

Images of Interest / Imagens de Interesse

Bilateral Renal Pelvis Rupture After Endovascular Thrombectomy

Rutura Bilateral da Pelve Renal Após Trombectomia Endovascular

Helena Martins Gomes¹, Pedro Melo², Diogo Castelo², Pedro Patrão¹, António Almeida¹

¹Serviço de Radiologia, Unidade Local de Saúde Viseu Dão-Lafões, Viseu, Portugal

²Serviço de Radiologia, Unidade Local de Saúde de Gaia e Espinho, Vila Nova de Gaia, Portugal

Address

Helena Martins Gomes
Serviço de Radiologia
Unidade Local de Saúde Viseu Dão-Lafões
Avenida Rei Dom Duarte
3509-504 Viseu, Portugal
e-mail: hln.gomes@gmail.com

Received: 03/08/2025

Accepted: 10/01/2026

Published:



Abstract

We report a rare case of bilateral renal forniceal rupture detected on computed tomography after endovascular thrombectomy for acute ischaemic stroke. The likely cause was contrast-induced diuresis and transient bladder outflow obstruction. The patient remained asymptomatic and was managed conservatively. Recognition of this entity prevents unnecessary intervention in similar cases.

Keywords

Renal pelvis; Urine leak; Iodinated contrast media.

Resumo

Apresentamos um caso raro de rutura bilateral dos fôrnices renais, detetada em tomografia computadorizada após trombectomia endovascular por acidente vascular cerebral isquémico. Uma causa provável relaciona-se com diurese induzida por contraste iodado e obstrução transitória do trato de saída vesical. A paciente permaneceu assintomática, tendo sido adotada uma estratégia conservadora. O reconhecimento desta entidade evita intervenções desnecessárias em casos semelhantes.

Palavras-chave

Pelve renal; Extravasamento urinário; Meio de contraste iodado.

Case presentation

A 51-year-old female presented to the emergency department with acute-onset right-sided hemiparesis. Imaging revealed an occlusion of the proximal M1 segment of the left middle cerebral artery. The patient underwent urgent endovascular thrombectomy.

In the setting of the stroke, the patient sustained a ground-level fall and presented with right-sided flank pain and tenderness on palpation. After the emergent procedure, a contrast-enhanced computed tomography (CT) scan of the abdomen and pelvis was performed to assess for complications. Imaging obtained prior to administration of additional intravenous contrast demonstrated bilateral peripelvic contrast extravasation from prior angiography (Fig. 1). The urinary bladder was well-distended despite the presence of a correctly positioned indwelling catheter

(Fig. 2). There was no evidence of renal or collecting system traumatic injury, calculi or structural abnormalities.

The patient remained hemodynamically stable and asymptomatic and conservative management was adopted. Follow-up imaging showed resolution of the previous findings.

Discussion

Spontaneous renal pelvis rupture is a rare complication of acute urinary tract obstruction. It results from rapidly increasing intraluminal pressure within the collecting system, that outgrows the slow adaptative mechanisms seen in chronic hydronephrosis.¹ The sudden elevation in pyeloureteral pressure exceeds the tensile limits of the forniceal wall, resulting in rupture with urine extravasation.¹ The most common cause is obstructing ureteric calculi.¹ Less common

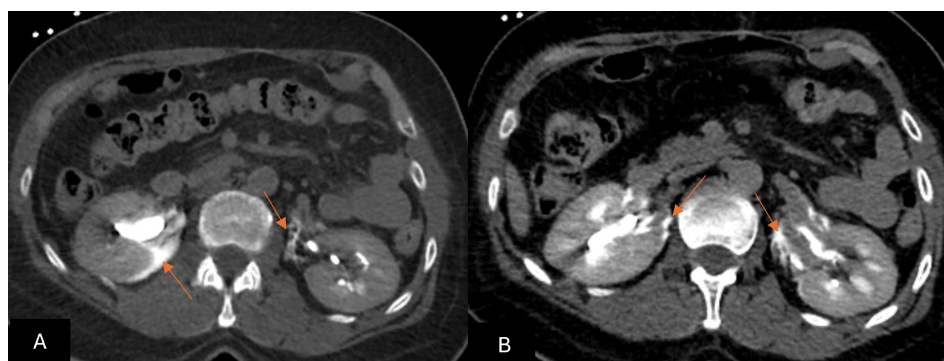


Figure 1 – Abdominal CT before endovenous contrast administration showed bilateral contrast material extravasation at the level of renal pelvis (arrows in A and B), probably from the recent angiographic procedure, consistent with forniceal rupture.

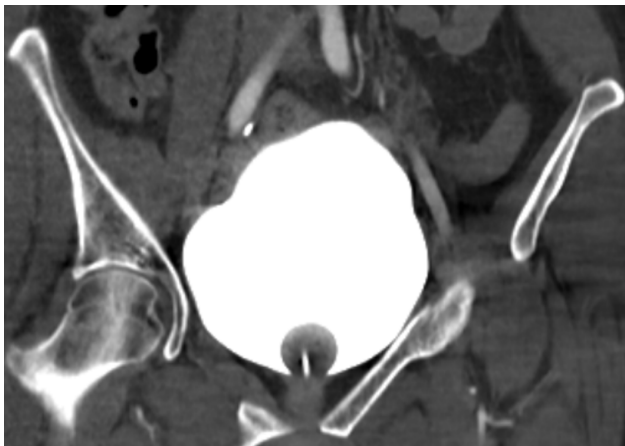


Figure 2 – The urinary bladder is well distended, with a correctly positioned indwelling catheter.

aetiologies include extrinsic compression, posterior urethral valves, ureteropelvic junction obstruction, malignancy, and iatrogenic causes.¹

Iodinated contrast agents play a role in precipitating forniceal rupture, as they act as osmotic diuretics and may cause a transient increase in urine production and collecting system pressure.²

In the present case, bilateral contrast extravasation at the level of the renal pelves was identified on abdominal CT after an angiographic procedure. There was no evidence of ureteric obstruction and no structural renal or ureteral abnormality.

Although the patient sustained a fall, it was a low-mechanism injury, with no CT evidence of traumatic lesions. While the precise pathophysiology remains speculative in this single case, despite the indwelling catheter being correctly positioned, the urinary bladder was markedly distended on CT, suggesting impaired drainage, which may occur transiently during procedural handling or high urine output states. A sudden, transient rise in intrapelvic pressure during the recent angiographic procedure may have contributed to forniceal rupture. It is worth noting that a few cases of spontaneous rupture have been reported in association with iodinated contrast administration, even in the absence of urinary tract obstruction.²

While the risk of complications such as perinephric urinoma, abscess formation, sepsis, or renal function deterioration is well documented,³ recent literature supports a conservative management approach in uncomplicated cases. Morgan et al.³ suggest that in the absence of infection, obstruction, or clinical deterioration, spontaneous resolution of forniceal rupture is common, and unnecessary antibiotic or surgical overtreatment should be avoided.

Conclusion

This case illustrates a rare but potential iatrogenic cause of bilateral renal forniceal rupture following contrast administration. Conservative management remains appropriate in stable, asymptomatic patients without signs of infection or obstruction.

Ethical Disclosures / Divulgações Éticas

Conflicts of interest: The authors have no conflicts of interest to declare.

Conflitos de interesse: Os autores declaram não possuir conflitos de interesse.

Financing Support: This work has not received any contribution, grant or scholarship.

Suporte financeiro: O presente trabalho não foi suportado por nenhum subsídio ou bolsa.

Confidentiality of data: The authors declare that they have followed the protocols of their work center on the publication of data from patients.

Confidencialidade dos dados: Os autores declaram ter seguido os protocolos do seu centro de trabalho acerca da publicação dos dados de doentes.

Protection of human and animal subjects: The authors declare that the procedures followed were in accordance with the regulations of the relevant clinical research ethics committee and with those of the Code of Ethics of the World Medical Association (Declaration of Helsinki).

Proteção de pessoas e animais: Os autores declaram que os procedimentos seguidos estavam de acordo com os regulamentos estabelecidos pelos responsáveis da Comissão de Investigação Clínica e Ética e de acordo com a Declaração de Helsínquia da Associação Médica Mundial.

References

1. Gershman B, Kulkarni N, Sahani DV and Eisner BH. Causes of renal forniceal rupture. *BJU International*; 2011;108:1909-11. doi:10.1111/j.1464-410X.2011.10164.x
2. Li Z, Beh JCY. Spontaneous bilateral renal pelvis rupture during CT in the absence of urinary tract obstruction: case report. *BMC Urol*. 2020;20:98. doi:10.1186/s12894-020-00669-4
3. Morgan TN, Bandari J, Shahait M, Averch T. Renal Forniceal Rupture: Is Conservative Management Safe? *Urology*. 2017;109:51-4. doi:10.1016/j.urology.2017.07.04