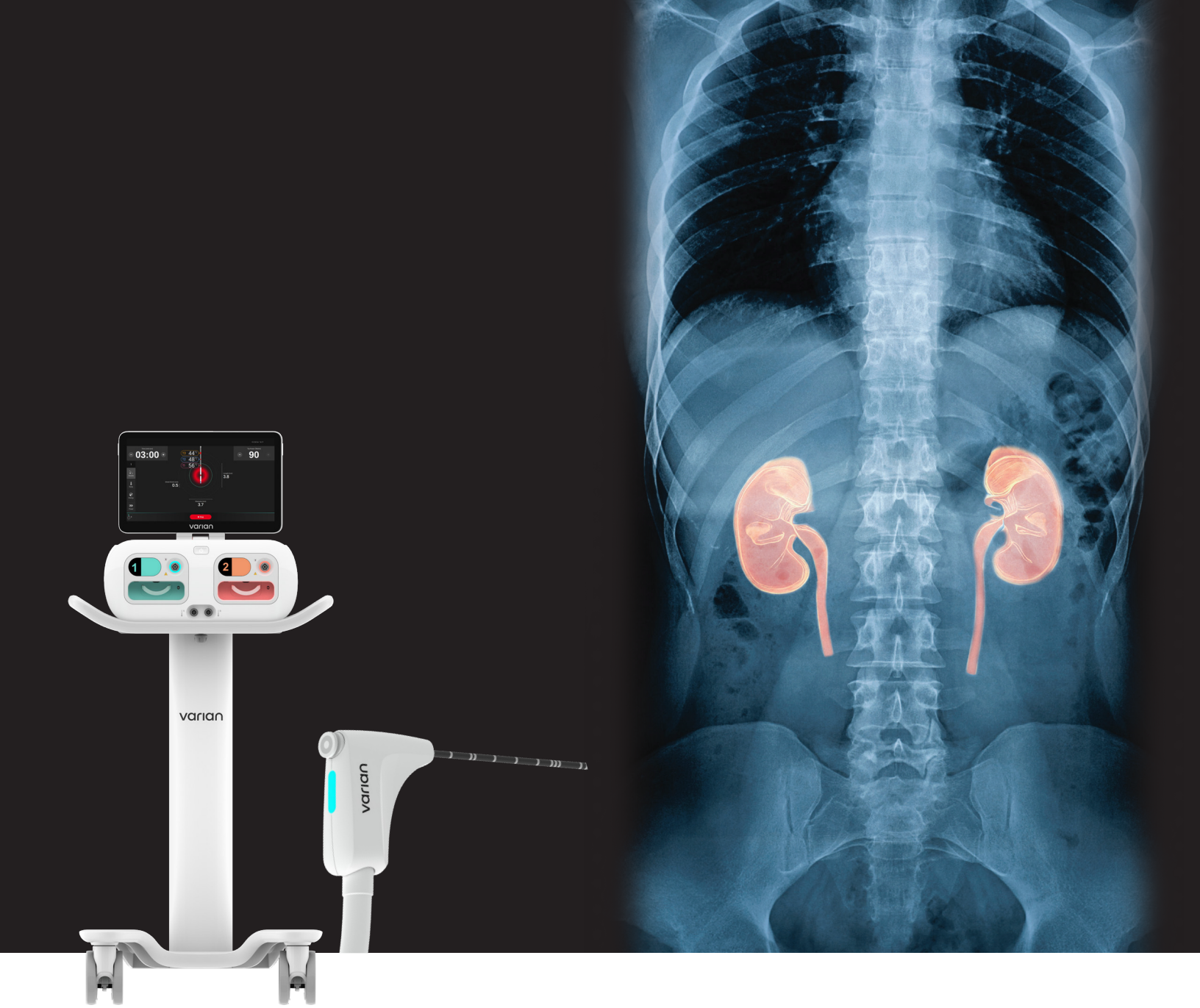


Kidney

IntelliBlate Microwave Ablation System Case Study

Microwave Ablation of Exophytic Kidney Tumor

SIEMENS Healthineers

Patient History

A 73 year-old female presented in November 2024 with T1a renal cell carcinoma with an upper pole exophytic mass 2.3 cm in diameter. The patient had diverticulosis butno pertinent renal history.

Procedure performed by:

Jordan Tasse, MD

Associate Professor of Radiology,
Vascular & Interventional Radiology;
Director of Interventional Oncology

Rush University Medical Center

Chicago, Illinois

Treatment Selection

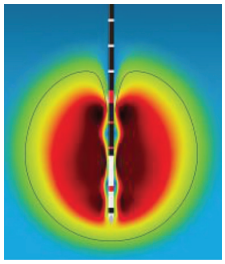
The patient was referred to interventional radiology for ablative treatment as a minimally invasive alternative to surgery due to the size and location of the tumor. Microwave ablation (MWA) was selected over cryoablation due to a shorter ablation time and a reduced risk of bleeding. The IntelliBlate Microwave Ablation System is a next generation, microwave ablation platform for the treatment of soft-tissue such as within the kidney. The system was used for the predictable spherical ablation zones, offering more consistent tumor coverage during ablation.

The Ximitry probe is designed for consistent thermal delivery to produce a uniform spherical ablation zones. These probes also have three integrated themocouples to monitor the ablation zone and the temperature in adjacent healthy tissue and vital structures, making it ideal for treating exophytic renal tumors. The IntelliBlate System, also has a "tract ablate" feature that cauterizes along the needle tract to reduce the risk of bleeding, an important benefit when treating kidney tumors.

Pre-treatment CT scan

Arrow shows location of exophytic renal mass

Cystic lesion in the lower pole of the right kidney with enhancing internal separations.



The Ximitry probe produces a spherical ablation zone, and its 3 thermocouples enable real-time temperature monitoring inside and outside the ablation zone.

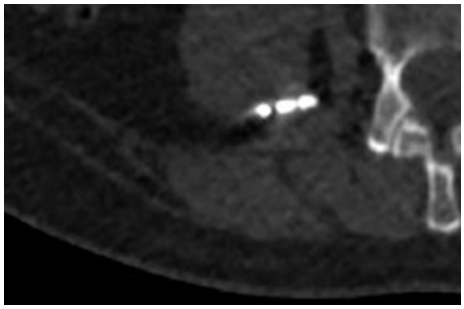
"The IntelliBlate System enables real-time assessment of tissue temperatures and the size of the ablation zone enabling intraprocedural changes to the duration of treatment when appropriate."

–Dr. Jordan Tasse

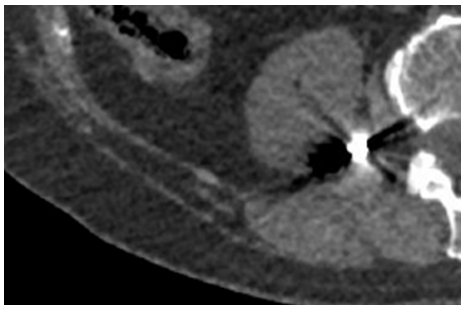
Treatment

Under general anesthesia and prior to the MWA procedure, a biopsy was taken and fluid was aspirated from the lesion. Based on the biopsy results, a single 15 cm Ximitry probe was inserted via a posterolateral approach. The probe was advanced into the renal parenchyma near the exophytic edge of the lesion to the renal parenchyma near the ablation zone. The IntelliBlate System was set to deliver 30W over 5 minutes for a treatment area of 2.4 cm x 2.6 cm. The planned ablation size would provide adequate tumor coverage and an ablation zone to ensure margins.

The IntelliBlate System's real-time temperature monitoring (the T1 thermocouple) showed the desired temperature achieved at 4 minutes; the decision was made to stop the ablation. The temperature for the T2 and T3 thermocouples were maintained at <40° C throughout the procedure. A post-treatment CT scan showed no hemorrhage and an ablation zone sufficiently wide to encompass lesion while also providing good margins. There were no adverse events.



CT scan

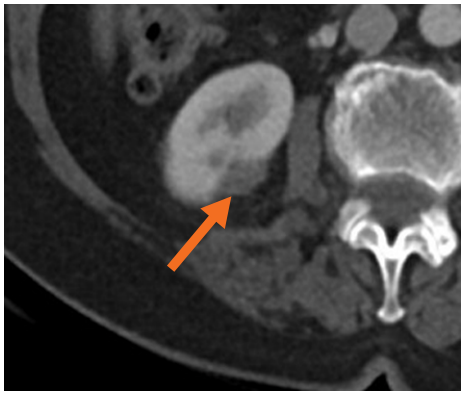


Scan during ablation demonstrating gas encompassing the entire lesion

Real-time procedural feedback from temperature sensors as shown on the IntelliBlate System interface

Post-Procedural Results

Follow up imaging at 6 months showed no internal enhancement and shrinkage of tumor, indicating complete response of this T1a renal cell carcinoma.



6 month post-ablation CT scan showing an effective ablation.

Discussion

The IntelliBlate System enabled the positive outcome of complete tumor ablation while also surrounding renal tissue and structures and no post-operative bleeding. Monitoring of the output from the device's thermocouples during treatment enabled real-time treatment decision making and shortening of the ablation procedure.

Scan this QR code to learn more about the IntelliBlate Microwave Ablation System

Intended Use Summary
The IntelliBlate Microwave Ablation System is intended for coagulation (ablation) of soft tissue in laparoscopic, intraoperative, and percutaneous ablation procedures, including partial or complete ablation of non-resectable liver tumors. The IntelliBlate Microwave Ablation System is not intended for use in cardiac procedures.

The IntelliBlate Ximitry Probe Assembly, used with the IntelliBlate Microwave Ablation System is intended for coagulation (ablation) of soft tissue in laparoscopic, intraoperative, and percutaneous ablation procedures, including partial or complete ablation of non-resectable liver tumors. The Ximitry Probe Assembly is not intended for use in cardiac procedures.

Medical Advice Disclaimer
Rx only. Indications, contraindications, warnings, and instructions for use can be found in the product labeling supplied with each device.

Varian Medical Systems, Inc. as a medical device manufacturer cannot and does not recommend specific treatment approaches. Specifications subject to change without notice. Not all features or products are available in all markets and are subject to change.

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