
RSNA Press Release

Minimally Invasive Procedure Successfully Eliminates Kidney Tumors

Released: January 28, 2003

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Oak Brook, IL — A relatively new, minimally invasive procedure using radio frequency successfully eliminates small kidney carcinomas, according to a study appearing in the February issue of the journal *Radiology*. The research, from Massachusetts General Hospital (MGH) in Boston, represents the most extensive experience with image-guided radiofrequency ablation (RFA) of renal cell carcinoma and the longest cumulative follow-up reported to date.

Renal cell carcinoma (kidney cancer) is on the rise. The American Cancer Society estimates that there will be approximately 31,900 new cases of kidney cancer in the United States in 2003. The five-year survival rate for people diagnosed with renal cell carcinoma is approximately 60 percent. The current treatment standard is open surgical removal of the affected kidney. Minimally invasive RFA can help patients with only one kidney or compromised renal function to avoid surgery and dialysis.

"RFA has a very high success rate for small tumors near the surface of the kidney. We can ablate the entire tumor without any evidence of residual disease," said the study's lead author Debra A. Gervais, M.D., assistant professor of radiology at Harvard Medical School and director of Interventional Radiology at MGH. "We have also successfully treated patients with larger tumors close to the kidney center."

RFA utilizes a specially designed needle connected to a radio frequency generator to ablate, or burn away, the tumor. Computed tomography (CT) or ultrasound is used to guide the needle to the tumor site for ablation.

The insulating fat surrounding the kidney allows high temperature ablation on tumors protruding from the kidney. Tumors deep inside the kidney are more difficult to eliminate, because ablation temperatures must be controlled so as not to damage the kidney.

"We have succeeded in ablating all tumors three centimeters or smaller. However, we have succeeded in complete ablation of larger tumors of up to five centimeters only if they were in a favorable location," Dr. Gervais said. "Patients with the larger tumors may have to come back for a second treatment session, because only a small volume of tissue can be ablated

with each needle placement," she added.

Over a 3.5-year period, 34 consecutive patients who underwent RFA for treatment of kidney cancer were evaluated for technical success and clinical outcome. Of the 42 tumors treated in the study, all 31 tumors near the kidney surface were completely ablated. Tumors larger than three centimeters located near the kidney's center were more difficult to treat. However, 2 of the 11 large, central or mixed tumors were completely ablated in a single session, with 3 more treated successfully with only one additional visit.

The researchers did not find any tumor recurrences during follow up in patients who had been treated with technical success.

"Our research has defined a small niche of patients for whom radiofrequency ablation has a very high technical success rate," Dr. Gervais said. "Clearly this requires further study as to how we can enhance our technical success rate for other patients."

Dr. Gervais advises patients with kidney cancer to ask their doctors about RFA, which will likely become more widely available in the near future.

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Radiology is a monthly scientific journal devoted to clinical radiology and allied sciences. The journal is edited by Anthony V. Proto, M.D., School of Medicine, Virginia Commonwealth University, Richmond, Virginia. Radiology is owned and published by the Radiological Society of North America Inc. (<http://radiology.rsna.org>)

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"Renal Cell Carcinoma: Clinical Experience and Technical Success with Radio-frequency Ablation of 42 Tumors." Collaborating with Dr. Gervais on this study were Francis J. McGovern, M.D., Ronald S. Arellano, M.D., W. Scott McDougal, M.D., and Peter R. Mueller, M.D.