

# Renal keratinising desquamative squamous metaplasia: all that hurts is not stone

Abhilash Koratala,<sup>1</sup> Irfan Qadri,<sup>1</sup> Vincent Bird,<sup>2</sup> Rupam Ruchi<sup>1</sup>

<sup>1</sup>Department of Medicine/  
Nephrology, University of  
Florida, Gainesville, Florida, USA  
<sup>2</sup>Department of Urology,  
University of Florida, Gainesville,  
Florida, USA

**Correspondence to**  
Dr Rupam Ruchi, Rupam.  
Ruchi@medicine.ufl.edu

Accepted 12 June 2017

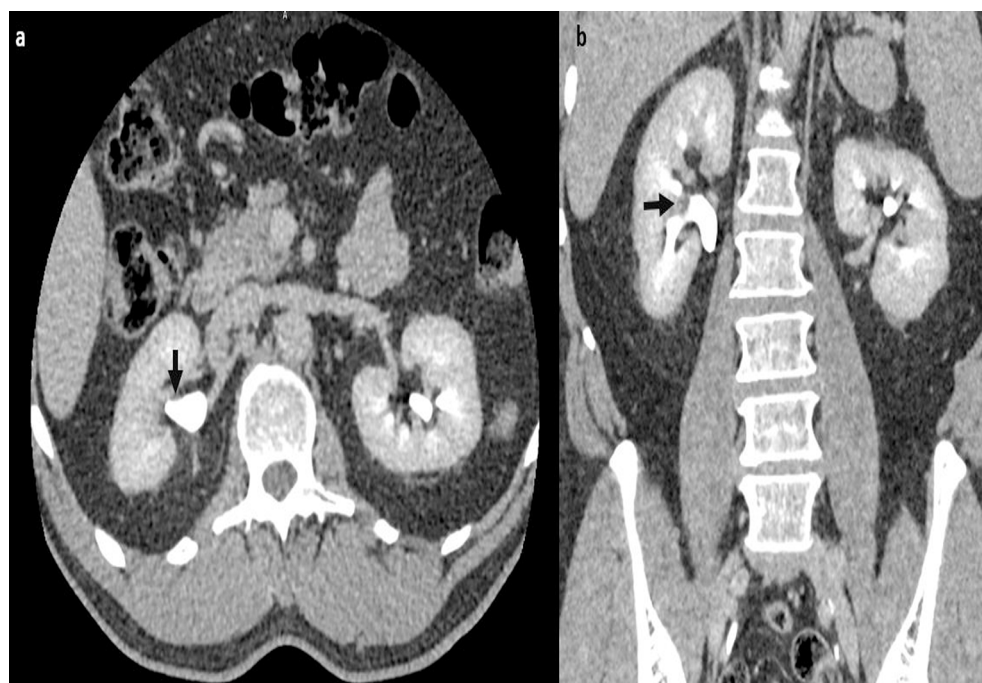
## DESCRIPTION

A 66-year-old Caucasian man with history of hypertension, hyperlipidaemia and 16 pack-year smoking was referred to us for evaluation of recurrent right-sided flank pain and suspected nephrolithiasis. His first episode of pain was 2 years prior to presentation, which was recurrent. There was no associated haematuria, dysuria, fever, chills, urinary hesitancy or incontinence. There was no family history of stones. He underwent multiple ureteroscopies, which have shown glistening, soft, acellular debris in the upper ureter. Last ureteroscopy and pyeloscopy showed normal underlying mucosa, renal pelvis and calyces with no evidence of malignancy. Subsequent MRI also did not show any malignancy. The last available pathology showed minute fragments of acellular keratin debris. Interestingly, he never had imaging evidence of renal stone, although had mild hydronephrosis one time. CT urogram demonstrated an ill-defined filling defect in the anterior right renal pelvis measuring approximately 13×3 mm in axial dimensions (*figure 1*). During the episodes of flank pain, he can feel 'something' sloughing off and traversing through the ureter. Excreted material is shown in *figure 2*. The presence of keratin in the ureteroscopic specimen indicated

squamous metaplasia of the urothelial tract. We thus diagnosed him with renal keratinising desquamative squamous metaplasia (KDSM) and treated conservatively with adequate hydration and pain management.

KDSM is a condition in which the urothelium of the urinary tract is replaced with keratinised squamous epithelial cells. It can be confused with nephrolithiasis and/or neoplasia based on symptoms and appearance on imaging. Risk factors include chronic infection, stone disease or irritant exposure including smoking.<sup>1</sup> There is no universally accepted treatment for this condition and was traditionally managed with radical measures such as nephroureterectomy.<sup>2</sup> Current trend is towards conservative management, with endoscopic or open nephron-sparing procedures reserved for those with ureteral obstruction by desquamated keratinous material. KDSM has been associated with squamous cell carcinoma and transitional cell carcinoma without any proven causative relationship. Given the unlikely but possible transition to malignancy, it is prudent to monitor these patients with annual imaging.<sup>3</sup>

**Contributors** AK: Evaluated the patient in the clinic and prepared the initial draft. IQ: Procured the images and helped in the evaluation of patient as well. VB: Urology attending who first

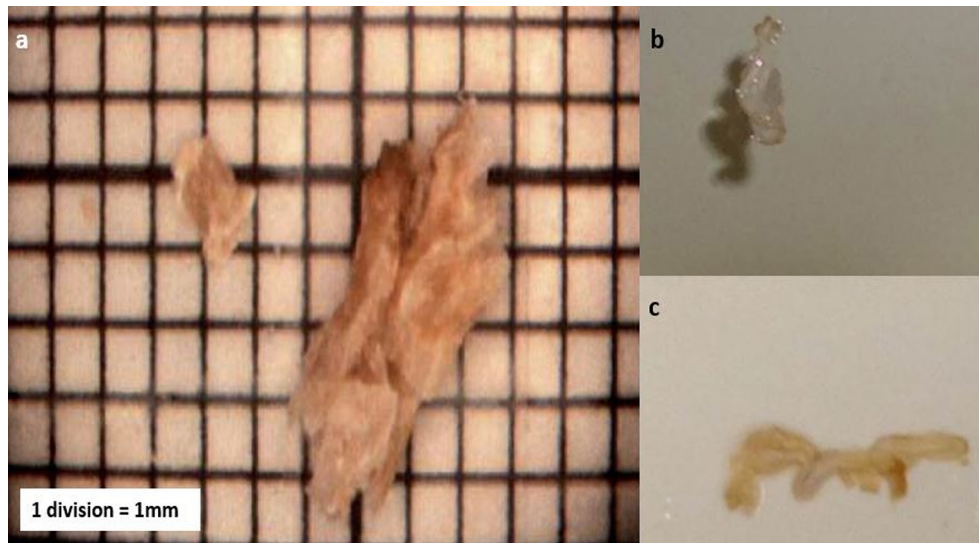


**Figure 1** Transverse (A) and coronal (B) views of the CT urogram demonstrating filling defect in the right renal collecting system.



CrossMark

**To cite:** Koratala A, Qadri I, Bird V, et al. *BMJ Case Rep* Published Online First: [please include Day Month Year]. doi:10.1136/bcr-2017-220682



**Figure 2** (A) Material obtained from the patient's right renal pelvis during ureteroscopy. (B,C) Debris from the patient's urine. Material in (A) was analysed by the lab and reported to be 100% mucin.

### Learning points

- ▶ Renal keratinising desquamative squamous metaplasia (KDSM) is a rare condition that can mimic nephrolithiasis or malignancy.
- ▶ Patients typically present with pain, resembling renal colic, and often the differential diagnosis is kidney stone. However, the history of passing flake-like or cornified material in the urine and the presence of upper urinary tract filling defect on imaging should raise the suspicion for KDSM.
- ▶ Treatment is conservative with pain management and imaging surveillance. Extirpative surgery is reserved for severe cases or those with complications.

saw the patient and did the ureteroscopic procedures. RR: Nephrology attending

who supervised the evaluation and guided the management. She also reviewed and revised the manuscript for critically important intellectual content.

**Competing interests** None declared.

**Patient consent** Obtained.

**Provenance and peer review** Not commissioned; externally peer reviewed.

© BMJ Publishing Group Ltd (unless otherwise stated in the text of the article) 2017. All rights reserved. No commercial use is permitted unless otherwise expressly granted.

### REFERENCES

- 1 Beyer-Boon ME, Cuypers LH, de Voogt HJ, *et al*. Cytological changes due to urinary calculi: a consideration of the relationship between calculi and the development of urothelial carcinoma. *Br J Urol* 1978;50:81–9.
- 2 Ganeshappa A, Krambeck A, Grignon DJ, *et al*. Endoscopic management of keratinizing desquamative squamous metaplasia of the upper tract: a case report and review of the literature. *J Endourol* 2009;23:1277–9.
- 3 Borofsky M, Shah RB, Wolf JS. Nephron-sparing diagnosis and management of renal keratinizing desquamative squamous metaplasia. *J Endourol* 2009;23:51–6.

Copyright 2017 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.  
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact [consortiasales@bmjgroup.com](mailto:consortiasales@bmjgroup.com)

Visit [casereports.bmj.com](http://casereports.bmj.com) for more articles like this and to become a Fellow