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Commentary: Non-contrast magnetic resonance imaging for diagnosing shoulder injuries

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Non-contrast magnetic resonance imaging (MRI) is radiation-free and non-invasive and can almost replace radiography as the preoperative screening tool for diagnosing shoulder injuries, although its diagnostic value for various pathologies has to be appreciated separately from radiography. Nonetheless, a comprehensive clinical evaluation should always be the first step of any diagnostic workup.

MRI is useful in detecting muscle and tendon injuries, soft-tissue pathologies, and major cartilage defects. Uncommon injuries can be readily diagnosed. For example, a rare case of seatbelt injury causing rupture of the deltoid muscle has been diagnosed by MRI.[1] A ganglion cyst in the suprascapular fossa is uncommon and can cause a nerve palsy; non-contrast MRI helps diagnosing this pathology and planning of the surgical procedure.[2] Bony pathology can be associated with other structures; MRI helps assess the anatomic association of acromioclavicular joint degeneration with supraspinatus outlet impingement.[3]

Non-contrast MRI has 89% sensitivity and 100% specificity in detecting rotator cuff tears; all missed tears were partial thickness tears.[4] In a study by Arnold in this issue,[5] the sensitivity and specificity of non-contrast MRI in diagnosing full thickness rotator cuff tears were 0.91 and 0.98, respectively, whereas the corresponding values for diagnosing labral tears were 0.48 and 0.99. Thus, non-contrast MRI was regarded as reliable only for full thickness rotator cuff tears and anterior labral tears. Classification of superior labrum anterior posterior tears or the diagnosis of a partial rotator cuff tears cannot be accurately established, except by contrast-enhanced MRI.

Non-contrast MRI can be used as a screening tool for shoulder problems in conjunction with comprehensive clinical examination and radiography or ultrasonography. Contrast enhancement should be an option, if there is a suspicion of partial rotator cuff tear or labrum pathology.

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