Imaging After Total Knee Arthroplasty

Knee replacement, or total knee arthroplasty, is the most common joint replacement procedure in the United States. Most patients do not require any imaging after discharge other than the x-rays at the first postoperative follow-up appointment.

Symptoms of pain after surgery can be due to infection, loosening of the components of the joint replacement, reaction to the liner of the replacement, or fracture, among other causes. The optimal examination in this setting is an x-ray to help identify loosening or fluid.

If there is fluid in or around the joint on x-ray or swelling on physical examination, fluid removal (aspiration) can be performed under local anesthetic to check for infection. If the joint fluid is infected, no further imaging is required.

If the joint fluid does not give a clear answer and if infection is still suspected, repeating the aspiration or doing a bone scan may be appropriate.

If there is no fluid and infection is unlikely, then loosening can be evaluated in two ways. Real-time video x-ray or fluoroscopy can help identify the abnormal motion of the knee joint. CT without contrast can also assess for loosening, inflammation, bone loss, or small fracture around the prosthesis. Additionally, CT can also help evaluate whether the parts of the joint replacement have rotated from the initial placement.

If a soft tissue abnormality is suspected (such as tendon or muscle injury or nerve impingement), an MRI (https://www.radiologyinfo.org/en/info/kneemr) without contrast or ultrasound may be appropriate.

— By Casey Quinlan, Tasneem Lalani, MD. This information originally appeared in the *Journal of the American College of Radiology*.

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