Urology Case Reports 19 (2018) 18–19

Contents lists available at ScienceDirect

Urology Case Reports

journal homepage: www.elsevier.com/locate/eucr

Trauma and reconstruction

Primary arteriocalicial fistula: A dangerously rare cause of hematuria

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Introduction

Renal arteriovenous malformations (AVMs) and the novo arteriocalicial fistulas are rare vascular malformations that cause hematuria.

Case presentation

A 58-year-old man was admitted to the Hospital through the Emergency Room due to sudden onset massive anemizing hematuria with clots. The patient denies previous trauma, nephritic colic or endoscopic or surgical procedures that justify bleeding. His personal medical history was only HTA and uncomplicated nephritic colic 25 years before.

Upon arrival, abdominal ultrasound was done, being normal with only pathological finding of bladder mass compatible with free clot. Abdominal CT was done (Fig. 1), where dilatation of the left renal pelvis was evidenced, occupied by high-density material due to the hematoma, and contrasting staining of the lower calicial group of the left kidney due to probable arteriocalicial fistula, as well as increased density of perirenal space and left anterior renal fascia due to hematoma. The patient's hemoglobin was 14.3 g/dl upon admission.

Arteriography and selective embolization were performed immediately (Fig. 2), with access through arterial femoral puncture to the left renal artery. Selective and supraselective catheterization with microcatheters showed arteriocalicial fistula between the lower branch, dependent on the upper segmental area of the left kidney. Fistula was closed with Glue Lipiodol® with good post-embolization result and without evidence of complications (Fig. 3). After embolization, the patient was discharged 48 hours later with stable hemoglobin of 10.4 g/dl.

Eight months later the patient has not had any new episodes of hematuria or complications, with an ultrasound and angio-CT controls that showed a normal left kidney without vascular or morphological alterations.

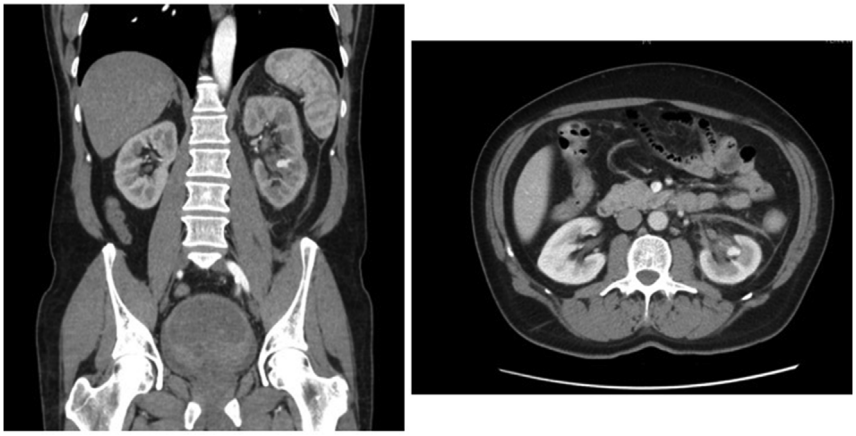

Fig. 1. Angio-CT: dilatation of the left renal pelvis occupied by high-density material due to the hematoma, contrasting staining of the lower calicial group of the left kidney due to probable arteriocalicial fistula, increased density of perirenal space and left anterior renal fascia due to hematoma.

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https://doi.org/10.1016/j.eucr.2018.03.019
Received 22 March 2018; Accepted 28 March 2018
Available online 10 April 2018

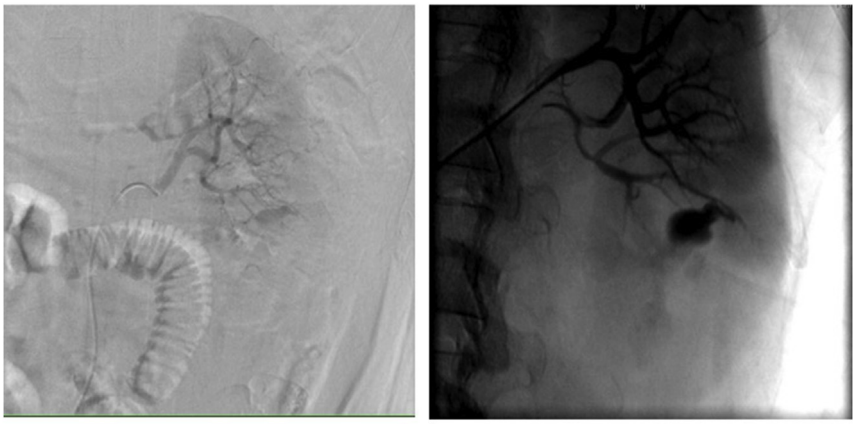

Fig. 2. Arteriography: selective and supraselective catheterization with microcatheters shows arteriocalicial fistula between the lower branch, dependent on the upper segmental area of the left kidney.

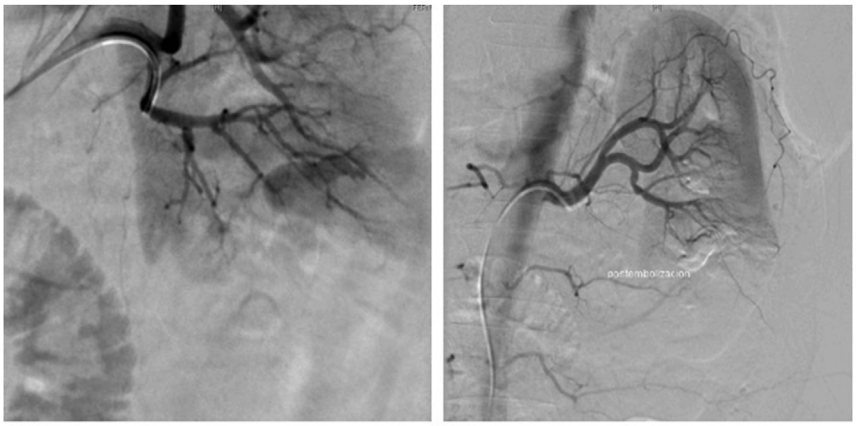

Fig. 3. Selective embolization: use Glue Lipiodol® for the sealing of the arteriocalicial fistula.

Discussion

For unexplained massive hematuria, congenital renal AVM needs to be considered as a differential diagnosis. If it is not diagnosed in a short period of time it could suppose a catastrophic result for the patient.[1] An arteriovenous malformations or fistula of the urologic tract may be either congenital or acquired. The latter is more common and usually secondary to trauma or intervention. The primary presenting sign is gross hematuria, but high-output heart failure and hypertension also may be seen.[2] The latter is presumably due to activation of the renin-angiotensin system resulting from ischemia distal to the AVM.[3]

Ultrasound with Doppler is the exam used to evaluate for suspected renal AVM or fistula as it allows for detection of high-flow velocity. If positive, diagnosis is confirmed by conventional fluoroscopic angiography, which can be combined with selective embolization therapy in the same setting.[1,4] Selective and superselective renal embolization is a generally accepted technique for treating traumatic or iatrogenic renal arteriovenous fistulas or arteriocalicial fistulas. Selective renal angiography and embolization should be recommended as the first choice to treat massive hematuria secondary to congenital renal AVM.[1,4] Coils, gelatin sponges, or liquid glues are injected usually in combination for endovascular sclerotherapy. Only a minority are pure arteriocalicial fistulas. During embolization, an arteriovenous fistula may become a frankly bleeding arteriocalicial fistula, causing massive hematuria and necessitating further embolization [9]. Surgery or nephroscopy can be performed if embolization is ineffective or the hematuria recurs.[3–5]

Conclusions

The arterio-calicial fistula should be considered in the differential diagnosis of hematuria as the origin of bleeding because of its potential risk of complications.

References

1. Zhang B, Jiang ZB, Huang MS, et al. The role of transarterial embolization in the management of hematuria secondary to congenital renal arteriovenous malformations. *Urol Int.* 2013;91:285.
2. Cokkinos P, Doulaptsis C, Chrissos D, et al. Listen to my kidney!. *Lancet.* 1944;2009:374.
3. Crotty KL, Orihuela E, Warren MM. Recent advances in the diagnosis and treatment of renal arteriovenous malformations and fistulas. *J Urol.* 1993;150:1355.
4. Murata S, Onozawa S, Nakazawa K, et al. Endovascular embolization strategy for renal arteriovenous malformations. *Acta Radiol.* 2014;55:71.
5. Philipoff AC, Ramsay D, Weber DG. Acute traumatic renal arteriocalyceal fistula: selective angioembolisation for haemodynamic instability. *BMJ Case Rep.* 2017. http://dx.doi.org/10.1136/bcr-2016-216795 2017 Jan 4, pii: bcr2016216795.