**RSNA Press Release**

# Minimally Invasive Procedure Effectively Treats Small Kidney Cancers

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Iben Lyskjær, Ph.D., M.Sc.

OAK BROOK, Ill. – A large national study in Denmark following nearly 1,900 patients over almost a decade found that a minimally invasive procedure called ablation is as effective as surgery for treating small kidney cancers, with faster recovery and fewer complications. Results of the study were published today in *Radiology*, a journal of the Radiological Society of North America (RSNA).

The research focused on patients with stage T1a renal cell carcinoma, a cancer that is increasingly found incidentally on CT scans performed for other reasons, such as imaging of the prostate or ovaries.

"These incidental cancers are putting increasing pressure on health care systems," said lead author Iben Lyskjær, Ph.D., M.Sc., associate professor at Aarhus University and Aarhus Hospital in Denmark. "While early detection improves outcomes, it also raises the need for better risk stratification and treatment options."

Surgical tumor resection is the standard of care for stage T1a renal cell carcinoma, but ablation has emerged as a less invasive alternative that could potentially reduce complications, hospital stays and costs. Ablation is an image-guided procedure that destroys tumors using extreme heat (radiofrequency ablation) or cold (cryoablation). Since its introduction in Denmark in 2006, its use has steadily increased.

Dr. Lyskjær and her team conducted a nationwide registry-based cohort study of Danish adults diagnosed with T1a renal cell carcinoma between January 2013 and December 2021 to compare outcomes between patients treated with ablation and those treated with surgery.

"This is not a single center but a nationwide study that reflects the everyday clinical practice in Denmark and what happens to real patients in a national health care system," she said.

Participants included 1,862 patients (median age 64; 1,305 men). Patients were categorized into the ablation group (540), the resection group (1,002), or the nephrectomy—surgical removal of all or part of a kidney—group (320). In the ablation group, 42 patients underwent radiofrequency ablation, while the remaining patients underwent cryoablation.

There was no evidence of a difference in the risk of cancer progression between patients who had ablation and the resection group. However, local recurrence of the disease was more frequent following ablation than resection and nephrectomy (2.41%, 1.20%, and 0%, respectively).

"Although the local recurrence rate was slightly higher in the ablation group, tumors that recur can be successfully treated with another ablation or surgery," Dr. Lyskjær said. "Importantly, patients in the study who had local recurrences did not have worse overall survival."

Distant metastasis—the spread of cancer cells to distant organs or lymph nodes—occurred more frequently in patients who underwent nephrectomy (4.38%) than in those who underwent resection and ablation (1.90% and

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1.67%, respectively). Ablation patients had the shortest hospital stays, with most returning home the same day. They also had the fewest 30-day post-treatment hospital contacts, suggesting fewer complications.

"Our study demonstrated that the overall progression rates were low across all treatment modalities, supporting the effectiveness of both ablation and resection for T1a renal cell carcinoma," she said.

Dr. Lyskjær notes that it's unknown whether the tumors found incidentally would ultimately develop into aggressive cancers.

"That's a good reason to consider using a minimally invasive approach as a broader treatment option," she said. "The best choice depends not only on the patient's characteristics, but also on the patient's preferences. We should be showing patients data and asking the patients what kind of treatment they want."

"Ablation and Surgery Show Comparable Long-term Outcomes for T1a Renal Cell Carcinoma: A Danish Nationwide Registry Study." Collaborating with Dr. Lyskjær were Johanne Ahrenfeldt, Ph.D., M.Sc.Eng., Jesper Jespersen, M.Sc., Pernille Tonnesen, B.Sc., Tommy Kjærgaard Nielsen, M.D., Ph.D., Anna Krarup Keller, M.D., Ph.D., and Laura Iisager, M.Sc.

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For patient-friendly information on ablation, visit *RadiologyInfo.org*.

Images (JPG, TIF):
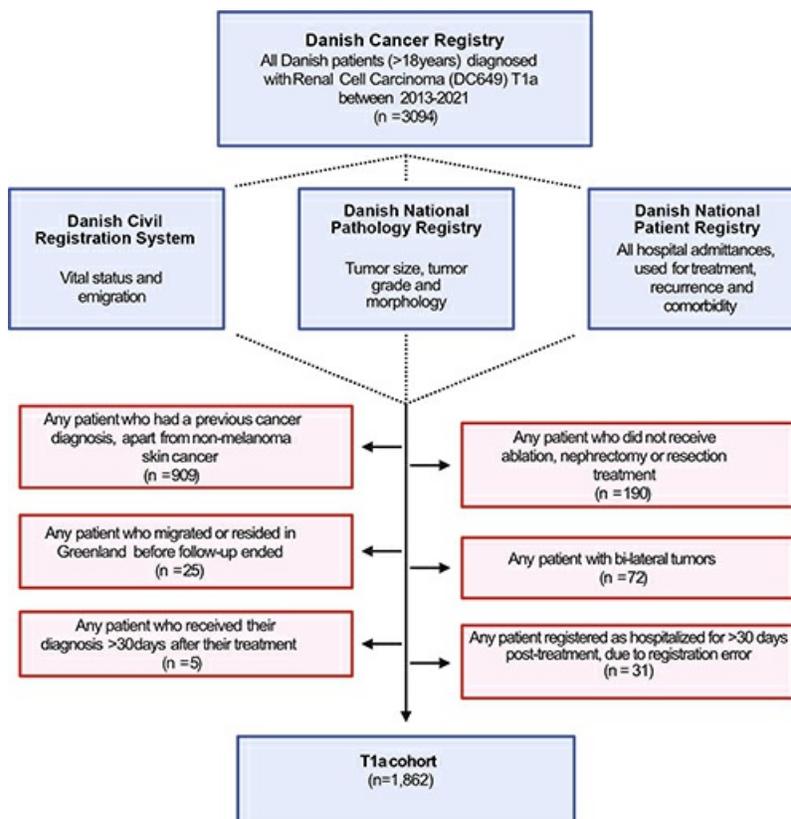


**Figure 1.** Flow diagram of patient selection. Red boxes show excluded patients.

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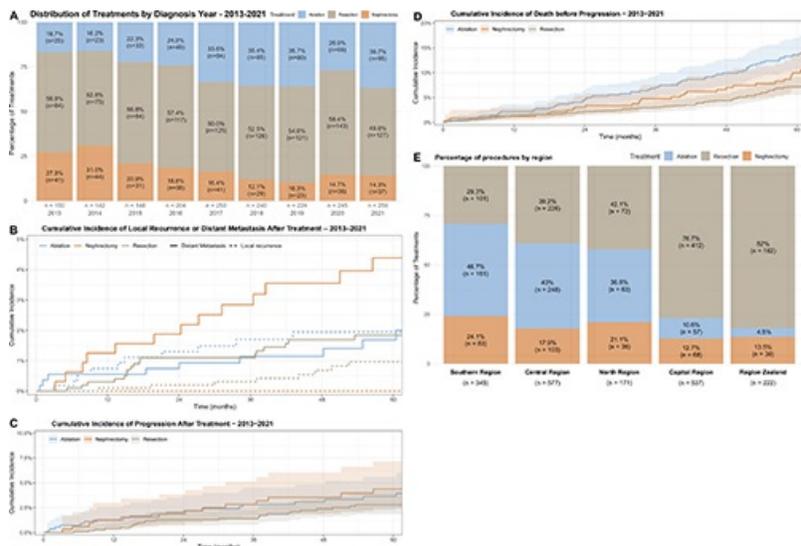Copyright ©2026 Radiological Society of North America (RSNA)

**Figure 2.** Treatment trends over time. **(A)** Bar graph shows distribution of treatments by diagnosis year. **(B)** Line graph shows cumulative incidence of local recurrence (dashed lines) and distant metastasis (solid lines) by treatment group. Time after treatment is plotted on the x-axis, and cumulative percentage of patients with either local recurrence or distant metastasis is plotted on the y-axis. **(C)** Line graph shows cumulative incidence of progression by treatment group. Time after treatment is plotted on the x-axis, and percentage of patients with progression (distant metastasis or local recurrence) is plotted on the y-axis. The shaded areas around the solid lines represent the 95% Cis. **(D)** Line graph shows cumulative incidence of death before progression. Time after treatment is plotted on the x-axis, and percentage of patients dying before progression is shown on the y-axis. The shaded areas around the solid lines represent the 95% CIs. **(E)** Bar graph shows the percentage of patients within each treatment group for the five Danish regions. The total number of cases in each region is shown below each bar.

Resources:

[Abstract link](#)

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