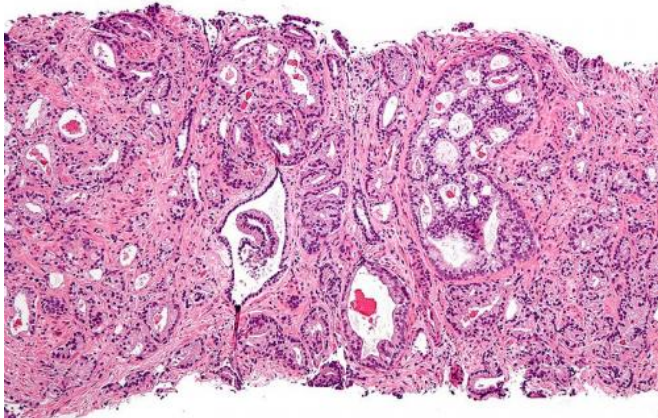


Q&A: Advances in ablation for prostate cancer

5 October 2020, by From Mayo Clinic News Network, Mayo Clinic News Network



Micrograph showing prostatic acinar adenocarcinoma (the most common form of prostate cancer) Credit: Wikipedia

DEAR MAYO CLINIC: My husband was diagnosed with prostate cancer, and we are looking at treatment options. One doctor suggested a prostatectomy, but my husband finds ablation appealing because of quality of life advantages. I've been reading about ablations and came across information about different techniques. I am wondering if one technique or process is better, or if surgery is more successful?

I'm sorry to hear that your husband is dealing with [prostate cancer](#), which is the most common cancer in American men. Approximately 192,000 men will be diagnosed with prostate cancer in 2020, according to the American Cancer Society.

Prostate cancer is more likely to develop in older men, typically those over 60, and it is more common in African American men. Given advances in care, most men will not die from prostate cancer.

There are many options for treating prostate

cancer, depending on the grade and stage of the cancer. In recent years, the guidelines for treating prostate cancer have changed. Also, [technological advances](#) in imaging and treatment have made it possible for some men to avoid radical surgery that may come with adverse side effects. In recent years, surgeons are finding that [ablation](#) is a viable alternative to traditional surgery.

Ablation is a generic or nonspecific term for destroying tissue. In terms of prostate cancer, ablation means the reliable and precise destruction of cancerous tissue while avoiding structures important for normal sexual and urinary function. Over the years, many types of energy have been used to ablate prostate cancer, including heat generated by [ultrasound](#) or laser, and cold generated by expansion of gas.

The ability to control the application of the heat or cold, and get the energy to stay within an intended boundary and not spread even 1 or 2 millimeters beyond, has proven difficult.

The most common type of ultrasound ablation has been transrectal high-intensity focused ultrasound, or HIFU. During this treatment, a rectal probe is inserted and the treatment is done using ultrasound. However, many prostates are beyond the maximum size limits that can be treated with transrectal high-intensity focused ultrasound.

A [promising new technology](#) that is only offered at select centers around the country is building on the rapidly emerging role of the MRI scanner to monitor real-time temperatures in the prostate. Known as transurethral ultrasound ablation, or TULSA, this procedure is performed in the MRI scanner using software that provides thermometry or real-time temperatures within the prostate and surrounding structures. This allows for more precision during the treatment. The temperatures are sent to the ablation device so the power output from the device is continuously adjusted to achieve the desired

temperature at the boundary between the prostate and the surrounding normal structures. The temperature is continuously monitored every six seconds with MRI thermometry. Transurethral ultrasound ablation is a refinement of previous ultrasound-based treatments that do not provide real-time monitoring of temperatures within the prostate.

In planning for transurethral ultrasound ablation, a baseline MRI is obtained with the device in place immediately prior to the ablation. The patient is under anesthesia in the MRI scanner. After the baseline images and prostate temperatures are obtained, treatment planning begins to ensure everything is in place for the procedure.

Although this is a new technology and many years of follow-up will be required to demonstrate equivalency to treatments such as [radical prostatectomy](#), early results from several clinical trials have been encouraging, especially considering how long patients remain [cancer-free](#) three years after surgery. The [clinical trials](#) have proven that this treatment is superior to surgery and radiation in preserving urinary and sexual function after three years. This preservation of function translates into improved quality of life.

Mayo Clinic in Florida is the only Mayo Clinic location that offers this technique. Patients are selected for this procedure based on [prostate](#) anatomy, as well as a review of MRIs, PSA results, biopsy pathology reports and treatment goals.

As different facilities have different infrastructures and expertise, your husband's health care provider can discuss with him the availability of ablation techniques and which technique, if any, would be most appropriate. Also, consider obtaining a second opinion.

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APA citation: Q&A: Advances in ablation for prostate cancer (2020, October 5) retrieved 23 July 2022 from <https://medicalxpress.com/news/2020-10-qa-advances-ablation-prostate-cancer.html>

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