INTRODUCTION:

Magnetic Resonance Imaging (MRI) is used to assess knee problems and conditions. Subtle abnormalities in ligaments, tendons and cartilage are well demonstrated on MRI scans.

INDICATIONS FOR KNEE MRI:

For evaluation of known tumor, cancer or mass:
- Initial evaluation of known tumor.
- Evaluation of known tumor or cancer for patient undergoing active treatment with most recent follow-up study > 2 months (documentation to include but not limited to type/timing/duration of recent treatment)
- Evaluation of palpable mass where imaging study, (such as ultrasound, x-ray, etc.) demonstrates a lesion.
- Evaluation of known tumor or cancer presenting with new signs (i.e., physical, laboratory, or imaging findings) or new symptoms.
- Evaluation of known tumor or cancer with no imaging/restaging within the past 10 months.

For investigation of a suspicious mass or tumor when study is requested within 3 months of original findings on prior imaging (plain film x-ray, CT, bone scan, ultrasound, etc.):
- Investigation of suspicious mass or tumor when study is requested within 3 months of imaging findings shown on plain films or previous CT.
- Investigation of suspicious mass or tumor when study is requested within 3 months of findings when a distant primary tumor is known to exist with prior abnormal exam, lab or imaging findings requires documentation of primary tumor diagnosis (type of cancer, mo/yr diagnosed or biopsied).

For investigation of known or suspected infection:
- Shown on abnormal plain films or CT.
- Shown on abnormal bone scan.
- Shown on abnormal ultrasound.
- With abnormal musculoskeletal, physical or laboratory findings.

For investigation of suspected aseptic or avascular necrosis:
- Shown on abnormal plain film or CT.
- Shown on abnormal bone scan.
• With abnormal musculoskeletal, physical or laboratory findings.

For evaluation of trauma within the last three days:
• When new signs or symptoms are present since previous CT was obtained.
• With abnormal plain film.
• Accompanied by blood in the joint (hemarthrosis) demonstrated by aspiration.
• Accompanied by joint locking or instability.
• With newly limited range of motion.
• Accompanied by swelling. Must be able to differentiate joint swelling from swelling of the surrounding soft tissues and/or bursa.
• Accompanied by physical findings of a meniscal injury determined by physical examination tests (McMurray’s, Apley’s) or significant laxity on varus or valgus stress tests.
• Accompanied by physical findings of anterior cruciate ligament (ACL) or posterior cruciate ligament (PCL) ligamental injury determined by the drawer test or the Lachman test.
• With prescription for non-weight bearing status or immobilization.

For evaluation of pain persisting greater than three days:
• With failed physical therapy.
• With blood in the joint (hemarthrosis).
• With joint locking or instability.
• With swelling. Must be able to differentiate joint swelling from swelling of the surrounding soft tissues and/or bursa.
• With physical findings of a meniscal injury proven by positive McMurray’s, Apley’s, or significant laxity on varus or valgus stress tests.
• With physical findings of an ACL, LCL, MCL or PCL ligamental injury proven by positive Drawer, Lachman’s, valgus or varus stress testing with differential findings on exam from the unaffected side.
• With failed course of conservative treatment, including active therapy, of at least four (4) weeks.
• With prescription for non-weight bearing status or immobilization.
• With failed injection therapy.

For evaluation to rule out meniscal, ACL or PCL injury when evidenced by physical findings with or without pain:
• Joint locking or instability.
• Known or R/O ACL, LCL, MCL or PCL ligamental injury with positive drawer, Lachman’s, valgus or varus stress testing with differential findings on exam from the unaffected side.
• Physical findings of a meniscal injury proven by McMurray’s, Apley’s, or significant laxity (with differential findings on exam from the unaffected side) on varus or valgus Stress.
For pre-operative evaluation:
- Planned or scheduled open surgery, e.g., full or partial joint replacement.

For post-operative evaluation:
- When plain film findings, physical or laboratory findings show joint infection or delayed or failed healing.
- When ordered by an orthopedic specialist.

Other indications for a Knee MRI:
- To evaluate joint effusion seen on plain film.
- To assess union of a known fracture where physical or plain film findings suggest delayed or failed healing.
- To assess status of osteochondritis dissecans where physical or plain film findings suggest its presence.
- To assess status of a “loose body” in the presence of a joint effusion.
- To assess prosthetic device dislocation from documented physical or plain film findings.

INDICATIONS THAT REQUIRE FURTHER CLINICAL REVIEW:

- For evaluation of suspected Baker’s cyst (should be evaluated with ultrasound).
- For evaluation of osteoarthritis of the knee.
- For evaluation of crepitus symptom with no other symptoms.
- For evaluation of internal derangement without specific symptoms noted.
- For any combination or bilateral study.
- For same test being performed less than six weeks apart unless specific guideline criteria states otherwise.
- For different imaging tests, such as CT and MRI, of same anatomical structure less than six weeks apart without high level review to evaluate for medical necessity.
- For re-imaging of same, poor or contrast enhanced study.

ADDITIONAL INFORMATION RELATED TO KNEE MRI:

Request for a follow-up study - A follow-up study may be needed to help evaluate a patient’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

MRI imaging – Metal devices or foreign body fragments within the body, such as indwelling pacemakers and intracranial aneurysm surgical clips that are not compatible with the use of MRI, may be contraindicated. Other implanted metal devices in the patient as well as external devices such as portable O₂ tanks may also be contraindicated.

Intravascular administration of contrast material may be contraindicated in patients who have a documented allergy from prior contrast administration or a history of atopy.
Intravascular contrast agents may be contraindicated in patients who have impaired renal function

**Conservative Therapy:** (musculoskeletal) includes a combination of modalities, such as rest, ice, heat, modified activities, medical devices, (such as crutches, immobilizer, metal braces, orthotics, rigid stabilizer or splints, etc and not to include neoprene sleeves), medications, injections (epidural, facet, bursal, and/or joint, not including trigger point, diathermy, chiropractic treatments, physician supervised home exercise program. Part of this combination may include the physician instructing patient to rest the area or stay off the injured part. **NOTE** - conservative therapy can be expanded to require active therapy components (physical therapy and/or physician supervised home exercise) as noted in some elements of the guideline.

**Home Exercise Program - (HEP) –** the following two elements are required to meet guidelines for completion of conservative therapy:

- Information provided on exercise prescription/plan AND
- Follow up with member with information provided regarding completion of HEP (after suitable 4-6 week period), or inability to complete HEP due to physical reason- i.e. increased pain, inability to physically perform exercises. (Patient inconvenience or noncompliance without explanation does not constitute “inability to complete” HEP).)

**MRI in Knee Trauma** - MRI is an effective means of evaluating internal derangements of the knee with a very high accuracy for detection of meniscal injury. On MRI of the knee, meniscal injury may appear “free-floating”, corresponding to a meniscal avulsion or detachment from the tibial plateau. The floating meniscus seen on MRI is a result of significant trauma. It may also be associated with significant ligamentous injury. The results of the MRI are valuable to the surgeon as he plans to reattach the meniscus to the tibial plateau.

**Osteonecrosis** – Osteonecrosis is a complication of knee surgery which may be accompanied by new or persistent pain after meniscal surgery. It can be detected by MRI with subcortical low signal intensity of T1-weighted images with or without central high signal intensity on T2-weighted images. Osteonecrosis can result in collapse of the articular surface.

**Joint locked** - joint in an intermediate position between full flexion and full extension and unable to move.

**Joint locking** - joint unable to achieve full extension (usually lacking 5-10 degrees of full extension). Not normal but not indicative of significant joint pathology.

**Instability** - demonstration on physical exam of at least one major ligament (ACL, PCL, medical collateral ligament, lateral collateral ligament) being compromised. This requires a positive Drawer, Lachman, varus or valgus stress test and/or the treating physician committing the patient to the use of a wheelchair, crutches or immobilization splinting of the joint.
REFERENCES:


