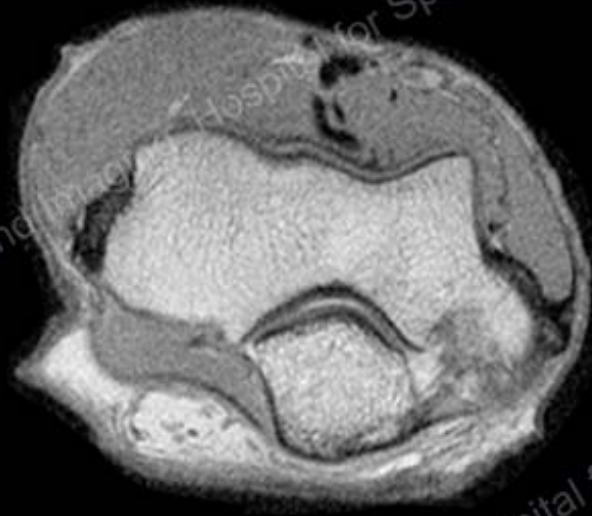




Coronal IR 3/23/11



Axial PD 3/23/11



Sagittal PD 3/23/11

History: 51 year old woman with recent fall on the elbow.



Coronal T1



Coronal T2 Fat Sat

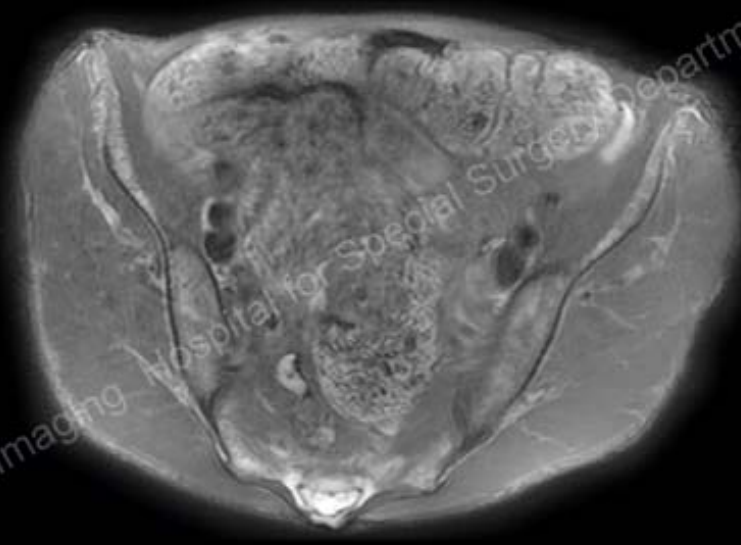


Coronal IR

All from 3/23/11



Coronal IR From 3/7/11



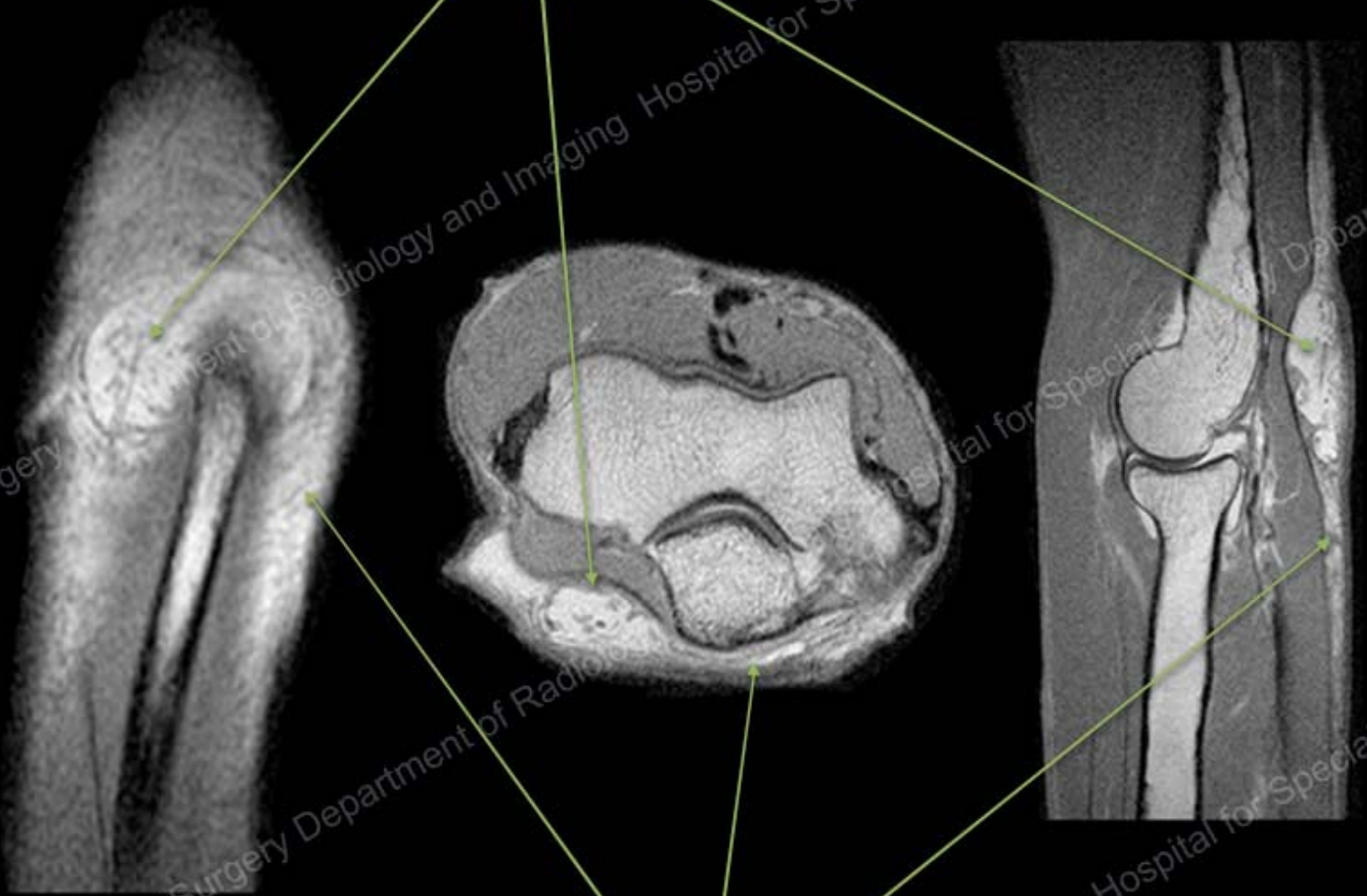
Axial PD from 3/7/11

Findings

Imaging of the elbow demonstrates a subtle fluid collection containing internal debris. There is a prominent amount of edema in the posterior soft tissue. The underlying bone demonstrates diffuse high signal on the IR and T2 Fat Sat images as well as somewhat low signal on the T1 sequence. Imaging of the pelvis demonstrates again markedly high signal of the bone on the IR sequence and then a marked paucity of subcutaneous as well as intra-peritoneal fat.



Fluid collection with low signal debris



Pronounced edema in subcutaneous soft tissue

Slightly decreased signal diffusely of bone

Diffuse, markedly high signal of bone



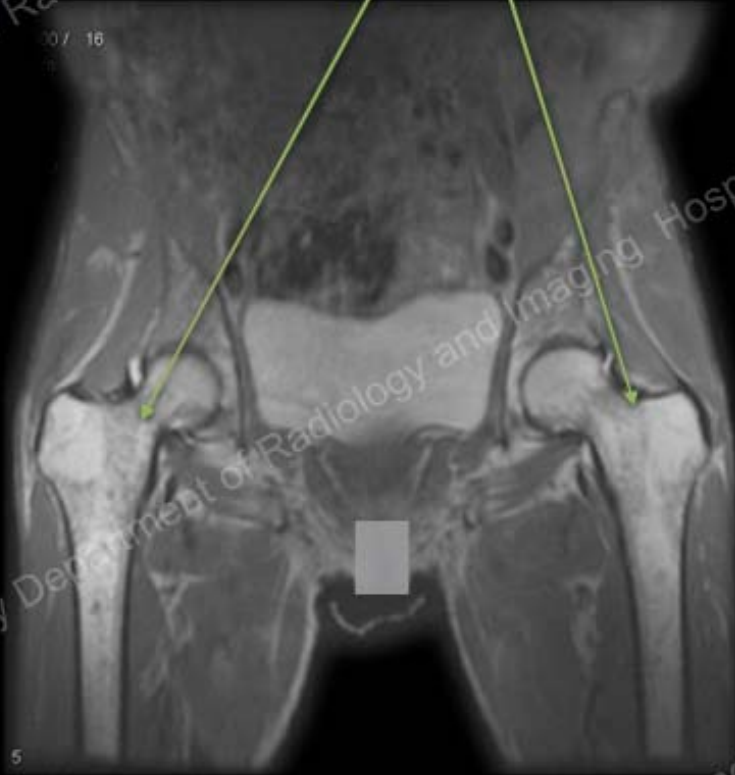
Coronal T1

Coronal T2 Fat Sat

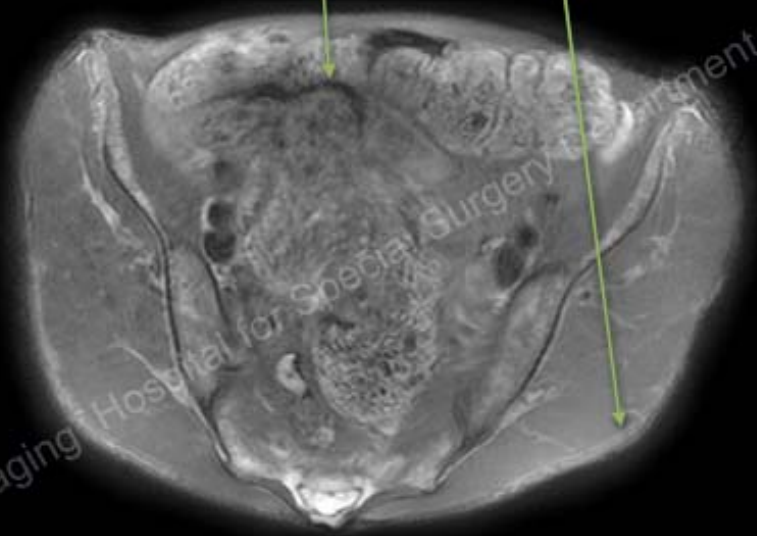
Coronal IR

All from 3/23/11

High signal diffusely of bone on IR sequence



Paucity of intra-peritoneal and subQ fat



Diagnosis

Serous atrophy/gelatinous transformation of marrow with superimposed, post traumatic olecranon bursitis.



Discussion

In the setting of anorexia or cachexia, the body will use whatever fat stores are available for survival. As such, the fat from marrow can be replaced with an interstitial infiltration of a ground gelatinous substance (acidic mucopolysaccharides). In addition, the intra-peritoneal fat and subcutaneous fat are also utilized. This yields the appearance seen in this case. The marrow in this situation has a much higher T2 signal related to the deposited gelatinous substance. The T1 signal is low but may not be as low as expected related to the underlying nature of the mucopolysaccharides. This condition is also referred to as serous atrophy of the marrow or starvation marrow.

There is no association with the post traumatic bursitis but that is what led the patient to seek medical attention. These patients are however, at times pancytopenic related to the abnormality of the underlying marrow and at times this will require medical attention. In younger women, a triad of eating disorder, amenorrhea, and osteoporosis/stress fractures is a well known triad also known as the female athletic triad. Awareness of this condition may help prevent further health problems.

Resources

Gelatinous bone marrow transformation in anorexia nervosa.

Boullu Ciocca S, Darmon P, Sébahoun G, Silaghi A, Dutour-Meyer A.
Ann Endocrinol (Paris). 2005 Feb;66(1):7-11. French.
http://kidshealth.org/teen/food_fitness/sports/triad.html

