

says Pierorazio. In general, he says, the people who undergo active surveillance are older, sicker and have smaller tumors. “However, these patients have done incredibly well. No patient undergoing active surveillance has had kidney cancer spread from the kidney, and none has died of kidney cancer. These early results demonstrate that active surveillance is a safe option for patients with small kidney tumors and, at least, not inferior to surgery in the short term.” About 10 percent of those who undergo active surveillance end up having surgery, “either because of changes in the tumor or their health status, making surgery a more attractive option.”

The next step for the Registry, he says, is to continue to refine selection criteria for active surveillance, to learn more about the significance of growth rates, and to measure quality of life for people in the program. ■

Is a Kidney Tumor Benign? This Not-So-New Test Can Tell

More cases of kidney cancer are being diagnosed now than ever before, in large part due to an increase in the use of cross-sectional imaging techniques such as CT and MRI. But many of these cancers are slow-growing and benign, and may not ever need to be treated, says urologist Michael Gorin, M.D. The

problem, he adds, is that “in standard imaging, it’s hard to tell whether a tumor is aggressive or not. Some tumors, particularly benign oncocytomas and hybrid oncocytic/chromophobe tumors (HOCTs) are unique in that they are composed of cells with numerous densely-packed mitochondria,” the “battery” that makes the cell’s energy.

“This test offers the potential of sparing a significant number of patients an unneeded invasive surgical procedure.”

In the field of nuclear medicine, radioactive substances that are administered intravenously can be detected on a scan to measure how well or poorly an organ is functioning. One such imaging agent has a difficult name: 99mTc-sestamibi. “It is widely available, often used for heart imaging and to show parathyroid adenomas.” 99mTc-sestamibi targets the mitochondria, and clearly shows mitochondria-packed tumors.

Gorin, Mohamad Allaf, M.D., Phillip Pierorazio, M.D. and colleagues recently found 99mTc-sestamibi to be effective in diagnosing oncocytomas and HOCTs. Their preliminary study of six patients was published in *Clinical Nuclear Medicine*. In a follow-up study, 50 patients who had a newly diagnosed renal tumor were imaged prior to surgery. “This allowed us to compare the results of the imaging test to the gold standard

of surgical pathology,” says Gorin. In this study, eight of 50 patients were diagnosed with either oncocytoma or HOCT at the time of surgery. 99mTc-sestamibi and SPECT/CT imaging correctly identified five of six oncocytomas and two out of two HOCTs, resulting in an overall sensitivity of nearly 88 percent. “Using this technology, we can be very certain that patients with a “hot” tumor have a benign mass,” states Allaf. In addition, only two tumors were falsely positive on the imaging test.

“Based on these findings, 99mTc-sestamibi SPECT/CT appears to be an excellent test for the preoperative identification of benign renal tumors and offers the potential of sparing a significant number of patients an unneeded invasive surgical procedure,” says Pierorazio. The investigators plan on confirming this with a larger study. Besides Gorin, Allaf, and Pierorazio, authors included Mark Ball, Christian Pavlovich Jonathan Epstein and Alex Baras.

In related news:

Better Diagnosis of Kidney Tumors

Risk-stratification is like “picking out the bad apples and leaving the good behind,” says Brady chief resident Mark Ball, M.D. Because so many tumors — as many as 30 percent of small kidney tumors that are surgically removed — are found to be benign, Ball and colleagues have been working on ways to help predict the risks of kidney tumors.

In a study led by Ball and recently published in the journal, *Urologic Oncology: Seminars and Original Investigations*, the investigators studied more than 1,000 patients from five different hospitals and identified factors associated with a higher risk of being cancer. Men were at higher risk of having cancer than women; other risk factors include a tumor size greater than 3 centimeters, and a high nephrometry score (a measure of tumor complexity on CT scan). “Patients with

Gorin: Many kidney tumors are slow-growing and may not ever need to be treated.

all three risk factors had an 89-percent chance of having cancer,” says urologist Mohamad Allaf, M.D., the study’s senior author, “while patients with none of these risk factors have only a 64-percent chance of having cancer.” Ball adds: “This nomogram can help us do a better job of predicting which patients are more likely to have cancer, but it’s not enough yet. Better tests are still needed to predict which patients can forego surgery, and who needs aggressive treatment.”

In other recent findings, published in *The Journal of Urology*, the team studied how areas of a kidney tumor may look different (or heterogeneous) under the microscope. “We found that even the most aggressive tumors have areas that look less aggressive under the microscope,” says Ball, who was the study’s lead author. This may mean that biopsies are not that helpful. “Renal mass biopsy is sometimes used before surgery to confirm the diagnosis, but it’s not a perfect test, and our study shows that it can sometimes give false reassurance,” says urologist Phillip Pierorazio, a coauthor of the study. ■



Ball: We need better tests to predict who needs surgery, and who doesn’t.

DISCOVERY IN TESTIS CANCER

Early-Stage Testicular Cancer: A Laparoscopic Improvement in Treatment

When a man is diagnosed with early-stage testicular cancer (specifically,



From left, Allaf, Harris, and Pierorazio: New procedure is “technically challenging,” but is a better, minimally invasive cancer operation. Note: Pierorazio sports a mustache grown in “Movember” to support testicular cancer research and treatment.

a nonseminomatous germ cell tumor), his treatment choices include active surveillance, chemotherapy, or a procedure called primary retroperitoneal lymph node dissection (RPLND), removal of the lymph nodes to make sure the cancer has not spread. But RPLND is major abdominal surgery. Thus, “more recently, active surveillance has become the most favored management strategy,” says urologist Phillip Pierorazio, M.D., “given the uncertain, long-term side effects of chemotherapy and the short-term side effects of RPLND.” However, men who fail active surveillance are often restricted to chemotherapy as their only option for treatment.

“In a disease that is 99 percent curable and with patients who have little surgical risk due to their young age and good general health, the argument could be made for aggressively treating men with low-stage disease with a minimally-invasive procedure.”

Testis cancer generally affects young, otherwise healthy men, and — if it weren’t such an arduous procedure — RPLND could eliminate the need for a prolonged course of cancer surveillance or the long-term side effects of chemotherapy. “In a disease that is 99 percent

curable and with patients who have little surgical risk due to their young age and good general health, the argument could be made for aggressively treating men with low-stage disease with a minimally-invasive RPLND,” Pierorazio continues.

There is a more minimally invasive choice: Robot-assisted laparoscopic RPLND. “This procedure has been shown to offer better perioperative (during and immediately after surgery) outcomes when compared to the open operation, with the same degree of cancer control. However, it is a technically challenging procedure.” Urologists Mohamad Allaf, M.D., and Pierorazio, who perform this operation, recently published the results of the Johns Hopkins experience and a comparison of laparoscopic and robot-assisted laparoscopic RPLND in the *British Journal of Urology International*. Kelly Harris, a medical student, future urologist, and the lead author of the study summarizes, “Our group has shown that robotic is comparable to laparoscopic, with the added benefits of better three-dimensional visualization and degrees of freedom to afford a better, minimally invasive cancer operation.” ■

