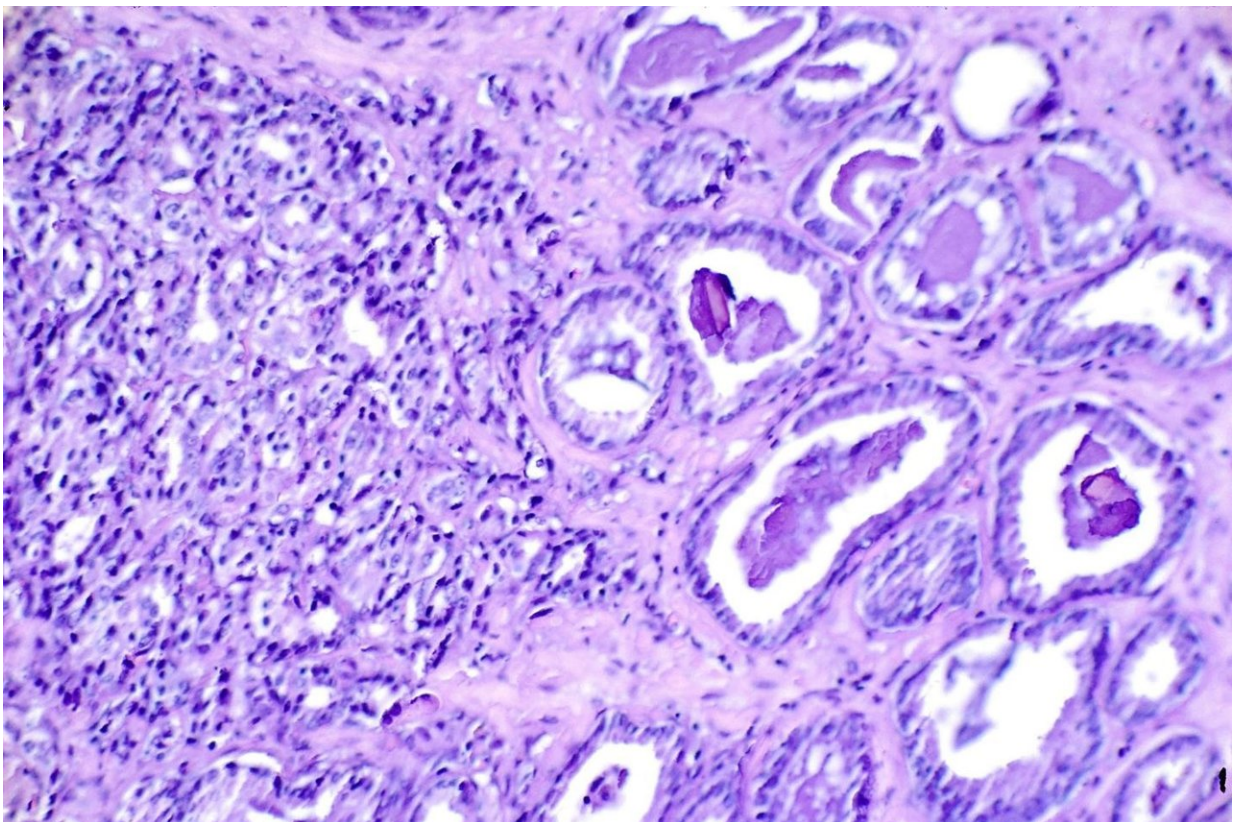


Study shows targeted biopsy for prostate cancer more effective than traditional method

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Prostate cancer cells. Credit: Otis Brawley

Researchers at the University of Cincinnati (UC) have found that MRI fusion biopsy—coupling MRI and ultrasound to visualize suspicious

lesions in the prostate gland and targeting the biopsy to that particular area—outperformed standard prostate biopsy in patients with a prior negative prostate biopsy.

This data, published in the May 10 advance online edition of the journal *Urologic Oncology*, could provide a new standard of care when screening men for [prostate cancer](#) and could lead to more efficient practices, saving time and money and improving diagnosis times for [patients](#).

"In this study, we used a large multi-institutional sample size," says Abhinav Sidana, MD, director of urologic oncology and assistant professor in the Division of Urology at the UC College of Medicine and the corresponding author on this study. "In men with suspicion of having prostate [cancer](#), standard (collecting 12 samples from the prostate), or saturation (collecting 20-40 samples from the prostate), [biopsy](#), a more randomized approach, has traditionally been a principal method for diagnosis. However, this can lead to overdiagnosis of clinically insignificant cancer, meaning prostate cancer where treatment is not needed, underdiagnosis of clinically significant cancer, meaning prostate cancer where treatment is needed, and has a high false-negative rate, meaning tests that read negative for cancer when it is truly malignant.

"Patients with continued suspicion of prostate cancer and negative prior prostate biopsy are a diagnostic challenge, and around 38 percent will undergo repeat standard or saturation biopsy over five years in order to obtain a diagnosis. Unfortunately, repeating this has little efficacy in identifying cancerous lesions with only a 10 to 25 percent cancer detection rate even after the fourth repeat biopsy. These multiple re-biopsies also lead to increased cost, delayed diagnosis and could contribute to progression of a patient's disease."

Sidana, who is also a UC Health urologist and a member of the UC Cancer Institute, says that MRI fusion biopsy has emerged as a

promising alternative because of its ability to help physicians identify clinically significant cancers and that several single-institution studies have found the benefit of this method in detecting prostate cancer in patients with prior negative prostate biopsies. However, the analysis in relation to the number of prior negative biopsies a patient had was limited.

"We wanted to investigate the efficacy of fusion biopsy in comparison to systematic biopsy in the detection of clinically significant prostate cancer and to determine the effect the number of prior negative biopsies had on cancer detection with each method," he says.

The cases of 779 patients—each with a history of one or more negative biopsies who also underwent MRI biopsy fusion—from four institutions were analyzed making it one of the largest studies in this population, says Sidana. Institutions included the National Cancer Institute in Maryland; Northwell Health in New York; University of Alabama at Birmingham School of Medicine; and State University of New York Upstate Medical University.

The average age of patients was 63. Of the 779 patients, cancer was detected in 346 patients (44 percent), and the clinically significant cancer detection rate was 30.7 percent with fusion biopsy detecting 26.3 percent (205 cases) and systematic biopsy detecting only 4.4 percent (34 cases).

"Of all cancers detected by each method, fusion biopsy detected a higher proportion of clinically significant cancer when compared to standard biopsy," Sidana adds. "Fusion biopsy also outperformed standard biopsy in finding high-risk prostate cancer. While patients with a higher number of prior prostate biopsies had a poorer cancer detection rate on standard prostate biopsy, detection on fusion biopsy stayed constant and did not decrease in patients with a higher number of prior prostate biopsies, thus

proving it to be more accurate in finding cancers."

Sidana says these results show that the [fusion](#) biopsy technique should be used in patients with suspicion of [prostate](#) cancer.

"These findings may work to change or improve standard of care and could help in avoiding unnecessary biopsies, saving patients and health care systems money, as well as helping to diagnose cancers earlier, improving patient care and quality of life," he says.

Provided by University of Cincinnati Academic Health Center

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