Fighting Cancer
New procedure pinpoints radiation in prostate

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He never expected his cancer to recur.

But after his prostate specific antigen rates tripled in the past two years, Dr. Thomas Humphrey, 78, had to choose how to fight his prostate cancer. His decision to try the relatively new high-dose-rate radiation therapy led him to Texas and the Joe Arrington Cancer Center at Covenant Health System. Also, the new therapy seems to have avoided the complications, such as incontinence and bowel or urinary constriction problems.

"I felt like I'd already had my cancer," the retired oncological surgeon said. "I had melanoma on my eye several years ago and lost the eye." "There's a lot of misinformation about prostate cancer around," Humphrey said. "And you have to do quite a bit of research on prostate procedures."

The complications and side effects of each choice are undesirable, he said. In his research, the Californian said went to the library to read research papers, attended seminars on prostate cancer and called cancer treatment centers across the country, including in Florida, Washington and Illinois. Since cancer could come back after a prostate is removed, surgery didn't look like a good option to Humphrey. Plus, surgery meant the possibility of incontinence and other complications.
That left radiation therapy and another set of choices.

Radiation treatment for the prostate includes several types of external beam radiation, in which a beam of radiation is aimed at the prostate from outside the body. Though techniques for this have advanced in leaps and bounds over the past 10 years, Humphrey said, the radiation hits normal tissues, such as the hips, bowel, bladder and urethra, in order to get to the prostate.

In permanent seed radiation or low-dose-rate radiation, seeds of radioactive iodine-125 or palladium-103 are placed permanently inside the prostate through the use of long needles. However, these seeds can shift during insertion, creating hot and cold spots where tissues may get too much or too little radiation, he said. So, when he found out the Joe Arrington Cancer Center offered high-dose-rate radiation therapy, he decided he'd found the operation of choice. He had his treatments Sept. 9 and Oct. 7. "I called all over the country, about 15 different doctors, and I don't know how many places," Humphrey said. "They all wanted to use external beam therapy. I said I don't want that."
Dr. Girish C. Vallabhan, a urologist, and Dr. Rufus Mark, a radiation oncologist, worked together on Humphrey's prostate operation.

The technology of high-dose-rate radiation therapy, or brachytherapy, has been around for about 40 years, Mark said. It was used originally to treat cervical cancer in Europe.
How the high-dose-rate differs from low-dose-rate is that a higher energy isotope, iridium-192, is used, and the seeds aren't left in the body. The procedure takes a day, said Vallabahn. First, Vallabahn inserts 10 to 18 needle-like tubes through the perineum, which is the region between the anus and the scrotum, into the prostate. He said he uses ultrasound to put the tubes exactly where they need to go. Then, physicists determine exactly how much dosage to the iridium should be given to a specific area. The dose is given three times over a 24-hour period, then repeated in 30 days. The radioactive seeds can be placed exactly where they need to be, he said.

How it differs at Joe Arrington, and what Humphrey said drew him to come to Texas, is that a dose of external radiation is not applied after the high-dose-rate radiation has been administered. The center is one of about six hospitals that do the procedure with a choice of skipping the external radiation step, Mark said. Also, the center does the procedure under local anesthetic, Mark said. Mark said the center changed its therapy procedure because no proof exists that the extra dose of external radiation improves survival rates. Plus, with the high-dose-rate method, radiation extends out of the prostate by about 1.5 centimeters, which reaches into areas where stray cancer cells may have breached the capsule of the prostate. But, Mark said, the extra radiation does increase urinary incontinence by 7 percent and permanent rectal problems by 10 percent. "Those risks have been virtually eliminated" with the procedure, Marks said.
Why is it still being done at other hospitals? Mark said one answer is simple — money.

Standard treatment dictates the use of external beam with low-dose-rate radiation and high-dose-rate radiation, he said. With low-dose-rate radiation, the radiation does not go out as far from the prostate as it does with the high-dose-rate radiation. Therefore, the logic in using external beam radiation with low-dose treatment is to catch any loose cancer cells that have broken out of the prostate. But, that's unnecessary with high-dose-rate radiation, Mark said. And some radiologists don't want to omit a moneymaking part of the procedure. Others may not want to deviate from the standard, he said.

Mark is not alone in this opinion. Humphrey said he went to an international conference on prostate treatment where a speaker said external radiation only added complications with the high-dose implant after Humphrey pressed the question. In fact, that's what made the decision so difficult, he said. Unlike with breast cancer treatment, Humphrey said he found that there was no sharing of ideas among surgeons and radiologists. Surgeons tended to think their way was best, as did radiologists. "They're not lying," he said. "They're not deluding people. That's just human nature." Secondly, Mark said, some men may prefer to have the standard treatment that has been successful for many other men that have come before.

"We're maximizing treatment and minimizing complications," Mark said. "This really is the most elegant way to paint the radiation the way we want to paint it. We can treat a bigger volume of tissue and do a better job of staying off normal tissue."

Only 2 percent of patients have to have a catheter following the high-dose-rate procedure, compared to 35 percent who have the permanent seed procedure, Marks said. And, less than 1 percent experience incontinence.

"The trend is shifting away from external beam treatment," Mark said. "Fifty percent of patients undergoing implants now are not receiving external beam radiation. That's for low dose for sure. "It's a politically charged topic because it's a new technique. Not only will there be a lot of debate about this among doctors, but a lot of patients will inquire about it also. Then, I think a lot of discussion will take place, and that's healthy."

The drawbacks are the patient must go through about a 36-hour period of having the tubes in their perineum. That means lots of lying flat, he said. Also, the patient must come back in 30 days to have the procedure again, unlike the one-time procedure with permanent seeds, he said. Some decide after the complications of the first treatment not to have the second implant, and opt for external beam to finish up, he said. "While I do agree with Dr. Humphrey that this is the wave of the future, it's still not perfect," Mark said. "Of the patients, 10 or 15 percent may have irritative symptoms that take a while to go away."

Finally, more time is needed to determine exactly how effective the treatment is, or if there are any problems that develop in the future, Marks said. This is because prostate cancer develops slowly.

Humphrey said he's happy with his decision. "So far, everything's fine," Humphrey said. "The thing that got me was I was really, really tired for a couple of weeks."

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