

Case Report

Pre-operative embolization for spontaneous rupture of renal cell carcinoma

S Watanabe, Y Hama, T Kaji, F Kimura, S Kosuda

Accepted 12 January 2005

Spontaneous rupture of the kidney as a presenting sign of renal cell carcinoma (RCC) is a rare but potentially lethal condition.¹⁻³ We report a case of spontaneous rupture of RCC successfully treated by emergency transcatheter arterial embolization (TAE) followed by radical nephrectomy. We also discuss the importance of pre-operative TAE as an emergency first aid.

CASE REPORT An 80-year-old man was referred to our hospital for treatment of spontaneous rupture of the left kidney. His past history and family history were not remarkable except for a one-year history of hypertension treated with antihypertensive agents.

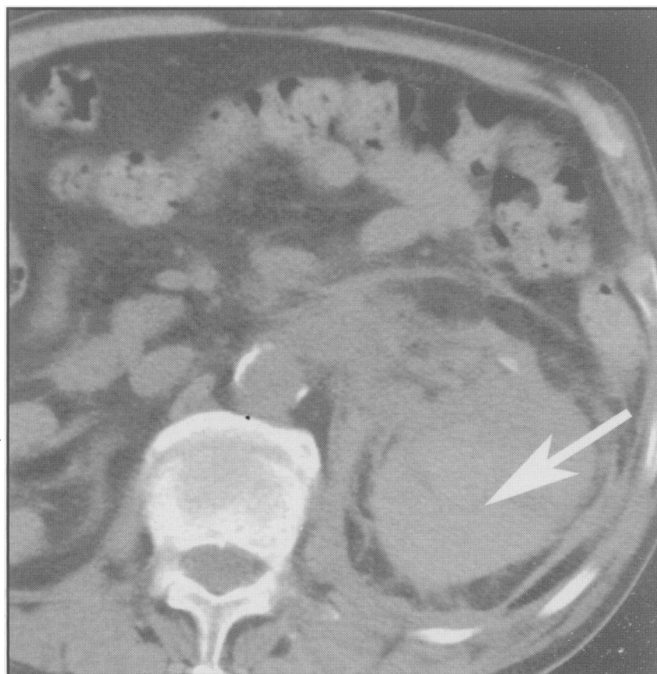


Fig 1a. Unenhanced CT scan shows a large left perinephric hemorrhage containing a fluid-blood level (arrow).



Fig 1b. Contrast-enhanced CT scan at the same level shows an irregular enhancing area (arrow) immediately ventral to the hyperdense hematoma, which is suggestive of the point of rupture.

National Defense Medical College, 3-2 Namiki, Tokorozawa, Saitama, 359-0042, Japan.

Department of Radiology:

S Watanabe, MD.

Y Hama, MD.

T Kaji, MD.

S Kosuda, MD.

Department of Urology:

F Kimura.

Correspondence to Dr Hama.

E-mail: yjhama@me.ndmc.ac.jp

On admission, blood transfusion had been continued due to the progressive anemia. Computed tomography (CT) scan showed a hyperdense non-enhancing perinephric collection adjacent to the ruptured tumor of the left kidney (*Figs. 1a and b*). Left renal arteriogram showed a hypervascular tumor with neovascularization (*Fig. 2*). To arrest the hemorrhage, TAE of the left renal artery was performed using gelatine sponge particles. Immediately after TAE, his hemorrhage was arrested and his condition was stabilized. Eight days after that, radical nephrectomy was performed with negligible intra-operative blood loss. The pathological examination revealed a clear cell RCC (pT3a, N0; stage II according to the Robson's classification). Chest and abdominal CT scans and a bone scan were negative for metastases. He received subcutaneous interferon alpha as adjuvant therapy, and has been free of recurrence for 6 months.

DISCUSSION

Spontaneous rupture of RCC is a rare but potentially lethal condition. The incidence of spontaneous rupture of RCC is 0.3-0.6%.^{1, 2} Nephrectomy when

possible should be performed expeditiously since conservative therapy is unsuccessful. It has been suggested that when bleeding is extensive and the patient is unstable, surgery or renal angiography with embolization is necessary to arrest the bleeding.⁴ In our case, emergency embolization allowed control of the hemorrhage, a clean surgical field and reduced intra-operative blood loss.

To our knowledge, only one previous case of embolization of the spontaneous rupture of RCC was found in the English reports.³ The rupture in the previous case was attributable mainly to the uncontrolled hypertension.³ This case had a history of hypertension; however, it had been well-controlled with antihypertensive agents. We do not consider that the hypertension was attributable to the rupture of RCC in this case.

Thus, this is the first case of non-traumatic and non-hypertensive rupture of RCC successfully treated by emergency TAE followed by radical nephrectomy. The findings in this case support the importance of pre-operative TAE for stabilizing the patient's condition and for preparing for the surgical treatment.

In conclusion, a single case cannot be generalized to others without additional scientific verifications. However, pre-operative TAE should be considered to stabilize the hemorrhagic state in a patient with spontaneous rupture of RCC and an elective surgery should be performed on a non emergency basis in a better patient condition.

REFERENCES

1. Skinner DG, Colvin RB, Vermillion CD, Pfister RC, Leadbetter WE. Diagnosis and management of renal cell carcinoma. A clinical and pathologic study of 309 cases. *Cancer* 1971; 28(5): 1165-77.
2. Patel NP, Lavengood RW. Renal cell carcinoma: natural history and results of treatment. *J Urol* 1978; 119(6): 722-6.
3. Cina G, Lacquaniti S, Destito A, Di Stasi C. Pre-operative percutaneous embolization in a case of spontaneous rupture of renal carcinoma. *Br J Urol* 1998; 81(1): 175-6.
4. Bosniak MA. Spontaneous subcapsular and perirenal hematomas. *Radiology* 1989; 172(3): 601-2.

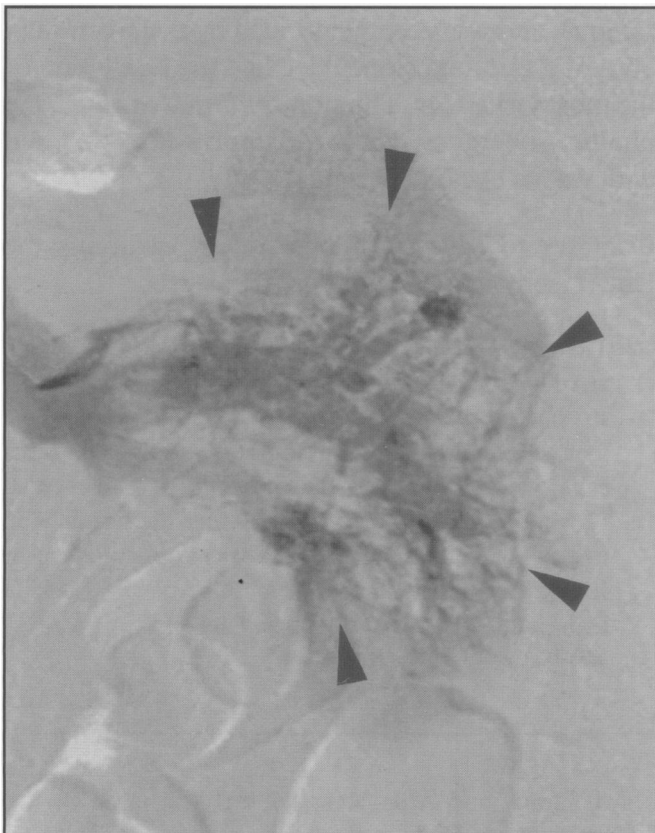


Fig 2. Left renal arteriogram shows a hypervascular tumor with neovascularization (arrowheads).