

Emergency Embolization of Ruptured Giant Renal Angiomyolipoma in a Young Patient with Tuberous Sclerosis

A Bozzi MD¹, A Di Martino MD¹, A Raso MD¹, M Ortenzi MD¹,
A Rizzotto MD², F Chegai MD, PhD¹ and F Coratella MD¹

¹Interventional Radiology Unit, Belcolle Hospital, Viterbo, Italy

²Urology Department, Belcolle Hospital, Viterbo, Italy

We present a case report of a young patient with tuberous sclerosis and massive retroperitoneal bleeding from giant renal angiomyolipoma following a car accident. We treated this patient with emergency embolization procedures.

Keywords: *Emergency; Endovascular; Renal Angiomyolipoma*

Received: 3 February 2021; Accepted: 12 March 2021

Renal angiomyolipoma (AML) is an uncommon benign renal neoplasm (incidence 0.3–3%), often found incidentally during diagnostic imaging [1]. Due to the tumor-vessel architecture featured by dysplastic and abnormal arteries [2], management of renal AML bleeding is challenging. Radical partial nephrectomy and transcatheter arterial embolization (TAE) are considered treatment options [3].

A 24-year-old female patient affected by tuberous sclerosis was transferred to our trauma center because of acute distress with tenderness on palpation of the left flank following a car accident. She had a pulse rate of 105 beats/min, blood pressure of 96/56 mmHg, hemoglobin of 9.2 g/dL, platelet count of 280.000/μL, and normal coagulation parameters (INR: 1.02).

Once hemodynamic stability was obtained, a contrast-enhanced computed tomography (c.e. CT) was performed and a giant bilateral renal AML was revealed with a massive retroperitoneal hematoma and active bleeding from the left renal tumor (Figure 1). After multidisciplinary consultation, and considering her young age, the tumor size and the cause of bleeding, the patient was referred to our interventional radiology department for TAE.

Under local anesthesia, a 5-Fr sheath introducer was placed into the right common femoral artery. A preliminary aortogram with 5-Fr pigtail catheter was performed to exclude polar renal artery or proximal renal capsular artery bleeding. Then, a left renal artery angiography was carried out using a 5-Fr catheter in order to detect bleeding feeder vessels (BFVs) (Figure 2). A super selective approach to BFVs was obtained using a 2.4-Fr microcatheter. Embolization of subcapsular bleeding was performed using microsphere 100–300 μm (Bead Block, Boston Scientific) and then a BFV ligation was obtained with coils (Axium™ MicroFX™, Medtronic) with complete occlusion of bleeding spots.

After 48 h, c.e. CT showed the absence of bleeding, with initial resorption of the retroperitoneal hematoma

Corresponding author:

Fabrizio Chegai MD, Interventional Radiology Unit, Belcolle Hospital, Str. Sarmartinese, 01100 Viterbo VT, Italy.

Email: fabrizio.chegai@gmail.com

© 2021 CC BY 4.0 – in cooperation with Depts. of Cardiothoracic/Vascular Surgery, General Surgery and Anesthesia, Örebro University Hospital and Örebro University, Sweden

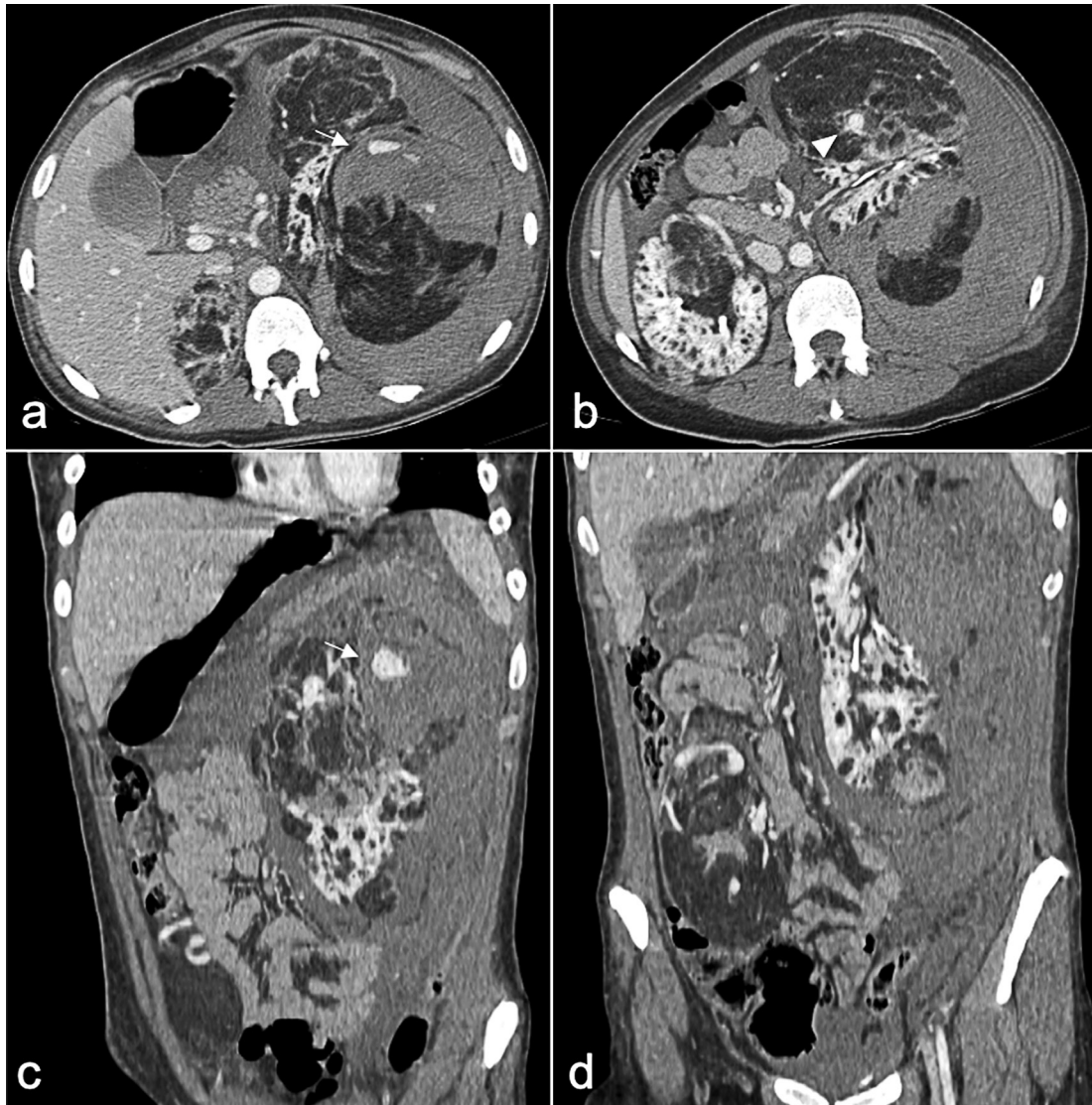


Figure 1 Contrast-enhanced computed tomography (CT) shows an exophytic superior renal pole, well-enhanced giant angiomyolipoma (AML) characterized by 18 cm of longitudinal diameter, with massive retroperitoneal hematoma and active bleeding (*arrows; a,c*) from left renal tumor. (*b*) The tumor, in the ventral lateral position in the left kidney, also contains microaneurysms (*arrowhead*). (*d*) Coronal reconstruction better defines longitudinal extension of AML.

and no sign of tumor necrosis or immediate changes in AML size (Figure 3). The patient was dismissed after 1 week.

Ethics Statement

- (1) All the authors mentioned in the manuscript have agreed to authorship, read and approved the manuscript, and given consent for submission and subsequent publication of the manuscript.
- (2) The authors declare that they have read and abided by the JEVTM statement of ethical standards including rules of informed consent and ethical committee approval as stated in the article.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

Author Contributions

All authors contributed substantially to the study and writing of the manuscript.



Figure 2 (a) Left renal angiography before embolization shows tumor staining and tortuous feeding arteries with a microaneurysm. (b) Subcapsular bleeding was detected after super-selective catheterization with subsequent embolization with particles and coils. (c) Angiography control after embolization with particles. (d,e) Postembolization angiogram shows occlusion of blood flow to the upper-pole angiomyolipoma. Note the preservation of flow to more normal-appearing interpole renal parenchyma.

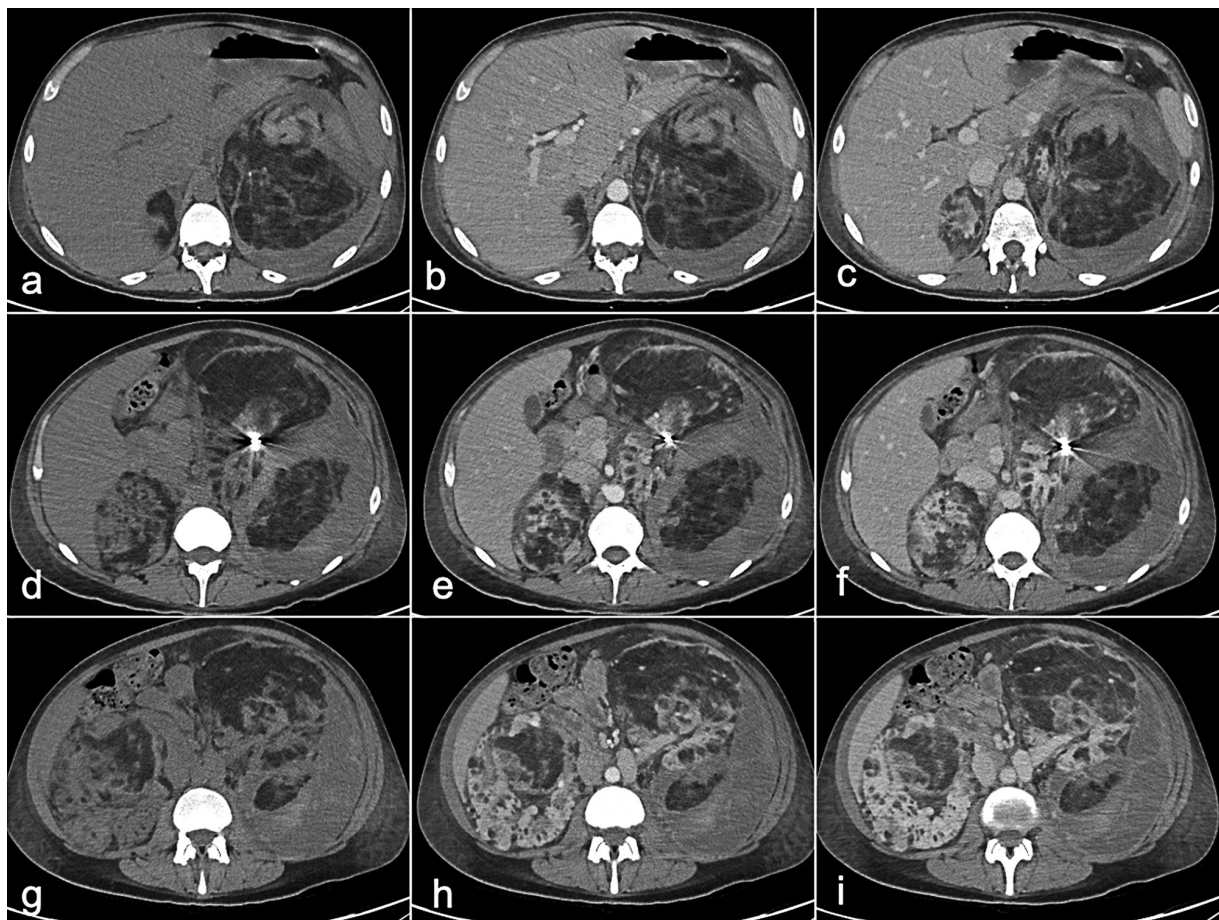


Figure 3 Embolized tumor stain and bleeding signs disappear after embolization using microspheres and microcoils. Normal renal parenchyma is retained, and a residual untreated tumor is shown. Moreover, initial resorption of the retroperitoneal hematoma without signs of tumor necrosis was observed.

REFERENCES

- [1] Zhang JQ, Fielding JR, Zou KH. Etiology of spontaneous perirenal hemorrhage: a meta-analysis. *J Urol.* 2002;167:1593–6.
- [2] Karbowniczek M, Yu J, Henske EP. Renal angiomyolipomas from patients with sporadic lymphangiomyomatosis contain both neoplastic and non-neoplastic vascular structures. *Am J Pathol.* 2003;162:491–500.
- [3] Flum AS, Hamoui N, Said MA, et al. Update on the diagnosis and management of renal angiomyolipoma. *J Urol.* 2016;195(4 Pt 1):834–46.