

Title and Author(s)

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Title: Osteoarthritis

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Introduction or Patient History

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A 65 year old male with complaint of left knee pain and locking of knee. Questionable loose body in the notch versus a meniscal tear. A left knee MRI exam was performed on February 3, 2006 at Steindler Orthopedic Clinic for further evaluation.

Patient Preparation and Scan Set up

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A Marconi Polaris 1.0 Tesla scanner was used to perform the MRI knee exam. Once patient was screened according to MRI safety guidelines, he was positioned supine with leg fully extended, and knee placed in the center of the quad knee coil. A Velcro strap and foam pads were then used to immobilize the patient's knee. After that, a pillow was placed underneath the right knee for comfort which also helped limit patient movement. Patient was then given headphones for hearing protection and placed in scanner feet first.

MR Imaging Parameters

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PULSE SEQUENCE	TR	TE	FOV	SLICE THICKNESS/ INTERSPACE	BAND-WIDTH	MATRIX	NSA
AXIAL T2 FS	5775	96	16.0	3.5 / 0.5	20.8	192x256	4
SAG T2 FS	5775	96	16.0	3.5 / 0.5	20.8	192x256	4
COR T2 FS	5544	96	16.0	3.5 / 0.5	20.8	195x256	3
SAG PD	2000	14	16.0	3.5 / 0.5	41.7	192x256	2
COR T1	458	12	16.0	3.5 / 0.5	20.8	256x256	2

Findings and Discussions

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The findings revealed that “the ACL, PCL, medial and lateral stabilizers are intact” (Berg, 2006). Doctor Berg also reported that “there is a 9mm loose body within the intercondylar notch...subtle degenerative radial tear of the lateral meniscus...” Other findings include severe tricompartmental osteoarthritic change within the patellofemoral joint and some deformity of the medial aspect of the patella. Effusion is also present with large popliteal cyst, and extravasation of fluid at the posterolateral corner indicating “prior posterior capsule/arcuate ligament complex injury.” As for the patient, I believe that the MRI exam was very beneficial because it helped his doctor give a more thorough diagnose and treatment plan. Treatments that are currently being used for osteoarthritis include NSAID (Non-Steroidal Anti-Inflammatory Drugs) medications, glucocorticoid injections, and possibly joint replacement surgery-- in severe cases. Currently, there is no cure for osteoarthritis because once the cartilage is worn out, it can not grow back.

Conclusions



By performing this study, I not only learned a lot about osteoarthritis, but I also got to see what the appearance of osteoarthritis looks like on MRI images. In addition, I also learned that osteoarthritis (also known as degenerative arthritis or degenerative joint disease) affects approximately 21 million people in America and is responsible for about 25% of visits to primary care doctors. What was most alarming to me while researching this topic was that by the age of 65, “it’s estimated that 80% of the population will have radiographic evidence of osteoarthritis... (Wikipedia, 2006).”

There are two categories of osteoarthritis—primary and secondary. Primary osteoarthritis is caused by aging due to the degeneration of proteins and the increase of water content in the cartilage. On the other hand, secondary osteoarthritis is caused by other conditions or diseases such as diabetes, inflammatory diseases, osteoporosis, obesity, repeated trauma, surgery, and hormonal disorders.

In conclusion, I believe that MRI is a very useful tool in diagnosing osteoarthritis easily due to how clear and define structures appear. Lastly, it allows for viewing of all structures in three different planes.

References



Berg, Thomas D. Mercy Hospital (Iowa City). February 3, 2006.

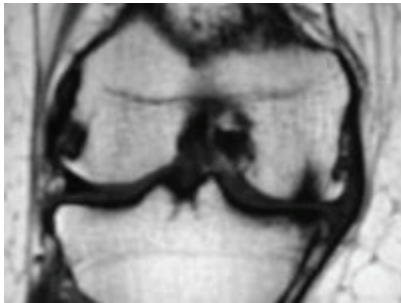
Stacy, Gregory. "Osteoarthritis, Primary". November 4, 2005.
<http://www.emedicine.com/radio/topic492.htm>.

Wikipedia. "Osteoarthritis". November 2002. (modified on February 6, 2006) <http://en.wikipedia.org/wiki/Osteoarthritis>.

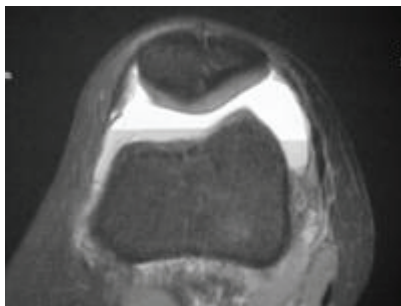
Images



The following MRI images are not of the above patient but were obtained from eMedicine to give a visual of osteoarthritis on MRI images (<http://www.emedicine.com/radio/topic492.htm>). Patient images were unattainable.



COR T1



AXIAL T2 FS