

Browser's Notes

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The diagnostic performance of dual energy CT for diagnosing gout: a systematic literature review and meta-analysis.

Gamala M, et al.

Rheumatology. (2019); 58(12):2117-21

This manuscript reviewed the diagnostic performance of dual energy computed tomography (DECT) for the diagnosis of gout. Of the 10 articles included in the review, 5 studied multi-joint imaging for patient diagnosis (462 subjects) while the others looked at a specific joint- or anatomic location based diagnosis (n = 639). Three of the latter 5 articles included patients with ≤ 6 weeks disease duration. For patient level diagnosis, DECT had a combined sensitivity of 81% (95% confidence interval 77% - 86%) and specificity of 91% (CI 85% - 95%). Joint-/localization-based evaluations of DECT had similar performance with a sensitivity of 83% (CI 79% - 86%) and a specificity of 88% (CI 83% - 92%). The 3 joint-/localization-based studies of early disease (n = 296) showed more false-negative results with a pooled sensitivity of 55% (range 35% to 85%) and specificity of 89% (range 84% to 94%). The authors conclude that DECT is an accurate diagnostic test for patients with established disease. However, DECT is relatively insensitive for patients with new onset disease, although the specificity remains high.

Lateral meniscus posterior root tear in anterior cruciate ligament injury can be detected using MRI-specific signs in combination but not individually.

Asai K, et al.

Knee Surg Sports Traumatol Arthrosc. (2019); Jun 28 [Epub ahead of print] PMID: 31254029

Root tears at the posterior horn of the lateral meniscus (PHLMR) often occur during anterior cruciate ligament (ACL) tears, and some surgeons consider repair of PHLMR

tears to be an important component of surgical treatment of ACL injuries. The individual and combined sensitivity and specificity of 3 MR imaging signs of PHLMR tear were retrospectively evaluated for 231 ACL tear patients (mean age 20 years, 55% male) with surgical correlation at the time of ACL reconstruction as the reference standard (mean time between MR and surgery was 18 days). At surgery, 32 (13.8%) patients had either a PHLMR tear or complete radial meniscal tear within 1 cm of the root (PHLMR tear group). Two orthopedic surgeons who had no knowledge of the operative findings independently reviewed the preoperative MR images for the “cleft sign” – described as a “vertical cleft” at the meniscal root on coronal images, “ghost sign” – a “defect” in the PHLMR indicated by absence of the meniscus near the tibial spine on sagittal images, and the “truncated triangle sign” – blunting of the central tip of the lateral meniscus near the tibial spine on sagittal images. In isolation, each sign was found to be specific for PHLMR tears (cleft 96%, ghost 97%, truncated triangle 94%), however, as expected, sensitivities were low (cleft 66%, ghost 34%, truncated triangle 59%) since not all signs were present for each patient. However, if the presence of any one of the 3 MR signs was considered diagnostic of a PHLMR tear, sensitivity improved to 84% with only a slight decrease of specificity to 90%. Interestingly, for the subset of patients with MR imaging performed within 2 weeks of injury (47 patients, 8 with PHLMR tear), the presence of any of the MR signs only had a 50% sensitivity, but 92% specificity. It is unclear if the lower sensitivity was from acute MR findings masking the imaging signs or if some PHLMR tears develop after the acute injury. When an ACL tear is found on knee MR images, these 3 signs should be specifically evaluated since the presence of any one indicates a high likelihood of a tear of the posterior horn root of the lateral meniscus.

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