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**News Release**  
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**In a First for Arkansas, UAMS Uses  
NanoKnife Technology to Treat Prostate Cancer**

LITTLE ROCK — The University of Arkansas for Medical Sciences (UAMS) recently became the first provider in Arkansas of NanoKnife technology, a new form of focal therapy for localized prostate cancer.

Focal therapy is a minimally invasive outpatient procedure that uses different forms of energy to target only the area of the prostate where cancerous cells are located and destroy them while sparing damage to surrounding tissue. It carries a lower risk of side effects — such as erectile dysfunction and urinary incontinence — than radiation and surgery, which are the other treatments for prostate cancer.

The NanoKnife form of focal therapy uses irreversible electroporation (IRE), which consists of short, high-voltage electrical pulses, to isolate the tumor without overtreating the entire prostate gland.

Other types of focal therapy destroy the tumor with cold gases (cryotherapy), heat from a laser (focal laser ablation), heat from high-frequency sound waves (high-intensity focused ultrasound), or heat from sound waves (transurethral ultrasound ablation of the prostate, known as TULSA).

“The NanoKnife System is the only function-preserving, minimally invasive therapy that uses electricity to destroy prostate tumors,” according to AngioDynamics, a medical technology company that designs and manufactures the technology.

“This is a more advanced version of focal therapy,” said Tim Langford, M.D., a urologist and chair of the UAMS Department of Urology. “It treats the tumor only and will virtually eliminate the risks of incontinence and erectile dysfunction.”

On March 21, A. Murat Aydin, M.D., a urologic oncologist at UAMS who has extensively trained on the use of NanoKnife Technology, performed the state’s first procedure using the technology.

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The patient went home the same day and was doing well when he returned to UAMS for a follow-up visit 10 days later, Aydin said.

“Prostate cancer is the most common cancer in men, and there is a very wide disease spectrum in terms of stage and survival,” Aydin said. “Overtreatment of low-risk and intermediate-risk localized (early stage) prostate cancer by surgery or radiation is a major issue, and this leads to increased frequency of quality-of-life issues, such as erectile dysfunction and urinary incontinence, without any survival benefit.

“Patients with localized low-risk prostate cancers have a very good prognosis and can be managed with active surveillance and stringent follow-up,” he said. “However, each year, about 10% of men on active surveillance still receive radical treatment with surgery or radiation due to disease progression, a blood test showing increased levels of PSA marker, patient choice or patient anxiety.”

He said focal therapy emerged as a novel treatment option to destroy the cancer while minimizing the adverse effects of radiation and surgery; however, thermal ablation using ultrasound waves or freezing has had “variable results.”

NanoKnife Technology is a nonthermal form of ablation that uses a novel energy source, Aydin said.

“With IRE, we place thin needles in the perineum to deliver electrical pulses to destroy the cancerous cells,” he said. “This technique has been shown to be very effective, avoiding energy spread beyond the needles to protect essential organs and structures related to functionality such as the rectum, the sphincter muscles responsible for urinary continence and the nerves around the capsule of prostate that are responsible for erection.”

“To put this in context,” Langford said, “this is kind of the Holy Grail for prostate cancer. We’re in the position that breast cancer was in many years ago. We’ve never had a ‘lumpectomy’ for prostate cancer. This technology allows us to treat small tumors with minimal risks of side effects and is a real game changer. We’re proud to offer the latest advancement in focal therapy to patients from across Arkansas.”

Langford said that Aydin and another urologic oncologist, Marcelo Bigarella, M.D., perform the NanoKnife Technology procedure at the UAMS Health Urology Center at Premier Plaza in Little Rock. It takes about 45 minutes while the patient is under general anesthesia, and the patient is discharged the same day with a urinary catheter that will be removed in two to five days.

“The follow-up for patients after the procedure consists of a PSA (prostate-specific antigen) test, MRI and biopsies at regular intervals,” Aydin said.

This advanced form of focal therapy adds to the comprehensive array of advanced oncological services, including proton therapy, that are available at UAMS, which provides a multidisciplinary approach to health care.

UAMS is the state's only health sciences university, with colleges of Medicine, Nursing, Pharmacy, Health Professions and Public Health; a graduate school; a hospital; a main campus in Little Rock; a Northwest Arkansas regional campus in Fayetteville; a statewide network of regional campuses; and eight institutes: the Winthrop P. Rockefeller Cancer Institute, Jackson T. Stephens Spine & Neurosciences Institute, Harvey & Bernice Jones Eye Institute, Psychiatric Research Institute, Donald W. Reynolds Institute on Aging, Translational Research Institute, Institute for Digital Health & Innovation and the Institute for Community Health Innovation. UAMS includes UAMS Health, a statewide health system that encompasses all of UAMS' clinical enterprise. UAMS is the only adult Level 1 trauma center in the state. UAMS has 3,485 students, 915 medical residents and fellows, and seven dental residents. It is the state's largest public employer with more than 11,000 employees, including 1,200 physicians who provide care to patients at UAMS, its regional campuses, Arkansas Children's, the VA Medical Center and Baptist Health. Visit [www.uams.edu](http://www.uams.edu) or [www.uamshealth.com](http://www.uamshealth.com). Find us on [Facebook](#), [X \(formerly Twitter\)](#), [YouTube](#) or [Instagram](#).

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