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CASE STUDY: RENAL CRYOABLATION

Using the Trajectory of the Cryoablation Needle to Protect Critical Structures

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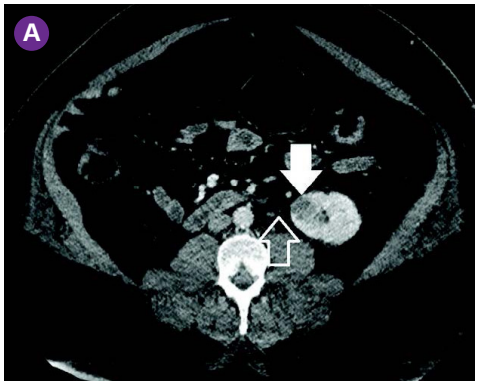
PRESENTATION

- 53-year-old male
- 2.5 cm x 2.3 cm endophytic mass in the anterior aspect of the lower pole of the left kidney discovered incidentally while being evaluated for abdominal pain A
  - Biopsy confirmed clear cell renal cell carcinoma

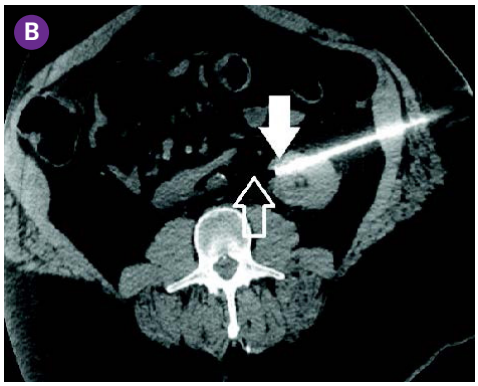


Axial slice from a contrast-enhanced CT scan demonstrates an endophytic mass in the anterior portion of the lower pole of the left kidney (solid white arrow). The ureter is near the potential ablation zone (open white arrow)

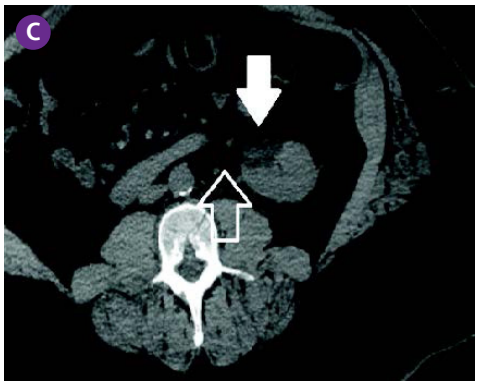
TREATMENT

- A single IceForce™ 2.1 CX ablation needle was placed within the lesion under CT guidance. B C The tip of the ablation needle was pointed toward the ureter since lethal ice only extends 5 mm beyond the tip of the needle. Once an appropriate distance from the ureter was achieved, ablation was performed using:

Cautery was performed prior to needle removal



Axial slice from a non-contrast CT obtained during ablation with the patient in supine position shows the cryoablation needle in excellent position (solid white arrow) with a safe distance from the ureter (open white arrow)



Axial slice from a non-contrast CT obtained during ablation with the patient in supine position shows the iceball (solid white arrow) safely away from the ureter (open white arrow)

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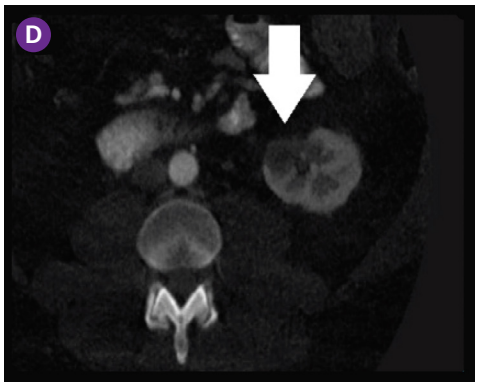
OUTCOME

- The patient was discharged home the same day and no adverse events have been reported
- Follow-up imaging demonstrated no residual or recurrent disease. The patient is now 12 months post ablation D



A subtracted axial slice from a contrast-enhanced CT obtained 12 months post ablation shows an ablation defect in the anterior left kidney without evidence of residual or recurrent disease (white arrow)

CONCLUSION

- Percutaneous cryoablation is a safe and effective treatment for renal cell carcinoma. Critical structures can sometimes be avoided by pointing the needle at the critical structure but leaving the tip > 5 mm away since lethal ice only extends 5 mm beyond the tip

CT: Computed tomography GI: Gastrointestinal RCC: Renal cell carcinoma

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