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LETTER /*Interventional imaging*

Page kidney after radiofrequency ablation of renal tumor: Successful management with percutaneous drainage

KEYWORDS
Acute renal failure;
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Subcapsular hematoma;
Radiofrequency ablation;
Percutaneous drainage

Dear editor,

We here report a patient with acute renal failure due to Page kidney secondary to subcapsular hematoma complicating percutaneous radiofrequency ablation of a renal tumor and its effective management by percutaneous drainage.

An 80-year-old man with a history of left total nephrectomy and chronic renal disease with a baseline serum creatinine level of 186 μmol/L underwent percutaneous radiofrequency ablation of a 28-mm right renal carcinoma using a 30-mm diameter needle (LeVeenTM, Boston Scientific) (Fig. 1A). Control computed tomography examination showed no complications (Fig. 1B). The day after, the patient developed anuria with a serum creatinine level of 383 μmol/L. Contrast-enhanced renal ultrasonography (Sonovue®, Bracco Imaging) revealed a subcapsular hematoma of the kidney measuring 10 × 2.5 cm, with homogeneous enhancement of right renal parenchyma (Fig. 1C). Resistive index of intrarenal arteries was 1, assumably secondary to a compression of the right renal parenchyma (Fig. 1D). Two days after, renal function further worsened with a serum creatinine level of 566 μmol/L. The patient underwent extrarenal purification and decompression of the right renal parenchyma. Percutaneous drainage of the hematoma was performed under ultrasound guidance using a 10-French drain (Navarre®, Bard). One hundred mL of blood was aspirated and the drain was left in place. Post-procedure ultrasound revealed an intrarenal resistive index of 0.78 (Fig. 1E). Patient outcome was favorable with rapid return to baseline values of renal function. Serum creatinine level at discharge was 204 μmol/L. Renal magnetic resonance imaging follow-up at 2- and 6-months later showed regression of the hematoma and no residual renal tumor.

The Page kidney phenomenon refers to the development of renovascular arterial hypertension by compression of the renal parenchyma [1,2]. In addition to its initial description, Page kidney may also present in the form of acute renal failure [1,2]. To date this complication has not been reported following radiofrequency ablation of renal tumor [3]. The diagnosis of acute renal failure due to the Page phenomenon is presumptive, supported by renal duplex ultrasound findings, which include subcapsular or perirenal collection and an increase of the intra-parenchymal arterial resistances with disappearance of the diastolic flow while the renal vein remains patent. It is confirmed by the rapid improvement of renal function after decompression, in the absence of any other causes of impaired renal function. In the absence of improvement of renal function, or in case of worsening despite appropriate medical management, it is necessary to consider decompression of renal parenchyma [1,2]. Percutaneous or surgical drainage should be performed to obtain immediate improvement of intra-parenchymal resistance indexes and rapid return to baseline renal function [1,2]. Hematoma drainage with or without catheter placement is safe and effective. Our observation highlights the need for rapid recognition of Page kidney so that fast decompression by percutaneous drainage can be offered to avoid irreversible renal damage.

Human and animal rights

The authors declare that the work described has been carried out in accordance with the Declaration of Helsinki of the World Medical Association revised in 2013 for experiments involving humans.

Informed consent and patient details

The authors declare that this report does not contain any personal information that could lead to the identification of the patient(s).

The authors declare that they obtained a written informed consent from the patientincluded in the article. The authors also confirm that the personal details of the patient have been removed.

Ethics approval

Written consent was required.

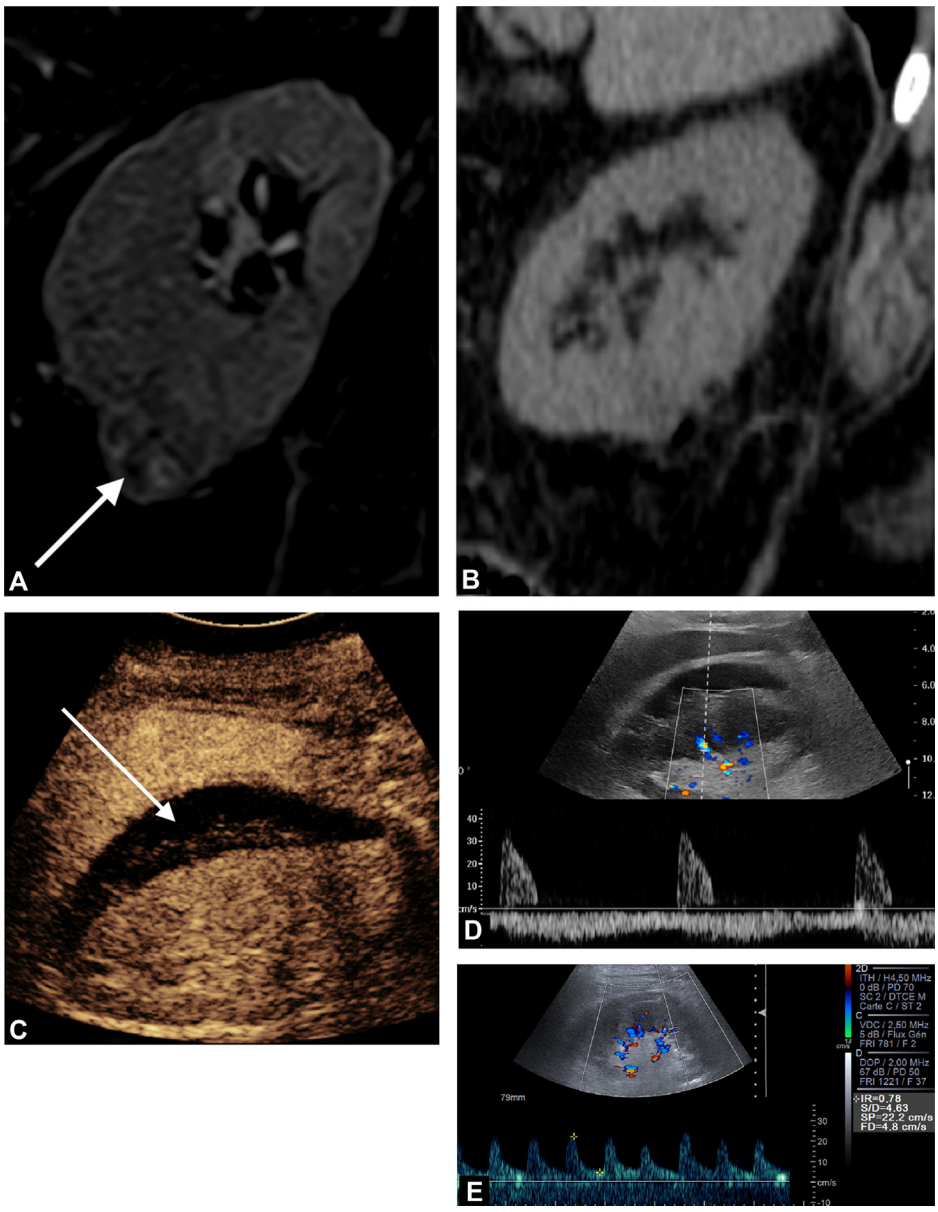

Figure 1. 80-year-old man with Page kidney phenomenon complicating percutaneous radiofrequency ablation of right renal carcinoma. A. Fat-suppressed, T2-weighted magnetic resonance image (TR/TE: 1100/92 ms) in the coronal oblique plane obtained before radiofrequency ablation shows renal tumor (arrow). B. Computed tomography image in the coronal oblique plane immediately after radiofrequency ablation shows no effusion or collection. C. Contrast-enhanced ultrasound (Sonovue®, Bracco Imaging) of right kidney shows subcapsular hematoma (arrow) with homogeneous enhancement of renal parenchyma. D. Doppler ultrasound of right kidney shows increased arterial resistance with resistive index of 1. E. Intrarenal Doppler ultrasound after percutaneous drainage shows decreased resistive index of 0.78.

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Author contributions

All authors attest that they meet the current International Committee of Medical Journal Editors (ICMJE) criteria for Authorship.

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Disclosure of interest

The authors declare that they have no competing interest.

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