

Evidence Discussion (General Guidelines MS-1)

For most patients with a musculoskeletal complaint, a diagnosis can be made based on a detailed history, physical examination and plain radiographs. [1]

X-rays can determine whether an advanced diagnostic imaging study is actually needed, what specific advanced diagnostic imaging study is warranted and if contrast is needed. X-rays often have a larger field-of-view than an MRI or CT and have the potential to identify more proximal or distal pathology in an extremity that could ultimately assist in determining the patient's diagnosis. Advanced imaging results are better interpreted when compared to plain x-rays, which provide complementary clinical information regarding detailed bony anatomy and may assist with pre-operative planning when surgery is being contemplated. Taljanovic, et al. concluded when MRI is necessary, radiographs are considered an essential, initial complementary study for the reading of musculoskeletal MRIs. [7] Initial plain x-rays (prior to obtaining advanced imaging) for musculoskeletal conditions are also recommended by the American College of Radiology Appropriate Use Criteria. [8,9]

Advanced imaging is typically not necessary for the initial evaluation for patients with a musculoskeletal complaint. Treatment for many musculoskeletal conditions does not rely on advanced imaging results and most patients will improve within a few weeks or months with conservative care. [1, 11] Advanced imaging can often demonstrate abnormalities that have no relevance to the patient's symptoms. It has been reported that approximately 30 – 40 percent of middle-aged patients and an even higher percentage of older patients have asymptomatic meniscus, rotator cuff and superior labral tears. [2, 3, 4, 5, 6] Advanced imaging incidental findings can possibly lead to overtreatment with referral to specialists and possibly unnecessary surgery. Additional risks to the patient associated with advanced imaging include but are not limited to radiation exposure, implanted device complications, metallic foreign body complications and contrast complications. [10]

In general, initial plain x-rays and an initial course of conservative care can provide a significant clinical benefit that would outweigh the clinical harm from perhaps briefly delaying advanced imaging if needed. A course of conservative care or plain x-ray findings many times may obviate the need for advanced imaging which possess their own set of significant risks.

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