SAMPLE REVIEW:

CERVICAL, THORACIC, LUMBAR
SHOULDER, WRIST, FOOT

IMAGING LAW

Advanced Medical Imaging Consultation

Contents are confidential. Please be respectful of privacy.

Advanced Medical Imaging Consultation

Cervical spine x-ray dated 3/9/2017, lateral views in neutral and flexion positions. No fracture or soft tissue swelling. Minimal anterolisthesis noted at C4-5 on both views (arrow). This subluxation was not present on older x-ray from 6/25/2014. No change in subluxation on these 2 views indicates no instability.

This C4-5 subluxation is unchanged on multiple later MRI and x-ray exams through the last available x-ray dated 8/1/2019.

Advanced Medical Imaging Consultation

Thoracic spine x-ray dated 3/9/2017, AP and lateral views. No fracture or subluxation identified. Minimal chronic left curvature of the upper thoracic spine noted.

Advanced Medical Imaging Consultation

Lumbar spine x-ray dated 3/9/2017, AP and lateral views. No fracture or subluxation identified.

Earlier x-ray dated 11/23/2014 (not shown) also negative.

Advanced Medical Imaging Consultation

Right wrist x-ray dated 3/9/2017, frontal view. Exam is negative, with no fracture or subluxation.

Advanced Medical Imaging Consultation

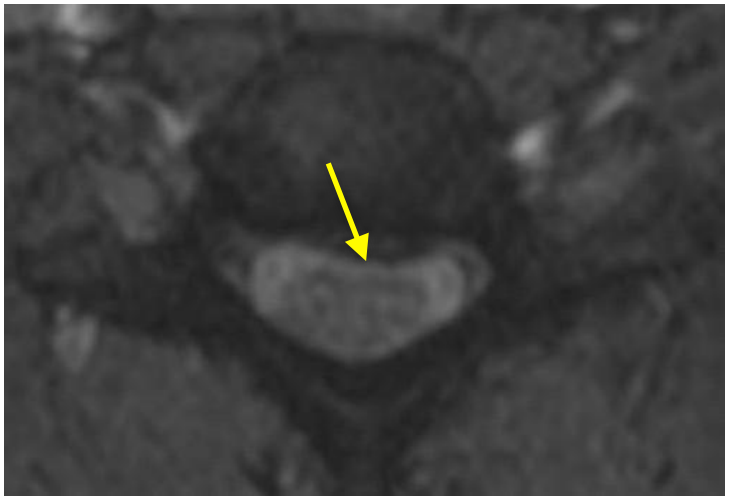
Right foot x-ray dated 4/10/2017, left image. Right shoulder x-ray dated 5/8/2017, upper right image. Left shoulder x-ray dated 5/8/2017, lower right image.

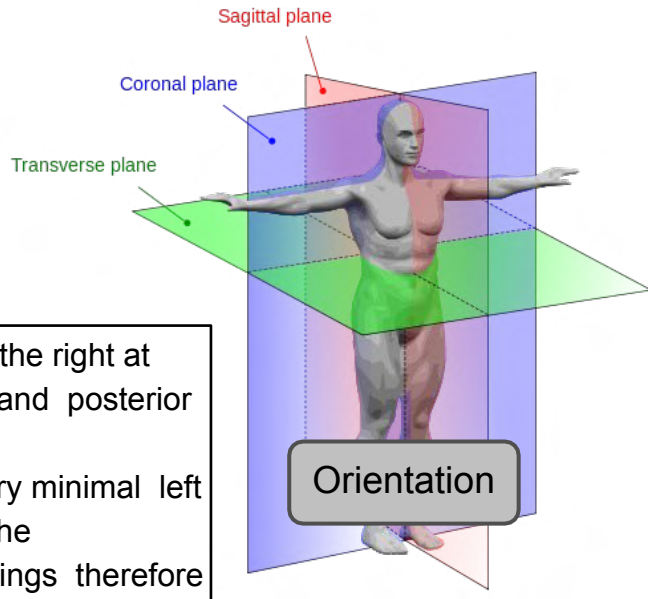
All three exams are negative, with no fracture or subluxation.

Subsequent right shoulder x-ray performed 8/13/2019 (not shown) also negative.

IMAGING LAW

Advanced Medical Imaging Consultation

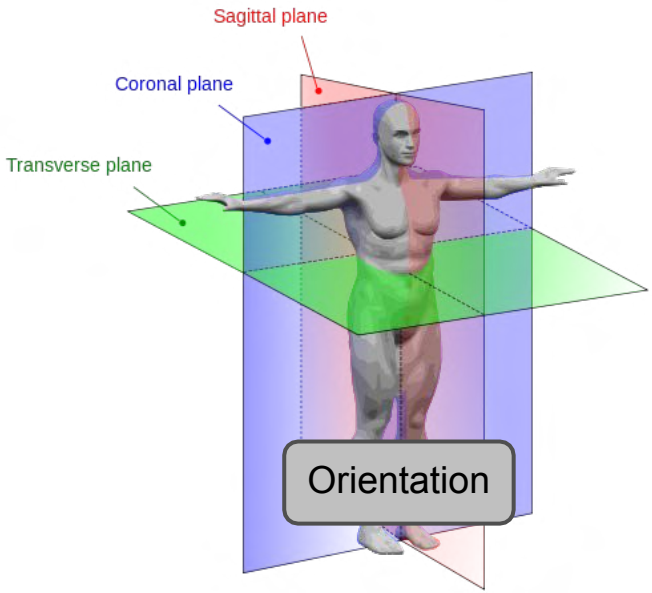




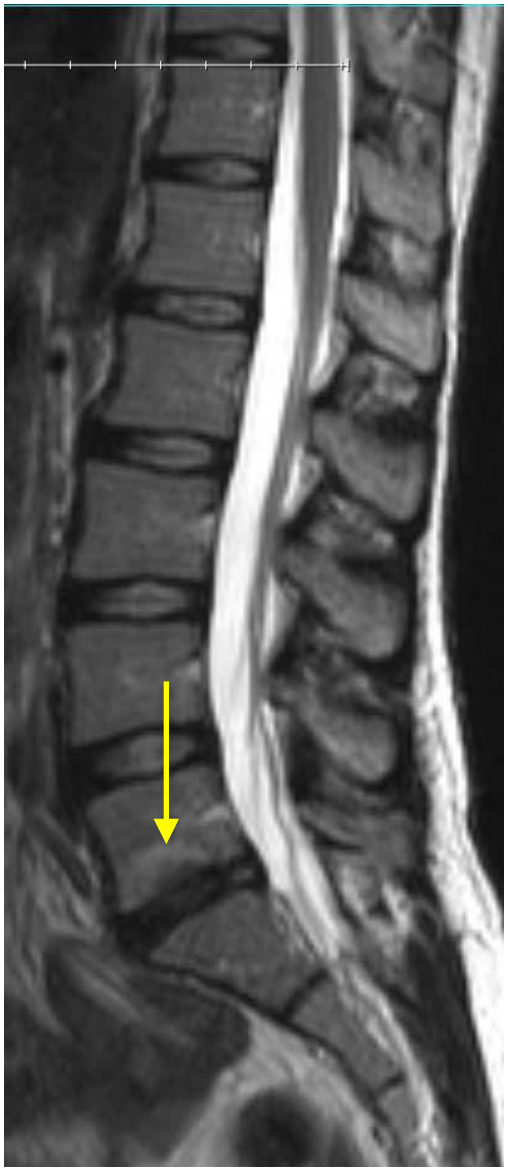
MRI of the cervical spine dated 7/10/2017, sagittal image on the left and axial image on the right at the level of C6-7. Minimal anterolisthesis at C4-5 as noted on earlier x-ray. The anterior and posterior longitudinal ligaments are intact, indicating no evidence of instability.
Minimal left paracentral disc herniations are present at C5-6 and C6-7 (blue arrows). Very minimal left sided cord indentation at the C6-7 level (yellow arrow). No swelling is seen adjacent to the herniations, and no abnormal signal in the cord. No epidural hematoma or fracture. Findings therefore most indicative of chronic disc herniations at these levels unrelated to the accident in question, with a reasonable degree of medical certainty.

Advanced Medical Imaging Consultation

MRI of the cervical spine dated 5/3/2018, sagittal T2 image. No change compared to the MRI from 2017, with chronic disc herniations at C5-6 and C6-7. Chronic minimal anterolisthesis at C4-5.



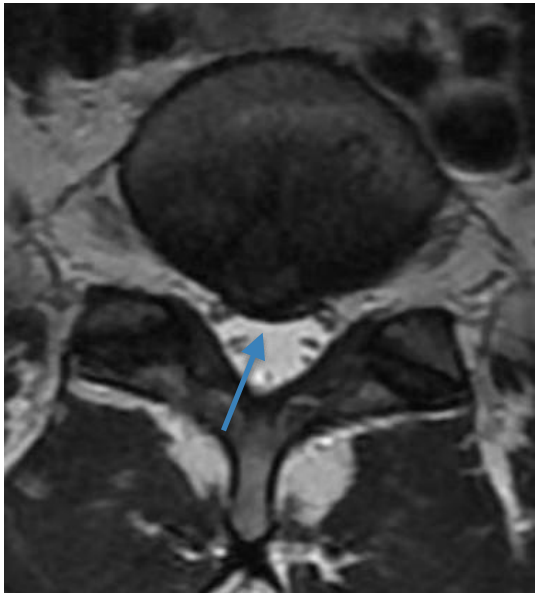
Advanced Medical Imaging Consultation

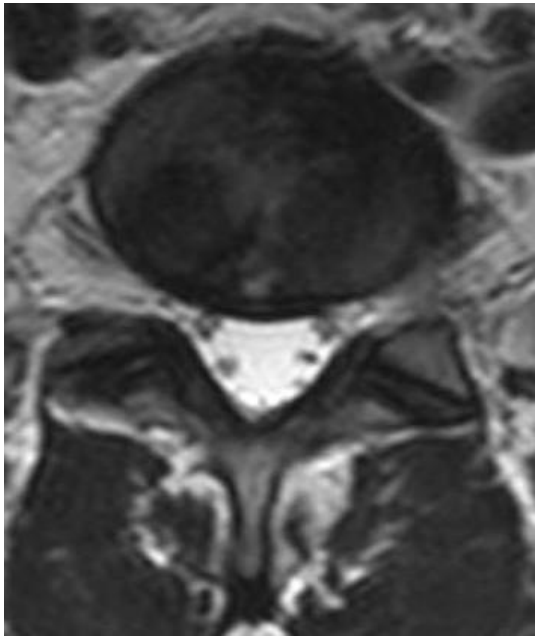


MRI of the lumbar spine, sagittal T2 images. Right image from exam dated 7/10/2017, and the left image is from earlier exam dated 6/2/2015.

The 2015 MRI shows a disc herniation at L5-S1 (blue arrow) that is not present and resolved on the later 2017 MRI. Increased degenerative endplate changes on the L5 side of the L5-S1 disc on the 2017 exam compared to 2015 (yellow arrow). No disc herniation or fracture identified on the MRI in 2017 performed after the accident in question. No traumatic finding related to the accident is seen.

Advanced Medical Imaging Consultation





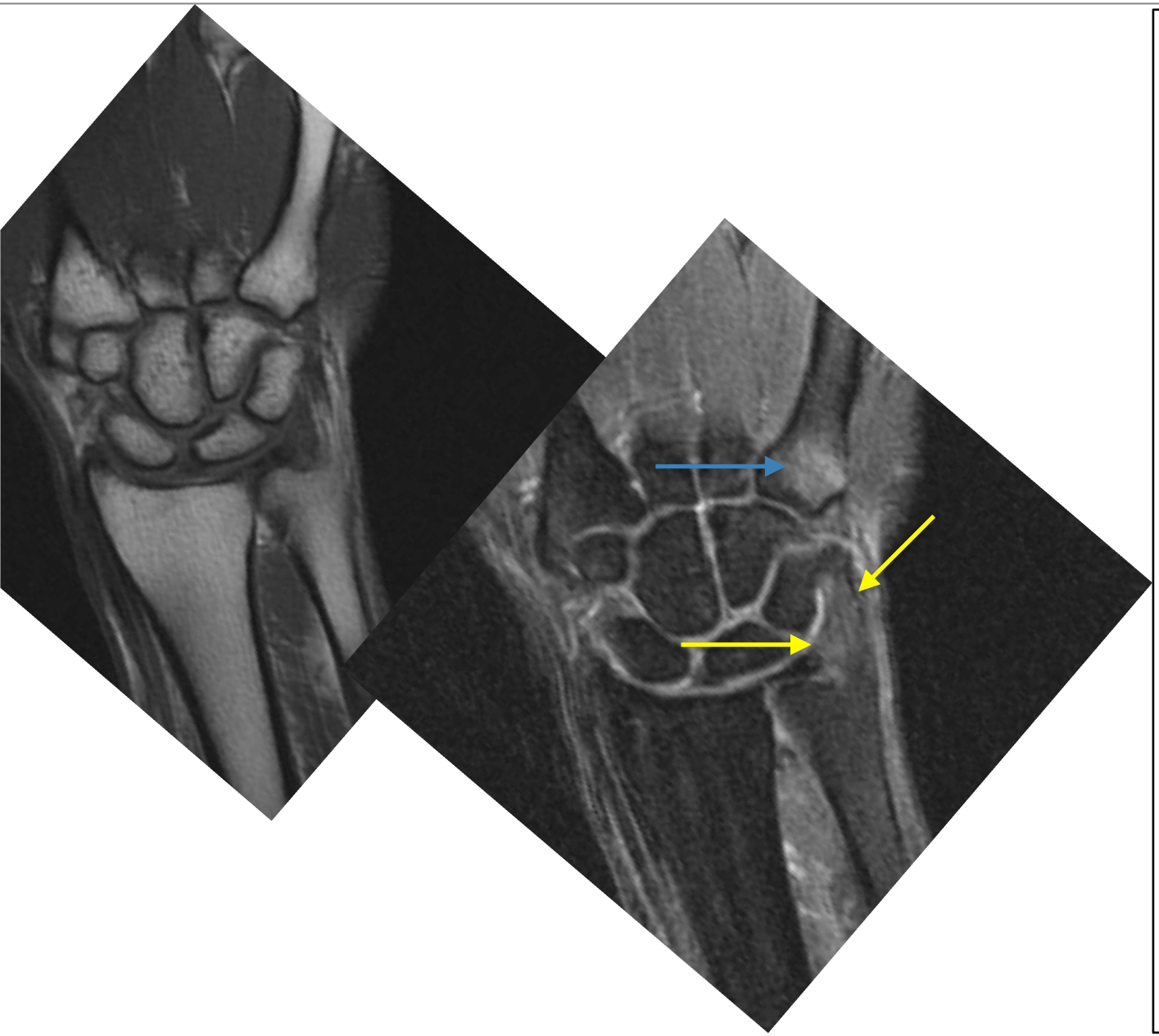
MRI of the lumbar spine, axial T2 images at the level of L5-S1. Lower right image from exam dated 7/10/2017, and the left image is from earlier exam dated 6/2/2015.

This also demonstrates that the disc herniation seen on MRI in 2015 (blue arrow) was not present on the 2017 MRI, and therefore had resolved.

Follow up MRI performed in 5/3/2018 (not shown) demonstrates chronic degenerative disease, including chronic endplate changes at L5-S1. No disc herniation or fracture seen on the 2018 exam.

IMAGING LAW

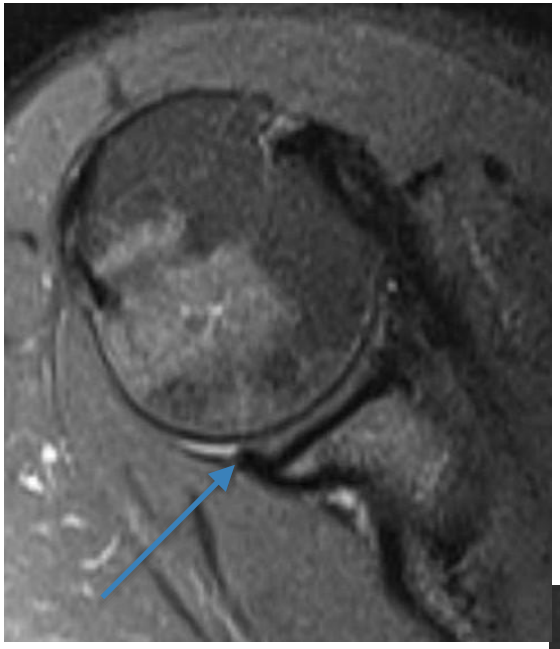
Advanced Medical Imaging Consultation



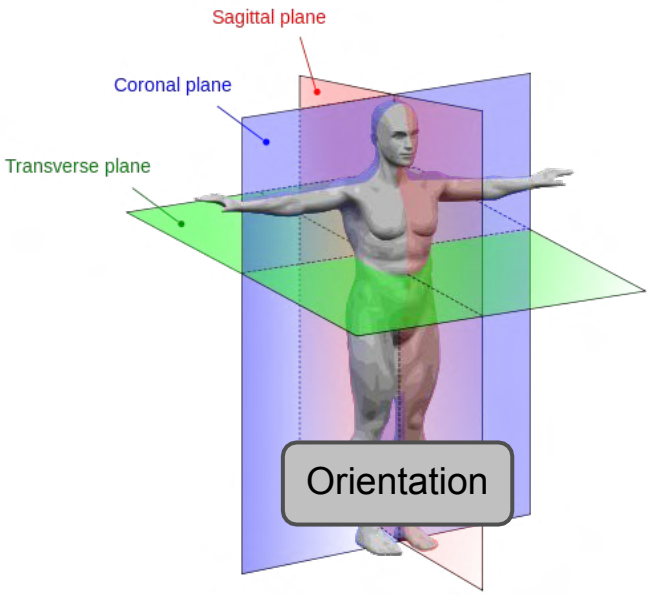
MRI of the right wrist dated 7/10/2017, coronal images. Bone marrow edema in the proximal 5th metacarpal (blue arrow) seen on the fluid sensitive sequence (right image). Consistent with a subacute traumatic bone contusion. Additional soft tissue edema in the ulnar aspect of the wrist joint capsule and adjacent to the ulnar styloid process (yellow arrows). This represents a subacute grade 1 sprain of the triangular fibrocartilage complex. Both of these injuries appear to be dated in the range of the accident in question, although possibly another injury at a later date than the accident in question could give a similar imaging appearance.

Coronal T1 image on the left shows no trabecular or cortical disruption at the 5th metacarpal marrow edema. This indicates no evidence of an acute fracture or healing fracture.

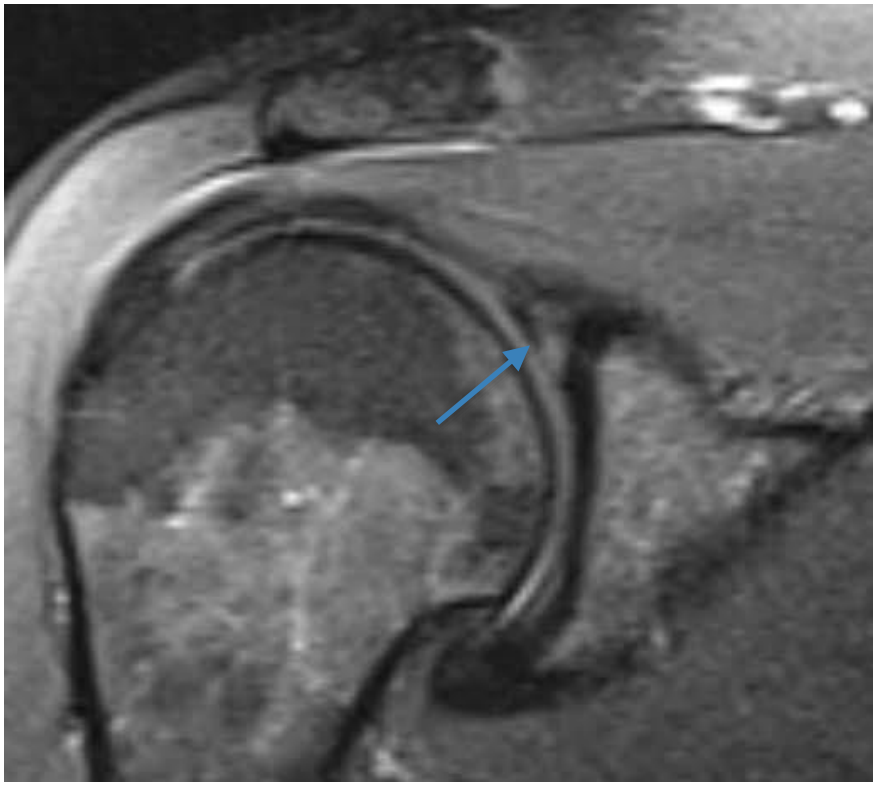
Advanced Medical Imaging Consultation



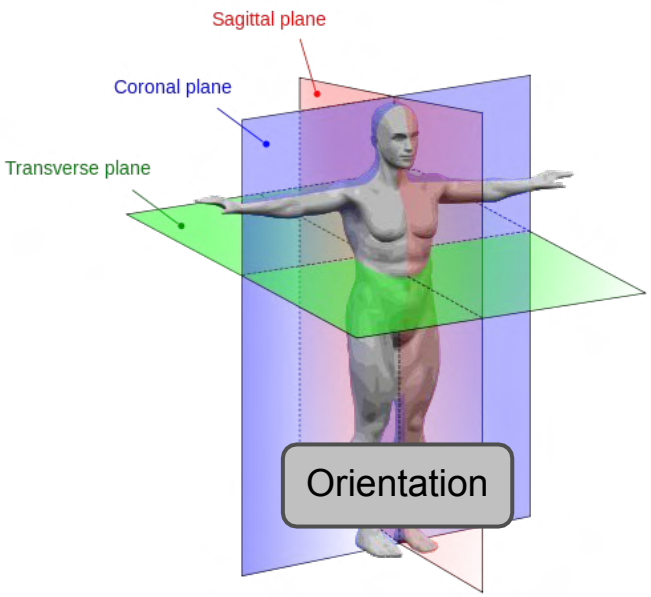
MRI of the right shoulder dated 11/16/2017, axial and coronal images. Normal alignment, and no fracture or joint effusion. There is a tiny 2 mm low grade partial tear of the supraspinatus component of the rotator cuff at the anterior leading edge (blue arrow). No other cuff tear. Background of moderate chronic rotator cuff tendinopathy. Chronic labral degeneration, as demonstrated involving the posterior labrum as seen on the axial image (yellow arrow). No labral tear.



Advanced Medical Imaging Consultation

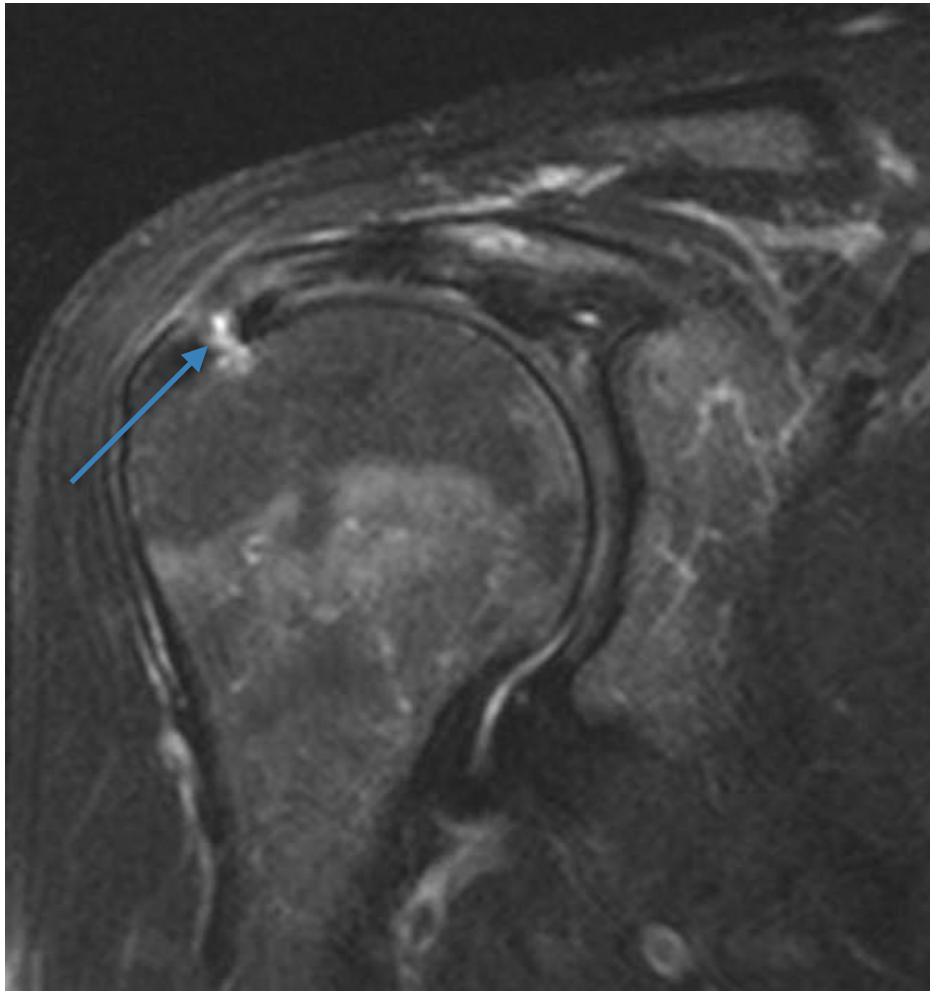


MRI of the right shoulder dated 11/16/2017, coronal image. This shows increased signal in the superior labrum, consistent with chronic degeneration (arrow). No superior labral tear identified.



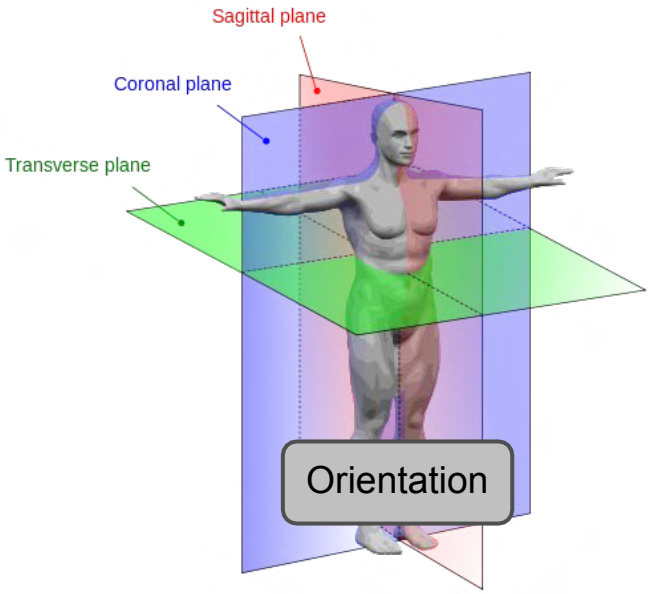
IMAGING LAW

Advanced Medical Imaging Consultation



MRI of the right shoulder dated 10/21/2019, coronal image. Normal alignment, and no fracture or joint effusion. The previously noted tiny anterior rotator cuff tear has resolved/healed. There is a new small 3 mm high grade partial tear of the posterior supraspinatus.

No labral tear demonstrated on this exam, however an MR arthrogram performed just over 2 weeks later (not shown) demonstrated a superior labral tear. Since the labral tear was not identified on the 2017 exam, it is unrelated to the accident in question with a reasonable degree of medical certainty.



IMAGING LAW

Advanced Medical Imaging Consultation

My Question:

Patient involved in MVC dated 3/8/2017. Multiple complaints after the accident, most immediate in the back/spine and right wrist. Evaluate for injury attributable to the accident.

My Response:

Multiple imaging exams were submitted, which include exams obtained both before and after the accident in question. Independent review of all submitted exams was performed. No acute fractures identified in the cervical, thoracic, and lumbar spine. Minimal subluxation/anterolisthesis identified on x-ray the day after the accident at C4-5 which was not present in 2014. This was present on subsequent MRI and x-ray exams, with intact ligaments performed several months after the accident. This is a chronic pre-existing degenerative finding with a reasonable degree of medical certainty. Small disc herniations noted at C5-6 and C6-7 on the MRI months after the accident, without cord edema or significant compression. These herniations are also likely chronic and pre-existing with a reasonable degree of medical certainty. Thoracic spine evaluation demonstrated minimal chronic curvature with no fracture or subluxation on x-ray 1 day after the accident. Lumbar spine evaluation showed a disc herniation in 2015 that resolved on the 2017 MRI performed months after the accident. Degenerative disease in the lumbar spine on MRI most prominent at L5-S1, with endplate changes more prominent than 2015. This represents chronic pre-existing degenerative disease. Therefore, regarding the spine, chronic and pre-existing findings are noted with no traumatic abnormality related to the accident in question.

Right wrist x-ray the day after the accident showed normal alignment and no fracture. MRI performed several months later demonstrated no fracture, and no ligament or tendon tear. A subacute bone contusion at the base of the 5th metacarpal identified, and subacute grade 1 sprain of the triangular fibrocartilage complex. These are traumatic findings. The dating of these injuries on MRI fall within the time range of the accident in question. While another injury to the wrist on a later date could have a similar imaging appearance, no additional history was provided that the patient sustained a later wrist injury. This should be confirmed. In the absence of another later injury, these findings are likely related to the accident in question with a reasonable degree of medical certainty. Both of these injuries are self limiting and are treated conservatively without surgical intervention.

Advanced Medical Imaging Consultation

My Response:

Initial evaluation of the shoulders was performed two months after the accident, where x-ray demonstrated no fracture in either shoulder and normal alignment. MRI of the right shoulder performed 8 months after the accident showed no joint effusion or fracture. A tiny low grade partial tear of the supraspinatus component of the rotator cuff identified, with a background of moderate chronic rotator cuff tendinopathy.

This tiny cuff tear is unlikely related to the accident in question, with a reasonable degree of medical certainty. Chronic labral degeneration noted on the 2017 MRI, with no evidence of labral tear. Follow up MRI in 2019 showed interval healing of the previously seen rotator cuff partial tear, with a new high grade partial tear of the supraspinatus more posteriorly. Additionally, a superior labral tear was identified on MR arthrogram performed on 11/6/2019. Both of these findings on the 2019 MRI exams are unrelated to the accident in question.

In summary, with a reasonable degree of medical certainty the patient sustained a traumatic injury to the right wrist related to the accident in question, including a bone contusion and low grade sprain of adjacent soft tissue structures. No fracture, tendon or ligament tear identified. Both of these injuries are self limiting and treated conservatively, and will heal with permanent damage unlikely. Regarding the cervical spine, thoracic spine, lumbar spine, and right shoulder, there is no traumatic abnormality related to the accident in question.