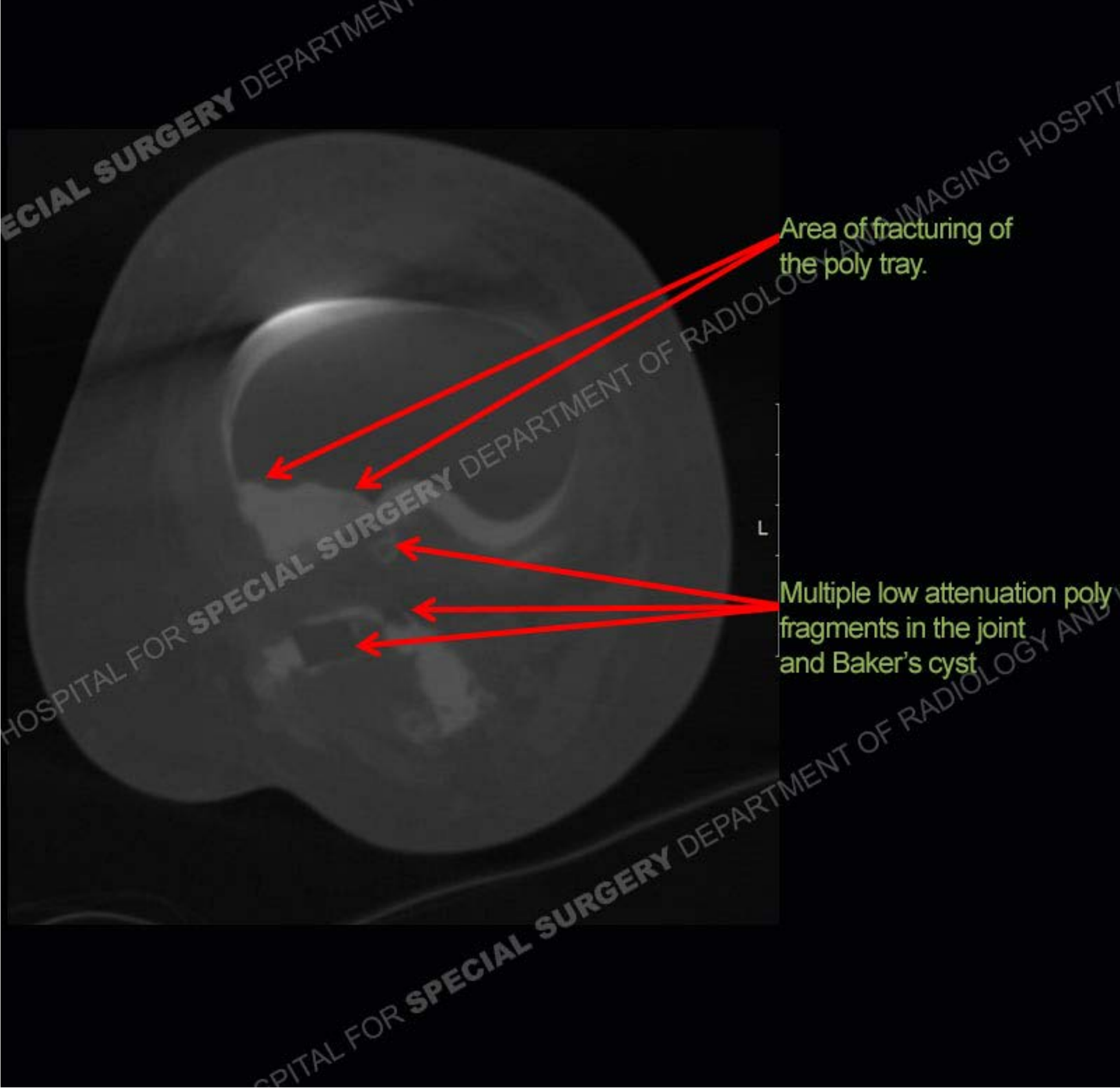


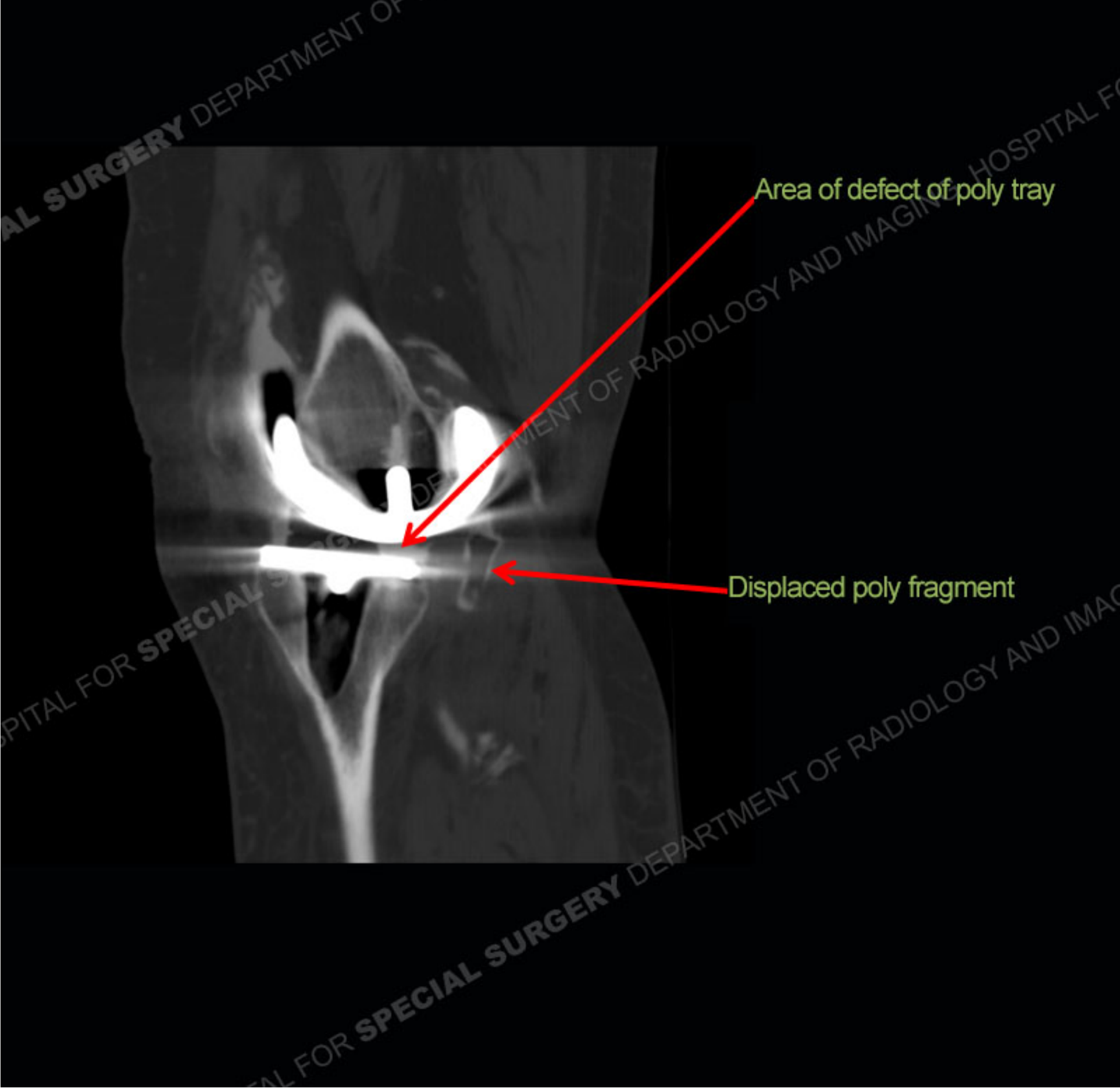

Subtle, high signal and abnormal contour of the polyethylene tray
Normal metal appearance
Attenuated PCL

Change in position from non-weightbearing arthgrogram to weight bearing radiographs (please note medial and lateral are switched between the images).

Knee
7/25/2014, 10:26:36 AM
Hospital for Special Surgery

7/25/2014, 9:13:07 AM
Hospital for Special Surgery




Area of defect of poly tray
Displaced poly fragment

Diagnosis: Fracture of the polyethylene tray

Total knee arthroplasty has a variety of known complications inclusive of infection, periprosthetic fracture, and osteolysis/loosening. Wear of the polyethylene tray yields particles inducing osteolysis which is not infrequently seen but an actual fracturing of the poly tray is rare. As in this case the defect can lead to abnormal mechanics that are perceived as instability as the metal condyle falls in and out of the defect. Perhaps in this case the findings are so much more conspicuous on the CT arthrogram as compared to the MRI because there has been interval displacement of the fragments. Had the displaced fragments been present at the time of the MRI they would be able to be perceived particularly given the recent, enhanced techniques. This patient is scheduled for revision surgery.