

Dual energy CT accurately identifies ACL tears in emergency department

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Dual energy CT is an effective way to evaluate emergency department patients with possible anterior cruciate ligament (ACL) tears, a new study shows. ACL tears are one of the most frequent ligamentous injuries of the knee; they are not commonly diagnosed in the emergency department because they are not seen on plain x-rays.

Researchers at Mayo Clinic in Rochester, MN, imaged the knees of 27 patients using dual energy CT—16 of the patients had confirmed ACL tears, while 11 had no history of trauma, said Dr. Katrina Glazebrook, a lead author of the study.

The images were reviewed by a musculoskeletal subspecialty trained radiologist and one senior level radiology resident. The subspecialty trained radiologist was 94% accurate in identifying the ACL tears on dual energy CT; the resident had an 87% [accuracy rate](#), said Dr. Glazebrook.

"While this is a new use for dual energy CT, the images were of sufficient [spatial resolution](#) and [diagnostic quality](#) that [radiologists](#) with various levels of expertise in musculoskeletal imaging could accurately identify the tears," said Dr. Glazebrook.

Dual energy CT can also be used to assess bone bruise or contusion within the bone marrow, added Dr. Glazebrook.

"While MRI is considered the gold standard for evaluation of internal

derangement of the knee, MRI is rarely used in the emergency department because it requires a longer scan time (30-40 minutes in which the patient has to keep his or knee in what can be an uncomfortable position) as compared to CT (few seconds). MRI is usually not readily available and it can be more costly than CT," added Dr. Glazebrook. "Using dual energy CT to identify significant internal derangement of the knee early can facilitate treatment planning for patients with knee trauma," she said.

The study is part of an electronic exhibit that will be available from April 13-April 19 at the ARRS Annual Meeting in Washington, DC.

Provided by American Roentgen Ray Society

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